

Policy Brief No19 Technology, Knowledge Transfer, and Awareness Building provisions to support Fossil Energy Free Technologies and Strategies (FEFTS) diffusion

What is the challenge?

- **Complexity of technology choice:** The diverse array of available FEFTS makes it difficult for farmers to select the most suitable ones.
- **Regional discrepancies:** Different regions have varying understandings and levels of acceptance of FEFTS.
- **Inadequate real-world proofs of concept:** A lack of extensive real-world FEFTS farm demonstrations for farmers hinders their acceptance and implementation.
- **Congested distribution grids in rural areas:** This poses a significant barrier to the effective deployment of FEFTS and particularly clean electric energy production systems.
- **Misconceptions about energy costs:** Many farmers overlook indirect energy inputs, such as fertilizers, focusing only on utility and fuel bills.
- **General lack of awareness about FEFTS:** This is evident across all levels, from farmers to policymakers.
- **Inadequate advisory/extension services:** empower advisory and extension services with knowledge about FEFTS and their availability by more training and education on national level.
- **Shortage of training programs:** Farmers need more educational opportunities to understand and implement FEFTS effectively.
- **Communication gaps:** at various levels and missing links in the communication chain.
- **Limited experience with energy communities:** Lack of understanding of how the framework of energy communities can support agriculture.

Policy Recommendations

- Enforce **Agricultural Knowledge and Innovation Systems (AKIS)** (Research, Extension, Industry, farmers) to participate in FEFTS promotion in farming.
- **Establish "FEFTS innovation brokers":** These expert structures can provide tailor-made technological solutions for farms in all countries.
- **Promote localized standardized technical solutions:** These should be well-tested, user-friendly, and suitable for local conditions.
- **Support FEFTS demonstration projects:** Promote projects that demonstrate individual FEFTS or combinations of them backed by randomized control trials to yield useful and undisputed conclusions.
- **Encourage flexibility schemes and energy storage:** This would promote self-consumption for farms and alleviate grid congestion.
- **Promote data sharing:** Encourage the sharing of standardized, anonymized data on farm energy balance for policy development and farmer training.
- **Implement "Train the trainers" programs:** Upskill advisors and extension services on FEFTS.
- **Organize targeted workshops for farmers:** Provide practical training and awareness-building opportunities.
- Create **transfer centres** in rural areas to provide advisory for FEFTS diffusion.
- Include **more engineering disciplines** in advisory/extension services to support Agronomists in technical issues.
- **"Train the Farmer" programs:** lifelong learning processes in existing and future FEFTS for different types of farms.
- **Utilize digital tools:** AI/social media for knowledge transfer/communication.
- **Highlight success stories** of energy communities adopting FEFTS.

Expected Impacts

- **Easier adoption of suitable technologies:** Farmers will be better equipped to select and implement appropriate FEFTS.
- **Improved understanding and acceptance of FEFTS:** Standardized solutions, demonstration projects, and enhanced advisory services will improve comprehension and acceptance.
- **Enhanced grid management:** Flexibility schemes and energy storage can alleviate grid congestion and improve energy management.
- **Increased awareness:** Comprehensive training programs, workshops, and digital tools will increase awareness and insight of FEFTS across all levels.
- **Strengthened rural communities:** Promotion of successful energy communities will provide a model for alliance among farmers and further adoption of FEFTS.
- **Boost to Innovation:** The presence of "innovation brokers" and the promotion of demonstration projects can lead to a surge in technological innovation in the agricultural sector. This can result in more efficient and sustainable farming practices, potentially extending beyond FEFTS.
- **Increased farm energy Independence:** By enhancing the understanding and use of FEFTS, farms can increase their energy self-sufficiency. This can lead to significant cost savings and reduced dependence on external energy supplies.
- **Economic development opportunities:** The increased adoption of FEFTS can lead to the creation of new jobs and business opportunities, stimulating rural economies and potentially leading to increased income for farmers.
- **Resilient Communities:** Knowledge transfer initiatives and the successful implementation of energy communities can foster stronger, more resilient communities. Shared knowledge and resources can help these communities better handle future challenges.
- **Environmental Benefits:** Wider adoption of FEFTS can lead to substantial environmental benefits. These include a reduction in greenhouse gas emissions, improved soil health and biodiversity, and more efficient use of resources, all of which contribute to climate change mitigation.
- **Improved Policy Alignment and better-informed policymaking:** With shared data and increased awareness of FEFTS, policies at different levels of governance (local, national, EU) can be better aligned and result in more coherent and effective policy defossilisation strategies.
- **Cultural Change:** By fostering awareness and understanding of FEFTS, a cultural shift can occur within the farming community. This can lead to a widespread embrace of sustainable farming practices, with long-term benefits for the environment, public health, and food security.
- **Enhanced Public Trust:** The successful implementation of FEFTS and the demonstration of their benefits in farming can enhance public trust in the agriculture sector. This can lead to increased public support for sustainable farming practices and policies.
- **Global Leadership:** The EU can position itself as global leader in sustainable agriculture and inspire others to assist in combating climate change globally.




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