

Task Force 02

SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS

Building Confidence for the G20 Renewables Market Through Strategic Policy Reforms

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Abstract

In the face of pressing challenges of climate change and energy crises, the transition to sustainable energy sources is imperative and inevitable. The world acknowledges this need as exemplified at COP28, where all Parties unanimously adopted the Global Stocktake that vowed to triple installed renewable capacity by 2030. However, efforts to accelerate the deployment of renewable energy, especially wind and solar power, are hindered by market uncertainty.

Currently, market perception in the wind and solar industry is hampered by the lack of clarity in time and costs associated with project development. This sends a negative signal, especially to emerging economies that are more susceptible to fluctuations in the global market and financial uncertainties and require stronger market confidence. In this context, G20 countries can, and must, play an exemplary role in improving market confidence by removing inefficient regulatory barriers and creating a unified market signal for renewables in both the Global South and North.

This policy brief aims to address the need for improving renewable energy (henceforth RE) market conditions to advance sustainable energy transition within the G20 countries and globally. The brief will highlight practices and propose market-based and policy recommendations for the G20 nations to demonstrate leadership in fast-tracking the deployment of renewables at scale by streamlining the planning, siting, and permitting to reduce time and costs while increasing the social and economic benefits.

Keywords: Renewable Energy (RE), Market Perception, Planning, Siting, Permitting.

Diagnosis of the Issue

G20 countries in Asia and Latin America, hold the potential to expand their capacity in solar and wind energy, playing a crucial role in the global energy landscape. Latin America demonstrates the potential to increase its RE capacity given the projected implementation of 319 GW in new projects. Meanwhile, Asia has an estimated capacity of 220 GW, although only 6 GW is under construction.

Translating commitments into actions requires effectively addressing barriers, including market uncertainty and regulatory complexities, by implementing appropriate policies and financing. With G20 nations representing 75% of global renewable investment and deployment potential, they must lead efforts to triple RE capacity in advancing climate action goals to limit global temperature rise to 1.5°C. By boosting market confidence and streamlining regulatory barriers, the G20 can catalyze significant progress towards achieving RE objectives and provide leadership in energy transition.

1. Siting and permitting hurdles

These two major processes can either drive or hinder RE project development. Both can directly impact the project timeline, cost, and even scalability. In countries like the U.S., the average timeline for a clean energy project to obtain necessary policy reviews is 4.5 years (American Clean Power 2023). Similarly, among EU Member States, wind projects take 5 to 10 years or more before construction can begin due to delays (Yan et al. 2023). Efficiency in siting and permitting are directly related to investor confidence and market stability, which enable timely and successful execution of RE projects.

Overly stringent regulations or legal complexities render difficulty to secure sites for new RE projects. The stalling and cancellation of RE projects in Mexico, which amounts

to 11.6 GW in total, reflect difficult permitting and project approval conditions (Bauer et al. 2023). In South Korea, the audit agency found that excessive separation distance limits solar energy potential by 70% (Board of Audit and Inspection 2023). Also, in the U.S., more than 2,600 municipal zoning regulations limited the space for RE developments in 2022 (Lopez et al. 2023), curbing the potential for statistically significant RE resources and restricting the deployment of utility-scale renewables.

Lack of coordination during the permitting process poses further difficulties. For example, offshore wind project developers in South Korea must navigate a complex permitting process, with some required to acquire as many as 29 permits across 10 ministries (Jo and Yang 2023). In India, states have varying soft costs, such as permitting and installation associated with initiating RE projects, which increases project development risks. This restricts new players from entering the market while preventing a smooth adoption and expansion of RE in the market.

2. Grid constraints

Lack of transparency or poor administrative processes with regard to grid operations constrain efficient deployment of RE projects in numerous countries, including G20 members. Issues in securing connection authorization are compounded by multiple factors such as inefficient administrative procedures and inadequate regulatory frameworks.

Energy project developers' requests to access the grid are often severely hindered by bureaucratic barriers to acquiring necessary documentation and the lack of cooperation among various national and local governmental bodies. Additionally, inconsistencies in terminology across energy and environmental protection legislation exacerbate

confusion, increase expenses, and cause delays. This undermines project predictability, discouraging RE project investment or development.

