

Safeguarding Communities: A Data-Driven Approach to Addressing the Impact of Rapid Energy Infrastructure Expansion

Executive Summary

The rapid expansion of energy infrastructure projects in the United States, driven by the need for AI-enabled national security enhancements, poses significant risks to local, minority, and marginalized communities. The National Security Memorandum (NSM) on Artificial Intelligence released earlier this week, along with recent legislation like the Advance Act 2024, highlights the government's commitment to streamlining approvals and expediting the construction of critical infrastructure. However, recent legislation fails to put in place mechanisms preventing these streamlined processes from overlooking the socioeconomic and environmental impacts on marginalized populations, leaving them disproportionately affected by this rapid approval of energy and infrastructure projects.

Our proposal introduces a data-driven technical program designed to analyze and assess the potential impacts of these projects on local minority populations. This policy aims to ensure that fast-tracked projects do not compromise the well-being of vulnerable communities. The program will provide quantifiable data for policymakers to use in decision-making, reducing reliance on biased reports from private actors with significant influence. Additionally, the policy satisfies the need for AI integration into government agencies, overseen by a Chief AI Officer and as mentioned in the NSM, to monitor and enforce these practices.

Introduction

Problem

The recent National Security Memorandum on Artificial Intelligence (NSM), released earlier this week, has heightened the urgency of establishing the United States' leadership in AI and increasing the nation's energy output. As a result, the memorandum states that agencies “shall coordinate efforts to streamline permitting, approvals, and incentives for the construction of AI-enabling infrastructure, as well as surrounding assets supporting the resilient operation of this infrastructure, such as clean energy generation, power transmission lines, and high-capacity fiber data links” (White House, 2024). While this directive aims to expedite infrastructure growth, it raises concerns about the lack of thorough assessments on its impacts. Neither the NSM nor recent legislation like the Advance Act of 2024 include provisions to assess how these projects affect local and marginalized communities. This omission threatens to exacerbate existing issues such as displacement, environmental discrimination, and the disproportionate impact on communities already facing socioeconomic vulnerabilities.

Land Requirements and Displacement Risks

Renewable energy projects, while crucial to the country's transition to clean energy, require vast amounts of land—up to ten times more than fossil fuel equivalents (U.S. Institute of Peace, 2021). As the U.S. expands these projects, the physical requirements of land, topography, and habitability become even more critical. The demand for land has been particularly problematic for marginalized and indigenous communities, who are often displaced by energy developments without access to the economic benefits these projects promise. Furthermore, a report by the Business and Human Rights Resource Center found that only 5 of 50 energy companies surveyed have adequate policies to prevent human rights abuses related to land rights and local impacts (Business and Human Rights Resource Center, 2021). With the

energy needs of AI technologies like those driving Amazon's recent investment in nuclear plants expected to triple by 2030, this issue will only intensify (New York Post, 2024).

Failure of Previous Power Plants: Preventable Disasters

The Shoreham Nuclear Power Plant and San Onofre Nuclear Generating Station offer two compelling examples of the risks posed by rushing large-scale energy projects without adequately addressing human or environmental factors. Shoreham's failure stemmed largely from human factors—regulatory delays, cost overruns, and public opposition. Initially projected at \$75 million, the plant's costs escalated to over \$5 billion due to mounting concerns about safety and evacuation plans, leading to its eventual decommissioning without ever becoming operational (Stanford University, 2018). Public distrust and regulatory missteps drove this financial disaster, leaving Long Island residents with \$6 billion in debt.

On the other hand, the San Onofre Nuclear Generating Station highlights the environmental risks of poor planning. After the plant was decommissioned, concerns arose over the storage of radioactive waste near a seismically active coastline. Critics argue that storing the waste 100 feet from the shoreline, in proximity to faults capable of generating a 7.4 magnitude earthquake, poses significant environmental and safety risks (The Guardian, 2021). Although the plant's operator maintains that the waste is stored safely, activists and experts continue to push for its relocation to a more secure site.

Increasing Energy Demands and the Race for AI Leadership

The escalating energy demands of AI technologies are exacerbating these issues. Companies like Amazon, Google, and Microsoft are investing heavily in nuclear and renewable energy to support their AI operations, with U.S. data center power consumption projected to triple by 2030 (Goldman Sachs, 2023). Yet, this rapid growth in energy infrastructure is often pursued without sufficient consideration of the long-term impacts on local populations. The Shoreham disaster serves as a stark reminder of the consequences of neglecting community concerns and rushing projects to meet growing energy demands, especially in an era where AI and national security are driving the need for fast infrastructure development (White House, 2024).

Policy Recommendations: Ensuring Equitable Energy Infrastructure Development

In response to the rapid expansion of energy infrastructure projects, driven by national security and the growing energy demands of AI technologies, we propose a policy that mandates the use of a data-driven technical program to evaluate the impacts of these projects on local populations. This policy is essential to ensure that the speed of project approvals, as outlined in the National Security Memorandum on AI, does not come at the expense of marginalized communities who are often disproportionately affected by large-scale energy developments. By integrating this program into the approval process, the government can balance the need for swift energy infrastructure expansion with the responsibility to protect vulnerable populations.

