

PROJECT ENERGY

25-Year Energy Plan Goals for Arizona

The **Canada Arizona Business Council (CABC)** has recognized that energy is the foundation of Arizona's economic future. As the state embarks on a period of rapid growth, technological advancement, and population expansion, a comprehensive and forward-thinking **25-year energy strategy** is crucial to support the diverse demands of the economy. This plan must leverage multiple energy sources and innovations, ensuring that Arizona's energy infrastructure is adaptable, reliable, and sustainable for decades to come. Below are the key goals for this initiative, along with actionable steps that align with the CABC's vision of a resilient, high-tech, and energy-efficient future.

1. Diversify Arizona's Energy Mix

Goal: Create a balanced, reliable, and future-proof energy grid by diversifying energy sources to include clean, renewable, and traditional power generation technologies, adapted to the state's geographical needs.

- **Action Steps:**

- Increase investment in **solar energy**, capitalizing on Arizona's high solar potential, while integrating **energy storage** solutions to address intermittency issues.
- Explore **geothermal** and **biomass** as supplementary renewable sources in specific regions, particularly in rural and remote areas.
- Phase out **coal** and reduce dependence on **natural gas** by increasing the share of **nuclear power**, particularly from the **Palo Verde nuclear plant**, and ramping up **wind** energy production.
- Expand the use of **hydroelectric power** through improved infrastructure, while investigating **desalination energy** solutions to address water scarcity concerns.

Outcome: Achieve a **cleaner, more resilient energy portfolio** that ensures energy reliability during peak demand periods, reduces carbon emissions, and attracts clean energy investments.

2. Scale Up Renewable Energy and Clean Technologies

Goal: Position Arizona as a leader in clean energy and green technologies by harnessing the full potential of renewable resources, including solar, wind, and emerging technologies like **advanced nuclear** and **hydrogen power**.

- **Action Steps:**
 - Establish **solar power plants** at scale across Arizona, incorporating **advanced solar technologies** such as **solar thermal** and **concentrated solar power (CSP)** to increase efficiency.
 - Invest in **wind energy** by conducting further research on wind potential in Arizona, particularly in northern and high-elevation areas.
 - Partner with **research institutions** and **private sector leaders** to explore the feasibility of **advanced nuclear reactors**, such as **small modular reactors (SMRs)**, which provide a safer, cleaner, and more flexible energy option.
 - Develop **hydrogen energy** projects, including **green hydrogen**, which can serve as a clean fuel for heavy industries, transportation, and grid storage.

Outcome: Achieve a **clean energy future** where Arizona is a net exporter of renewable energy and a hub for innovation in clean technologies.

3. Expand Energy Storage and Grid Modernization

Goal: Ensure that Arizona's energy grid can meet future demand by investing in modernized infrastructure, energy storage solutions, and **smart grid** technologies.

- **Action Steps:**
 - Develop **large-scale energy storage** projects, including **lithium-ion batteries**, **pumped hydro storage**, and emerging technologies like **solid-state batteries** to store excess renewable energy.
 - Implement **smart grid** technologies across Arizona to enhance grid reliability, enable real-time monitoring, and facilitate **demand response** programs that balance supply with fluctuating energy needs.
 - Enhance grid connectivity and establish **energy exchange agreements** with neighboring states to ensure Arizona has access to external energy resources during peak demand periods.
 - Support the development of **microgrids** in remote and rural communities to enhance energy independence and reduce grid vulnerability.

Outcome: Build a **modern, resilient, and flexible grid** capable of handling future energy demands and seamlessly integrating a higher percentage of renewable sources.

4. Promote Electric Vehicle (EV) Infrastructure and Clean Transportation

Goal: Accelerate the transition to clean, sustainable transportation by investing in **electric vehicle (EV)** infrastructure, including charging stations and **EV battery manufacturing**.

