

Summary of the Fifth “Lunch & Learn”

“Energy Efficiency First Principle and Evaluation in Europe”

The Fifth Lunch and Learn session organized by Energy Evaluation Europe was held online on the 6th of November. Stefan Thomas (Wuppertal Institute for Climate, Environment and Energy) welcomed the invited speakers, Veronika Jiříčková (European Commission) and Tim Mandel (Fraunhofer Institute ISI) to discuss the questions: What do you see as the relevant and most important role(s) of evaluation in the application of the principle? How does it differ between planning, policy, and investment decisions? How important is a reliable ex-ante quantification (prediction), of impacts on energy savings and reduction of the load at peak hours to ensure acceptance of giving priority to energy efficiency, even if it is cost-efficient?

Invited Speakers

1. **Veronika Jiříčková**

Role: Energy Efficiency Policy Officer, European Commission, DG Energy (expressing personal views, not in an official capacity)

Focus: Article 3 of the Energy Efficiency Directive, supporting Member States in implementing the energy efficiency first principle.

2. **Tim Mandel**

Role: Senior Researcher in European Energy Policy and Systems Modeling, Fraunhofer Institute for Systems and Innovation Research (ISI), Germany

Expertise: Focus on the energy efficiency first principle and its application in energy systems.

Stefan Thomas introduced "Energy Efficiency First Principle", providing the attendees with:

Definition and Importance

- Defined in the 2018 Governance Regulation, emphasizing prioritization of energy efficiency measures in energy planning, policy, and investment decisions.
- Article 3 of the Energy Efficiency Directive mandates EU member states to assess energy efficiency solutions in planning, policy, and investment decisions, particularly for significant investments. Relevant sectors include:
 - Buildings, transport, ICT, water, agriculture, and financial services.

- Surprisingly, industry is not explicitly listed, raising questions about sector priorities in energy efficiency.

Key Components

- The principle aims to enhance both energy demand and supply efficiency through cost-effective end-use energy savings, demand response initiatives, and improved conversion, transmission, and distribution of energy.
- It is crucial that energy efficiency does not compromise the objectives of energy planning decisions.

Role of Evaluation in Implementing the Principle:

Two Key Roles of Evaluation:

1. Ex Ante Evaluation

- Assess the cost efficiency and reliability of energy efficiency measures.
- Includes impact evaluation, focusing on potential energy savings, cost-benefit analysis, and multiple impacts.

2. Ex Post Evaluation

- After implementing measures, evaluate whether they deliver expected results.
- Involves both process and impact assessments, particularly important when energy efficiency replaces traditional infrastructure upgrades.

After the introduction of the Energy Efficiency First Principle, Stefan Thomas suggested that the session should be organized so that the speakers could, after each question, provide their insights.

Tim Mandel highlights distinctions between planning, policy, and investment decision levels under Article 3 of the Energy Efficiency Directive. He emphasizes:

1. **Planning Decisions** – These include strategies like national building renovations and heating/cooling plans. Evaluation in planning focuses on broader objectives (e.g., energy savings or supply security) and requires both ex ante (before-the-fact) and ex post (after-the-fact) analysis to assess cost-efficiency and the effectiveness of energy efficiency solutions.
2. **Investment Decisions** – Major projects, often with high monetary thresholds, include infrastructure investments (e.g., cross-border electricity transmission). Evaluation here largely involves ex ante projections, ensuring robust analysis of costs and benefits of energy efficiency versus energy supply options.

3. **Policy Design** – Examines how policies are balanced between promoting energy efficiency and energy supply, focusing on policy effectiveness through traditional evaluation methods. Tim concludes that evaluation plays a nuanced role across these areas, with a strong focus on substantiating energy efficiency's benefits in planning and investment contexts.

Veronika Jiříčková (European Commission). Differences in evaluation are needed for planning vs. investment decisions. Key points include:

1. **Planning Stage** – This is crucial for applying energy efficiency first, as it allows policymakers to consider energy efficiency as a viable "source" of energy, focusing on demand reduction rather than increasing energy production. This stage is key for strategic documents like national energy and climate plans.
2. **Non-Energy Sectors** – Veronika stresses the importance of evaluating energy efficiency in non-energy sectors (e.g., agriculture, industry, buildings) that consume energy but don't produce it. Evaluation here is just as vital as in energy-producing sectors.
3. **Policy and Investment Stages** – While planning is ideal for early consideration, the principle can still guide decisions in policy initiatives and investment, ensuring that even late-stage infrastructure projects are as energy-efficient as possible.
4. **Wider Societal Benefits** – Veronika emphasizes including social, environmental, and economic benefits in evaluations, as energy efficiency's societal impact often goes unnoticed.

