

## **Brief on Global Solar Energy Policies and Regulations**

As the global energy landscape shifts toward sustainability, solar power has emerged as a cornerstone of clean energy strategies. This rapid growth is supported by a wide array of policies and regulatory frameworks aimed at accelerating solar adoption across diverse regions.

### **1. Feed-in Tariffs (FiTs) and Net Metering**

Feed-in tariffs and net metering remain foundational tools in many countries. These mechanisms allow solar energy producers to sell excess electricity to the grid at guaranteed rates or offset their own consumption. While some mature markets are transitioning to competitive auctions, FiTs continue to play a vital role in emerging economies by ensuring investment security.

### **2. Tax Incentives and Capital Subsidies**

Governments worldwide offer financial incentives to reduce the upfront cost of solar installations. These include investment tax credits, accelerated depreciation, and direct capital subsidies. In the United States, the Inflation Reduction Act continues to provide long-term tax benefits for both residential and utility-scale solar projects, significantly boosting deployment.

### **3. Renewable Portfolio Standards (RPS) and National Targets**

Many countries have established Renewable Portfolio Standards or similar mandates requiring utilities to source a specific percentage of electricity from renewable sources. The European Union, United States, China, and India have all set ambitious solar targets, often backed by legally binding national energy strategies.

### **4. Solar Mandates for Buildings**

Several jurisdictions have introduced regulations requiring solar installations on new buildings. For example, California mandates solar panels on most new residential and commercial constructions. Similar policies are being adopted across parts of the European Union and Asia, promoting decentralized solar generation and reducing grid dependency.

### **5. Grid Modernization and Energy Storage**

To accommodate the variability of solar power, countries are investing in smart grid technologies, battery storage systems, and flexible demand management. India, now the third-largest solar market globally, is prioritizing grid upgrades and hybrid solar-storage projects to enhance reliability and resilience.

### **6. Carbon Pricing and Emissions Trading**

Carbon pricing mechanisms, such as the EU Emissions Trading System (ETS) and China's national carbon market, are making fossil fuels more expensive and improving the competitiveness of solar energy. These tools are increasingly being adopted in Latin America, Southeast Asia, and Africa as part of broader climate action strategies.

## **7. Land Use and Permitting Reforms**

To streamline solar project development, countries like the United States are reforming land use policies. The Bureau of Land Management (BLM) is facilitating access to public lands for solar under the Western Solar Plan. However, recent judicial rulings have introduced new legal complexities, emphasizing the need for robust legislative support.

## **8. International Financing and Collaboration**

Global institutions such as the World Bank, International Renewable Energy Agency (IRENA), and the Green Climate Fund are playing a critical role in financing solar projects in developing countries. Initiatives like the Energy Transition Accelerator Financing (ETAF) platform are helping bridge investment gaps and support large-scale solar deployment in underserved regions.