- **Action Steps:**

- Expand the **EV charging network** across Arizona to ensure that every urban and rural area has access to convenient and reliable charging infrastructure.
- Partner with manufacturers to **develop and scale up EV battery production** within Arizona, attracting global players in the EV and energy storage industries.
- Incentivize the adoption of **electric vehicles** through tax credits, rebates, and private-public partnerships aimed at reducing upfront costs.
- Invest in **clean fuel** technologies such as **electric buses, trucks, and hydrogen-powered vehicles**, particularly for **public transportation** and **logistics** sectors.

Outcome: Achieve widespread adoption of electric vehicles and clean transportation systems, significantly reducing Arizona's carbon footprint and improving air quality.

5. Address Water-Energy Nexus and Sustainable Practices

Goal: Develop a comprehensive plan that integrates water and energy conservation strategies, ensuring long-term sustainability for both resources in Arizona's arid climate.

- **Action Steps:**

- Promote the use of **wastewater treatment plants for energy production**, similar to the **Palo Verde Nuclear Power Plant's** use of wastewater for cooling.
- Invest in water-efficient **cooling technologies** for power plants to reduce the environmental impact of water consumption.
- Expand **water recycling** technologies and **desalination** projects powered by renewable energy, ensuring access to water for agricultural, industrial, and residential uses.
- Collaborate with **agriculture** and **mining** sectors to develop energy-efficient **irrigation** and water management systems that reduce energy consumption.

Outcome: Create a **synergistic approach** to managing water and energy resources, ensuring sustainability and efficiency in both sectors, and preparing for future water scarcity challenges.

6. Increase Access to Affordable and Reliable Power

Goal: Ensure that all Arizona residents, businesses, and industries have access to affordable, reliable, and clean energy, regardless of location or economic status.

- **Action Steps:**

- Implement **tiered energy pricing** that incentivizes energy conservation while ensuring low-income households have access to affordable energy.
- Invest in **decentralized energy sources**, such as **home solar installations** and **community solar farms**, to empower individuals and communities to become more energy-independent.
- Enhance energy access for **rural areas** and **Indian reservations**, where access to reliable power is often limited.
- Explore **power purchase agreements (PPAs)** with private entities to reduce the burden on government-funded infrastructure projects.

Outcome: Achieve **universal access to reliable and affordable energy** that supports Arizona's diverse population and industries, from urban centers to rural communities.

7. Foster Collaboration Between Government, Industry, and Academia

Goal: Build a **collaborative ecosystem** that fosters innovation and ensures the successful implementation of Arizona's 25-year energy strategy.

- **Action Steps:**

- Establish a **state-level energy task force** composed of government agencies, business leaders, energy experts, and academic institutions to guide the implementation of the energy plan.
- Facilitate **public-private partnerships** that drive innovation in energy generation, distribution, and storage technologies.
- Support energy-focused **research and development programs** at Arizona's universities and research centers, particularly in **clean energy, energy storage, and smart grid technologies**.
- Strengthen relationships with **international partners**, especially Canada, to explore opportunities for cross-border energy cooperation and investment.

Outcome: Create a **unified, action-oriented approach** to energy development that ensures Arizona remains at the forefront of energy innovation and sustainability.

8. Lead in Energy Education and Workforce Development

Goal: Ensure a skilled workforce is ready to meet the energy challenges of the future through targeted education, training, and workforce development programs.

- **Action Steps:**

- Expand **energy-focused curricula** at Arizona's universities, community colleges, and technical schools to meet the growing demand for clean energy professionals.
- Partner with energy companies to provide **apprenticeships, internships, and job placement programs** for students in the energy sector.
- Launch statewide initiatives to retrain workers from traditional energy sectors (e.g., coal) for roles in renewable energy, energy storage, and clean technology manufacturing.

Outcome: Develop a **highly skilled energy workforce** that supports Arizona's transition to a clean, sustainable energy future.