The principle should make these broader benefits more visible to decision-makers.

Overall, Veronika calls for a comprehensive, visible integration of energy efficiency, not only as a technical solution but as a societal benefit with far-reaching impacts.

Stefan Thomas acknowledges the speakers' insights, noting that traditional planning and investment decisions often focus on supply-side alternatives through due diligence and cost-benefit assessments. They suggest that integrating energy efficiency evaluations into these established methods could enhance decision-making, especially in sectors like finance. The moderator then opens the floor to participants, inviting comments, additions, or questions.

One question from **Amandine Gal**: Amandine raises an insightful question, observing that North American approaches to evaluating energy efficiency policies often apply a higher level of rigor compared to some European methods, particularly in countries like France and Spain. This strict evaluation framework, while having pros and cons, could help enhance the visibility of benefits and ensure that energy efficiency targets promised in policy are met. She wonders whether adopting a similar approach in Europe could strengthen the effectiveness of energy efficiency programs.

Stefan Thomas acknowledges Amandine's point, connecting the strictness of North American evaluations to the reliability of their results. He explains that in North America, the financial performance of regulated energy companies often depends on the accuracy of their evaluations, especially within energy efficiency resource standards or obligations—like regulatory frameworks in Europe. He suggests that this topic should also be revisited in the second round of discussion, then invites Jean-Sébastien to share any comments or questions on the first discussion round.

Jean-Sébastien connects Amandine's and Stefan's points by discussing the U.S. Unified Method Project, which addresses similar challenges to those in Europe regarding differing state-level rules. Initiated by the U.S. Department of Energy, the project aims to encourage harmonized practices across states, particularly in areas like behavioral programs, where randomized control trials are recommended. This approach aligns with the EU's energy policies, especially Article 8 (formerly Article 7) of the Energy Efficiency Directive, which references U.S. methods where possible. Jean-Sébastien notes that while Europe's energy policies are managed at the national level and evaluated according to requirements in Annex V of the Directive, the practices vary and are difficult to directly compare to those in North America. However, Europe benefits from learning from the U.S. experience, aided by collaborative associations like PEPEC.

He highlights France's large-scale obligation scheme as a notable example in Europe, as it establishes measurable objectives that influence national energy planning and assumptions on future energy demand. The scheme's size and rigor in tracking energy savings make it impactful, though it raises questions about the reliability of quantifying savings, especially in residential sectors where deemed savings are used to streamline monitoring. This approach ties back to the importance of reliable evaluation in ensuring the effectiveness of energy efficiency policies. Jean-Sébastien expands on the complexity of measuring energy savings under France's obligation scheme, noting that while certificates indicate savings, they don't capture overall energy consumption trends due to factors like rebound effects and new energy uses, such as data centers. This discrepancy adds layers to the analysis.

In response, the French government has introduced a new program, allocating €80-90 million to both evaluate and ensure the impact of energy efficiency measures. This dual approach includes not only measuring actual impacts but also taking actions to improve quality and reduce fraud in energy-saving initiatives. Jean-Sébastien highlights that such efforts raise many intricate issues, reflecting the challenges in reliably assessing and sustaining energy efficiency.

Stefan Thomas suggests that the discussion raises the possibility of developing more standardized European methods for assessing the cost efficiency of energy efficiency measures, particularly under the energy efficiency first principle. Stefan questions whether reliable ex ante (preliminary) quantification of energy savings, load profiles, and cost efficiency is essential for ensuring that decision-makers prioritize energy efficiency.

Stefan adds that decision-makers may still be hesitant to prioritize energy efficiency, even if it is shown to be cost-effective, due to concerns about its ability to meet objectives with the same reliability as supply-side options. European Commission levels on what actions policymakers, especially at the European Commission level, could take to enhance decision-makers' trust in energy efficiency's reliability and effectiveness—suggesting that increased trust could reduce the need for strict enforcement and encourage greater use of energy efficiency resources.

Tim Mandel agrees emphatically on the need for reliable quantifications of energy efficiency potentials and cost savings, as these are fundamental to the energy efficiency first principle. Without accurate quantification, decision-makers risk being disappointed, weakening support for the principle.

He discusses the complexity of energy systems modeling, noting the challenges in capturing modern energy systems' interconnections, such as sector coupling (e.g., electricity to hydrogen, hydrogen to industry). This modeling is far more complex than past approaches, requiring sophisticated tools that also account for system flexibility and consumer behavior, including rebound effects and responses to incentives.