Transparent, impartial, and non-discriminatory criteria for grid access are also imperative to effectively promote RE (Nasirov, Silva, and Agostini 2015). In many countries across Latin America, current electric regulations do not support open access, even within public transmission systems. Consequently, this often results in indefinite delays for new RE projects. The lack of transparent information makes it challenging to access available network sites, considering the costly procedures involved (Gajdzik et al. 2023). Obtaining final connection authorization is challenging due to the complexity and cost of procedures, with uncertain outcomes.

Finally, regarding infrastructure development, there are particularly concerning grid limitations, especially in transmission grids. Historically, the main driver for expanding the grid has been to meet demand rather than accommodate RE generation. A stable and reliable grid is vital for effectively utilizing energy generated from renewable sources, which are dispersed throughout a given region. The regions face the imperative of renewing, modernizing, and expanding its electrical infrastructure to facilitate the energy transformation.

3. Lack of Social Integration

Renewables project development often clashes with communities and land and water users. Many G20 nations are familiar with community resistance delaying development of new RE projects.

Brazil experiences these disputes mainly in wind corridors, where in eleven municipalities in the state of Bahia, there are currently agricultural communities with some form of conflict or complaint against large-scale wind developments (Caramel

2022). In Japan, rising “criticism regarding the disorderly development of solar projects” (ICLG 2023), local governments, most notably Miyagi Prefecture, have enacted ordinances to control the development of renewables projects (Daiss 2023).

These barriers, and their unpredictability, become a major factor that increases projects costs, negatively impacting market certainty and ultimately impeding the region’s energy transition efforts. Lack of established protocols prompts developers to operate often without clear government guidance. This not only exacerbates uncertainties through prolonged negotiations but also creates incongruity in the overall RE development practices.

The above-mentioned uncertainties exacerbate negative market perception of renewables. This policy brief proposes actionable policies that can be applied in designing a more equitable governance model by G20 countries. Brazil’s leadership is important to create a unified and positive market signal that is critical to increase renewables capacity in the Global South and North.

Recommendations

1. Implement regulatory reforms to streamline siting and permitting

To address inefficiencies and unpredictability in siting and permitting phases, regulatory reforms are crucial for G20 countries, particularly in Latin America and Asia. The European Union's commitment to simplifying these processes, as evidenced by initiatives like REPowerEU, underscores the urgent need to remove obstacles hindering RE development.

For a comprehensive management of emerging and ongoing renewables projects, the G20 should adopt government-led strategies to manage siting or zoning effectively. Implementing methods such as site auctioning, exemplified by Australia's Capacity Investment Scheme (CIS), can eliminate inefficiencies and delays while expanding RE. The CIS is a significant move for Australia to deliver an additional 32 GW of renewables capacity and reach its 82% RE target by 2030. A smoother process of siting and zoning provides stability and predictability for investors and developers, reducing investment risks and cost-effectively accelerating RE deployment.

Moreover, establishing a single oversight body similar to a "one-stop shop" can significantly improve efficiency by centralizing the permitting process. Countries like Denmark and the Netherlands have successfully implemented this approach, reducing uncertainties and delays in project delivery while providing clearer guidance to stakeholders. Managing zoning via a single responsible body on the national level further aligns with RE targets by streamlining siting and permitting processes.

2. Improve planning and transparency to overcome grid constraints

The G20 must confront grid constraints by tackling inefficient administrative procedures, inadequate regulatory frameworks and improving transmission infrastructure that contribute to grid constraints. Overcoming the final hurdle of receiving the connection authorization becomes feasible with increased transparency of the information on the availability of connection nodes. Implementing changes in the node reservation system, such as introducing transitory permits with limited deadlines and temporal milestones, can enhance the process. These milestones should include gradually increasing requirements to maintain the permit. It is crucial to establish transparent procedures for accessing connection permits, ensuring a proper phasing of requirements, realistic milestones, justifiable costs, and predefined deadlines.

Some countries have taken measures to shorten grid queues. For instance, Austria and Denmark have made maps available to developers indicating open locations. Germany has simplified grid connection requirements for residential systems, while Portugal has introduced guidelines to streamline processes (IEA 2023). In Spain, efforts to address congestion include mandating grid operators to include a minimum amount of distributed generation in their grid investment plans. Moreover, other nations have increased their budgets for transmission investment.