Conclusion

Arizona's energy future is crucial to the state's long-term prosperity, and the **CABC's 25-year energy strategy** provides a comprehensive blueprint for navigating the rapidly changing energy landscape. By diversifying energy sources, investing in clean technologies, modernizing the grid, and ensuring universal access to reliable power, Arizona can remain a leader in the **new frontier of energy**. The state's economic success depends on making bold, forward-thinking decisions today to ensure that energy infrastructure supports Arizona's growing population, industries, and innovations for decades to come.

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Is there a 25-year plan for the future of Arizona Energy? The Canada Arizona Business Council (CABC) regards energy as the most important pillar of economic development. CABC initiatives rely on the availability of future power. These initiatives include manufacturing, water augmentation, mining, transportation, workforce, agriculture, foreign direct investment (institutional grade international capital markets and private equity), and more. The new frontier of energy is here, and we must lead the state into the future by devising and implementing a diverse plan that includes cutting-edge, high-tech, and multiple sources of power. This will ensure adequate energy grids to sustain and bolster Arizona's current and future growth surge over the next several decades. Are we ready?

Focusing on power and energy projects of scale at this specific moment in time is crucial for the future desert dwellers of the State. The ever-changing landscape of technology will bring new requirements for the grid. We know that the new demand for energy is directly in front of us and will include EV batteries and electric charging stations, advanced manufacturing, mining of resources, infrastructure, population growth, and AI robotics. All of these will place exponentially higher demands on the power grids immediately and even more so in the future.

The energy plan must be economical, efficient, accessible, and dependable utilizing all technologies and sources including, AI, clean energy, and natural resources. These may vary depending on geographical needs in different areas of the state. We are also seeing a rise in decentralized power sources, such as solar panels on homes, government facilities, and buildings, which is expected to also significantly alleviate the burden on main power plants. The future must provide abundant and accessible power to support population growth, manufacturing, transportation, mining, tourism, and business in urban and expanding rural communities. Looking at all possibilities and incorporating a multi-layered plan is imperative, whether the energy companies take on everything themselves or power purchase agreements are put in place.

At present, Arizona relies on a mix of energy sources, with natural gas (46%), nuclear power (27%), coal (10%), solar energy (10%), hydroelectric power (5%), and wind (1%) making up the bulk of the state's energy production. The Palo Verde nuclear power plant has 3 reactors, uses wastewater from local communities to cool condensers, generates 4,000 megawatts, and serves 4 million people in Arizona, California, New Mexico, and Texas. While renewable energy sources like solar, geothermal, biomass, wind, and hydropower are widely used, the state still depends on coal and natural gas to meet the high power demand, particularly during the hot summers in the desert. This raises the following questions: which power source will emerge as the cleanest, most cost-effective, and accessible in the future, or most likely will there be multiple sources for different uses?

This message is addressed to Arizona's governmental agencies and business leaders who fully understand that economic progress and the state's future heavily depend on the components mentioned above. With new energy innovations in high-tech and AI, access to efficient power is increasing for areas throughout the state. CABC has launched this initiative to engage its community and support the efforts of government and private sector energy leaders in the State. This is a collective effort, and CABC aims to contribute to the team, looking ahead to a successful and unified 25-year plan that paves the way for the next 50 years of the State's energy supply. Arizona has a very bright economic future, but the degree of brightness depends on the energy leadership and

immediate decision-making within the State. It's time to either tap in or tap out. The necessity of prompt decision-making regarding an updated energy infrastructure and abundant sources of energy cannot be overstated. The time for research and discussion has expired, now it's time to take action!

*STATE OF ARIZONA UTILITIES: Ajo Improvement Company, Arizona Public Service (APS), Capital Power Corp., City of Mesa, Columbus Electric Co-op, Dixie Escalante, Rural Electric Association, Duncan Valley Electric Cooperative, Garkane Power Association, Graham County Electric Cooperative, Mohave Electric Cooperative, Morenci Water & Electric Company, Navopache Electric Co-op, Salt River Project, Sulphur Springs Valley Electric Co-op, Southwest Gas, Transcanada, Trico Electric Cooperative, Tucson Electric Power, UNS Electric, El Paso Natural Gas.