Executive Summary: Policy Measures for Advancing Agrivoltaic Projects Worldwide

The NZO Project

Background

Agrivoltaic (APV) systems represent an innovative approach that integrates renewable energy production with agricultural land use. By placing solar panels above or within cultivated land, these systems enable dual use of land, producing both electricity and crops. This model is particularly valuable for countries facing land scarcity, such as Israel, where balancing food security with climate mitigation is critical. Many nations, including Germany, France, Italy, and the United States, are leading in establishing regulatory frameworks and financial incentives to accelerate APV deployment. Despite their promise, APV systems currently face higher costs — typically 30–50% more than conventional ground-mounted PV — due to elevated structures, maintenance, and integration with agricultural practices. Therefore, targeted policy and financial support are essential for scaling the sector.

Summary of International Approaches

Countries worldwide have adopted different strategies to promote APV development, tailored to their agricultural conditions, regulatory frameworks, and energy transition goals:

- Germany: Introduced clear technical standards (DIN SPEC 91434) to ensure continued agricultural productivity, alongside feed-in tariffs and exemptions under the Renewable Energy Act. Government-funded R&D supports APV innovation, while farmers benefit from combined CAP payments and solar incentives.
- Italy: Offers generous subsidies through the national recovery and resilience plan (PNRR), covering up to 40% of CAPEX. Incentives are linked to maintaining agricultural activity and encouraging technological innovation. Tariffs ensure stable long-term revenues.
- France: Established strict agricultural preservation criteria, requiring projects to demonstrate clear agronomic benefits. Projects are supported via competitive

tenders with 20-year feed-in tariffs, emphasizing dual benefits of energy and agriculture.

- Austria and the Netherlands: Provide limited or indirect incentives, prioritizing rooftop and other solar uses. Where permitted, APV projects must comply with strict environmental and land-use regulations.
- Japan: Hosts over 3,000 APV projects, supported by FITs and local government subsidies. Farmers must ensure at least 80% of agricultural yields are preserved, reinforcing APV's primary role as agricultural land.
- United States: Lacks a unified regulatory framework but offers significant support via federal tax credits (ITC), USDA programs, and state-level initiatives like Massachusetts' SMART program. Pilot projects in New Jersey and Colorado demonstrate APV's potential for community solar and rural resilience.
- Czech Republic: Recent legislative reforms now allow APV installations on agricultural land, provided they preserve productivity. Restrictions limit land occupation to 10%, reflecting a cautious approach.

Conclusions and Recommendations for Israel

The international review highlights that successful APV deployment relies on a combination of regulatory clarity, targeted financial support, and strict protection of agricultural activity. For Israel, where land scarcity and food security are central challenges, APV can become a cornerstone of sustainable energy policy. Key recommendations include:

- Establish clear technical guidelines to ensure APV projects maintain or enhance agricultural productivity.
- Introduce dedicated financial incentives (grants, tax relief, or feed-in tariff bonuses) that make APV economically competitive with conventional PV.
- Simplify and accelerate permitting processes for APV pilots and commercial-scale projects, while maintaining safeguards for agricultural use.
- Support R&D and demonstration projects to adapt APV technologies to Israel's climate conditions, with a focus on resilience to extreme heat and water scarcity.
- Encourage partnerships between farmers, energy developers, and local authorities to maximize co-benefits for rural communities, food security, and renewable energy expansion.