Enhancing distributed generation is critical to expanding RE integration. The G20 ministers should incorporate mini-grid and off-grid systems to achieve a just and equitable energy transition. Mini grids can develop a local developer case that can be scaled up, while off-grid solutions can contribute in regions that face significant risks of disruption as a result of climate-included extreme weather events.

Considering that the planning phase for new grid infrastructure often spans between 5 to 15 years, whereas new RE projects typically require 1 to 5 years, it is crucial to align

and integrate the planning and execution of transmission and distribution grid projects with comprehensive long-term energy planning processes (IEA 2024). This alignment ensures that regulatory risk assessments are flexible enough to accommodate proactive investments.

3. Establish practices for inclusive engagement of stakeholders and communities

The G20 nations should establish a standard practice of engaging local communities in an inclusive and transparent manner in the development of RE and transmission.

Community councils or mediating bodies should facilitate dialogue between developers and local communities. Local authorities and governments should also be closely involved in the process, providing the context and history specific to the region. This can also be executed by setting relevant energy policies, as shown in the case of Mexico where energy policies prioritizing renewables must also incorporate a just energy transition pathway containing gender equality, social inclusion, and local participation.

Various benefit-sharing mechanisms can be tools to increase social inclusion. In expanding renewables and grid transmission, it must be recognized that local communities are more than occupants of land and waters.

The G20 should embrace flexibility and create means to achieve inclusive and just transition in energy. In larger projects, mechanisms such as local ownership, taxation and community funds, local contracting, and benefits-in-kind, can be employed. Providing the opportunity for local residents to get involved as business partners is also another method of bridging the dichotomous divide of host community and developers.

Scenario of Outcomes

The success of this transition depends largely on three key aspects: efficiency in the renewable permitting and siting processes, an adequate planning of the electrical network to integrate and connect new renewables projects, and a successful integration of the local communities into the energy infrastructure projects. The proposed scenario is a Favorable Scenario, where improvements are made for all three aspects. This Scenario is comparable to a baseline scenario which models IRENA's Transforming Energy Scenario (TES).

Favorable Scenario

In this Scenario, G20 countries decisively embrace their climate commitments and transform their RE permitting and siting approach. Using TES as the baseline, this brief analyzes the potential behavior of installed RE capacity for G20 countries by applying the measures outlined in the Favorable Scenario (IRENA 2021).

Firstly, efficiency mechanisms are implemented in RE permitting processes such as digitalizing the application process and establishing one-stop shops or other simplified permitting systems. This makes the path faster and easier for investors and developers of renewables projects. In this Scenario, standardization of procedures and regulations will be promoted to minimize bureaucracy and stimulate innovation and technological cooperation in the sector among the G20 countries. Further, strategic alliances will be forged to share best practices and experiences in simplifying permitting processes for RE projects, fostering knowledge transfer and collaboration among the G20.

Secondly, G20 governments adopt a coordinated, long-term vision to expand and modernize electricity infrastructure, in anticipation of growing demand for RE. Standard

criteria are established to guide the selection of optimal locations, while factoring in environmental, social, and technical considerations. Areas with the most significant solar and wind potential are identified and prioritized, leading to investment and expedited installation of renewable projects in strategic areas.

Lastly, in the Favorable Scenario, community engagement and communication are prioritized, emphasizing transparency, participation, and collaboration with local communities. G20 countries establish robust mechanisms for early engagement and incorporate community feedback throughout the project lifecycle. Governments ensure transparency in decision-making processes, providing clear information on project plans, potential impacts, and mitigation measures to affected communities. Moreover, they actively seek input from residents, incorporating their perspectives and concerns into project design and implementation. This fosters open dialogue and partnership with communities by building trust, mitigating conflicts, and enhancing social acceptance of RE projects, contributing to their overall success.

The combination of efficient processes, strategic grid planning, community engagement, and supportive government policies will decisively advance the installation of RE projects in this scenario.