The proposed program will assess energy projects across several critical factors, including environmental, geographic, economic, and demographic data. For example, it will analyze the potential environmental risks, such as seismic activity or flood risks, alongside the economic needs of the local population, such as income levels and unemployment rates. Additionally, it will consider the demographic composition of communities, particularly focusing on disadvantaged populations who may face higher risks of

displacement or health impacts. Each project will be given a final score based on this data, which will help policymakers determine whether the project should proceed, be adjusted, or halted. This approach ensures that the faster rate of approvals mandated by recent legislation does not result in the neglect of local concerns.

The implementation of this policy will require all federal agencies responsible for approving energy infrastructure projects to use the program as part of their decision-making process. Agencies such as the Department of Energy and the EPA will integrate the program into their existing approval workflows, ensuring that the impact on local communities is analyzed before any project is greenlit. Moreover, the Chief AI Officers, already mandated by the National Security Memorandum on AI, will oversee the use of this program within their respective agencies, ensuring that the integration of AI into decision-making processes remains aligned with public welfare goals.

While this policy may raise concerns about slowing down project approvals, it is designed to function efficiently alongside the existing approval framework. Some may argue that adding a layer of assessment could delay critical projects, potentially undermining national security goals. However, the program uses real-time data and advanced AI analytics to provide swift, accurate assessments without significant delays. By ensuring projects are socially and environmentally sound from the outset, the program can actually prevent longer-term delays caused by community opposition or legal challenges, as seen in historical cases like the Shoreham Nuclear Power Plant, which was halted after significant public protests and regulatory hurdles (Stanford University, 2018).

Additionally, there may be concerns from energy developers about increased costs associated with implementing the program's recommendations. While upfront costs may rise, they are outweighed by the long-term savings resulting from reduced opposition, fewer legal disputes, and smoother project execution. For instance, the challenges at the San Onofre Nuclear Generating Station, where radioactive waste storage near a seismic fault raised significant environmental concerns, was forced to shut down. This demonstrates how failing to address these issues upfront can lead to long-term risks and costs (The Guardian, 2021).

Another concern is the potential for data manipulation, where developers might attempt to skew the results of the program's analysis to favor project approvals. To address this, the policy includes safeguards such as third-party audits and public transparency of the assessment data. Independent agencies will be tasked with verifying the integrity of the data, and the results will be made publicly accessible, allowing for external scrutiny and reducing the likelihood of manipulation. The Chief AI Officers and their staff will also play a crucial role in maintaining the objectivity of the assessments, ensuring that they align with the principles of fairness and transparency.

Ultimately, this policy aims to ensure that the rapid expansion of energy infrastructure projects aligns with the broader goals of equity and sustainability. By mandating a comprehensive analysis of local impacts, the program will ensure that the benefits of these projects are distributed fairly, and that marginalized communities are not disproportionately burdened. Furthermore, by integrating this data-driven approach into the existing framework outlined by the National Security Memorandum on AI, the policy strengthens the U.S. leadership in both AI and energy without compromising the well-being of its citizens.

Conclusion

As the United States accelerates the development of energy infrastructure to meet the growing demands of AI and national security, it is imperative to ensure that the urgency to expand energy capacity does not come at the expense of local and marginalized populations. Initiatives like the National Security Memorandum on AI emphasize the need for rapid project approvals, but without considering the social and environmental impacts, we risk repeating the mistakes of past infrastructure projects, such as the failures at Shoreham and San Onofre. These examples highlight the dangers of neglecting community concerns and environmental factors, leading to costly outcomes that could have been avoided with better planning and oversight.

Our proposed policy, built around a data-driven technical program, provides a solution by integrating real-time assessments into the approval process for energy projects. This ensures that projects move forward swiftly while safeguarding vulnerable communities from disproportionate harm. By mandating that federal agencies utilize this program, the United States can maintain its leadership in AI and energy development without compromising the well-being of its citizens. This balanced approach will promote transparency, accountability, and long-term sustainability in energy infrastructure, ensuring equitable benefits for all Americans.

References

White House. (2024, October 24). Memorandum on advancing the United States leadership in artificial intelligence; harnessing artificial intelligence to fulfill national security objectives; and fostering the safety, security, and trustworthiness of artificial intelligence.

<https://www.whitehouse.gov/briefing-room/presidential-actions/2024/10/24/memorandum-on-advancing-the-united-states-leadership-in-artificial-intelligence-harnessing-artificial-intelligence-to-fulfill-national-security-objectives-and-fostering-the-safety-security/>

U.S. Institute of Peace. (2021). Navigating land rights in the transition to green energy.

<https://www.usip.org/publications/2021/10/navigating-land-rights-transition-green-energy>

Business and Human Rights Resource Center. (2021). Renewable energy and human rights benchmark.

<https://www.business-humanrights.org/en/latest-news/renewable-energy-benchmark/>

New York Post. (2024, October 17). Amazon to invest in 3 nuclear plants to power AI programs.

<https://nypost.com/2024/10/17/business/amazon-to-invest-in-3-nuclear-plants-to-power-ai-programs/>

Stanford University. (2018). The Shoreham Nuclear Power Plant failure.

<http://large.stanford.edu/courses/2018/ph241/gilbey1/>

The Guardian. (2021, August 24). San Onofre nuclear power plant: radioactive waste concerns.

<https://www.theguardian.com/environment/2021/aug/24/san-onofre-nuclear-power-plant-radioactive-waste-unsafe>

Goldman Sachs. (2023). U.S. data center power use report. <https://www.goldmansachs.com/research>