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## Enhancing Governance in the Implementation of National Energy and Climate Plans (NECPs) through a Simplified Calculation Tool at the Municipal Level

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The effective implementation of National Energy and Climate Plans (European Commission, 2021) poses significant governance challenges, particularly in coordinating actions among central governments, regions, and municipalities. This paper explores the complexities inherent in the governance of NECPs and proposes a novel approach to facilitate implementation at the municipal level.

NECPs serve as pivotal frameworks for achieving national climate and energy targets, delineating strategies and measures to mitigate greenhouse gas emissions and enhance energy efficiency. However, the translation of these plans into actionable initiatives at the local level often encounters obstacles due to varying capacities, resources, and priorities among governmental tiers.

The governance of NECP implementation involves intricate interplays between central authorities, regional administrations, and local municipalities, necessitating effective coordination mechanisms and streamlined processes. Yet, existing governance structures frequently face challenges such as administrative burdens, limited expertise, and inadequate resource allocation, impeding the efficient execution of NECP measures (Peeters et al, 2023).

Austria, with a share of already currently 36% renewables, on the one hand, is among the frontrunners in Europa, but on the other hand, any further fast progress is still lacking clearly behind the national goals (Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie (BMK), 2023)).

To address these governance complexities, especially the weaknesses of regional policies between federal states and municipalities (Inese and Volker H., 2023), this paper proposes the urgently needed development and implementation of a simplified yet robust calculation tool tailored for municipal stakeholders. This tool is called T-Link, currently under development in a beta status, as part of a funded Austrian Research project. T-Link (SERA, 2023) aims to empower local authorities with the capacity to assess the feasibility and impact of NECP measures within their jurisdictions, fostering informed decision-making and resource allocation.

The envisioned calculation tool would incorporate key parameters such as local sectoral energy consumption patterns, emission measurements, available (renewable) resources, and NECP implementation quotas over scenario timelines. Through user-friendly interfaces and standardized methodologies, it would enable municipalities to evaluate the effectiveness of various mitigation and adaptation strategies, identify synergies with local development objectives, and prioritize interventions based on cost-effectiveness and environmental co-benefits.

By equipping municipal stakeholders with a user-friendly and scientifically sound calculation tool, this approach seeks to enhance the governance of NECP implementation by fostering transparency, stakeholder engagement, and evidence-based decision-making.

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