Scenario results

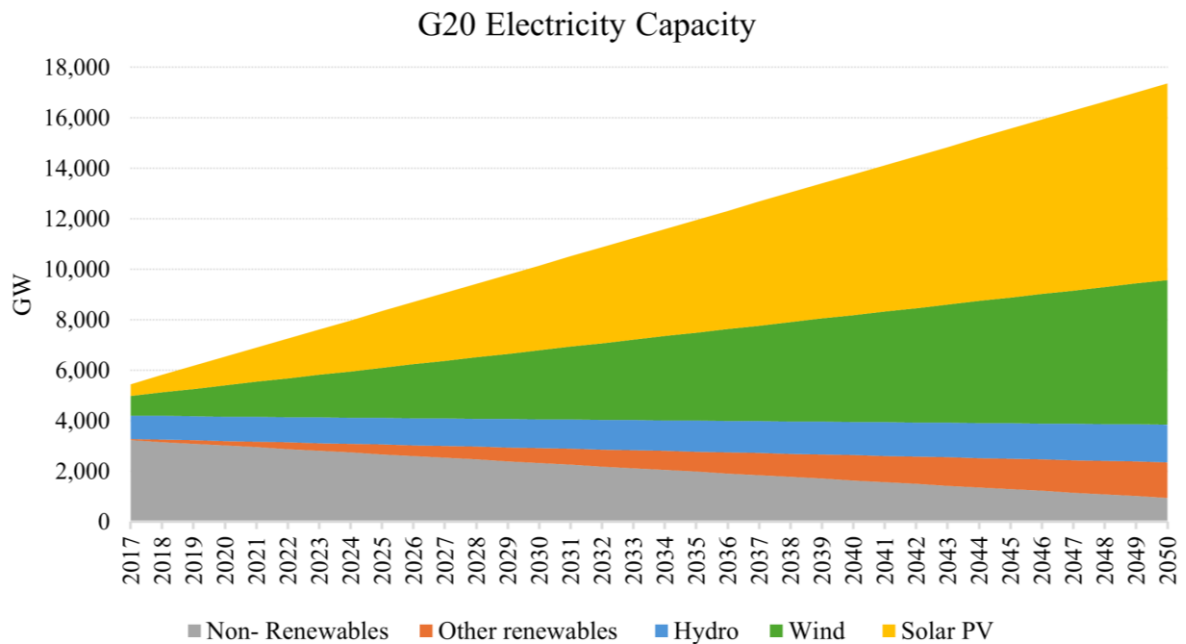


FIGURE 1. G20 installed capacity by source, scenario result.

Regional energy integration, defined as coordinating and harmonizing energy policies grid infrastructure plans among neighboring countries, emerges as a pivotal strategy. This integration effort, led by Brazil, presents an alternative approach to expanding national networks, offering benefits such as increased security of supply, reduced stranded assets, and minimized socio-environmental impact.

Therefore, expediting the adoption of renewables through efficient permitting and transmission planning is crucial to achieving emission reduction goals faster. Additionally, the indirect effects such as social understanding and agreement, although not explicitly estimated in this document, could significantly enhance the progress of renewable installations by stimulating investment in renewables and generating additional time savings, ultimately improving market signals. This could initiate a positive feedback loop, wherein increased investment and streamlined processes lead to accelerated deployment of RE projects.

Contradictions and trade-offs

Even the Favorable Scenario for adopting RE and infrastructure development presents marked trade-offs and contradictions. While improving efficiency in obtaining RE permits is important, processes remain inherently slow due to verification requirements on social and environmental aspects. Although expediting permits is crucial, balancing the procedures' efficiency and the evaluation's technical and methodological rigor before permission is granted is necessary. This ensures adequate time is dedicated to social and environmental management without hindering investment in RE.

In terms of planning, a coordinated long-term vision and standardized criteria for selecting optimal locations for renewable projects are essential. However, the unique characteristics of each territory can lead to contradictions. For example, the identification of an optimal location from a technical point of view may face resistance from local communities due to environmental or social concerns or impacts on the perception of the aesthetic and tourist value of the area. These dilemmas highlight the need for a balanced approach that considers both technical aspects and the concerns of affected communities, seeking solutions that maximize long-term social, environmental, and economic sustainability.

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