Tim highlights the challenge of balancing model sophistication with accessibility, given limited resources at various administrative and regulatory levels. Effective models need to incorporate detailed technical, spatial, and temporal factors, considering infrastructure availability, renewable energy variability, and real-world costs. He concludes by suggesting that improving these aspects in modeling can increase reliability, before handing it over to Veronika for further thoughts.

Veronika Jiříčková agrees with Tim on the importance of comprehensive modeling, emphasizing the need to view the energy system holistically rather than in sectoral silos. She explains that the energy efficiency first principle was introduced in the EU's 2015 Energy Union Strategy and later in the Sector Integration Strategy, recognizing the need to consider the interconnected ways energy is transformed, stored, and utilized.

Veronika notes that the European Commission is actively supporting modeling and quantification efforts, mentioning funded projects like "Synergies," which develops energy efficiency first scenarios, and tools like "MEETPASS," designed to monetize the wider benefits of energy efficiency. While

energy efficiency first has been established for nearly a decade, the recent Energy Efficiency Directive re-cast introduces clear requirements, which Member States are expected to transpose within a year, likely yielding visible progress later in the decade.

She concludes by inviting further ideas on how EU policymakers could continue to strengthen and support the application of the energy efficiency first principle.

As last question, **Stefan Thomas** asked, **what additional steps can the European Commission take to support the implementation of the energy efficiency first principle, particularly in enhancing evaluation and innovation?** He suggests that improving knowledge-sharing between Member States and developing tools and repositories for evaluation methods and results could be beneficial and invites others to share their ideas on how the Commission might further aid this process.

Jean-Sébastien highlights that, based on discussions with stakeholders, there is a strong demand for real examples of implementing the energy efficiency first principle. While strengthening evaluation requirements is valuable, showcasing concrete cases of successful application is essential. Such examples can provide practical insights into how theoretical potential assessments translate into real-world results, especially where alternatives to supply-side infrastructure investments have been tested.

He notes the importance of involving frontrunners, such as network operators and investors, who are willing to take risks and set examples. He distinguishes between evaluation perspectives: policymakers focus on additional impacts and complex, long-term outcomes, while investors prioritize immediate, reliable performance outcomes. Jean-Sébastien mentions that the NFS Plus project is developing pilot cases to provide practical, real-life examples to encourage broader adoption of the principle, building on earlier projects with a focus on the building sector. “There is a risk and we need to accept that, and then disseminate in as transparent way as possible the results. So that they can be discussed”.

Stefan Thomas emphasizes that while modeling and potential analysis are valuable, actual implementation is what truly matters. He agrees that testing is crucial but points out that there is already extensive experience available in other contexts. He suggests learning from the U.S. experiences discussed earlier and encourages EU Member States to share insights and learn from one another’s practices.

Tim Mandel agrees that robust methods and quantitative evidence are essential to advance the energy efficiency first principle but raises concerns about implementation challenges. He notes that,

despite strong planning and evidence, actual incentives often fail to support the intended outcomes. For instance, network operators in most Member States have little motivation to prioritize energy efficiency or demand flexibility over expanding energy supply, as their profits come from infrastructure growth.

Tim argues that aligning societal goals with privately optimal decisions is crucial, as individual decision-makers—whether companies or building owners—tend to focus on personal gains rather than high-level planning frameworks. He expresses skepticism about whether evaluation and evidence alone will be enough to drive the principle forward, pointing out that Article 3 lacks specifics on actionable policy mechanisms.

The two last interventions were from Stefan Thomas and Veronika:

Stefan Thomas' Response

- **Acknowledges Scepticism:** Stefan shares Tim's skepticism and concerns about implementation, particularly regarding incentives.
- **Mention of Article 27:** Notes that Article 27 addresses incentives for grid operators, stating that regulators should ensure proper incentives are in place. However, he expresses uncertainty about how this will play out in other sectors.
- **Invites Further Input:** Opens the floor for final interventions from Veronika or others to provide additional insights or wrap-up comments.

2. Veronika Jiříčková's Final Thoughts

- **Real-World Implementation:** Veronika understands the skepticism but emphasizes that the true test will come after the transposition of the Energy Efficiency Directive (EED) next year. Member States will have clear obligations under Article 3, which could provide valuable real-world examples over the next five years.
- **Flexibility in Implementation:** Points out that, as a directive, Article 3 allows Member States flexibility—they can meet minimum requirements or go beyond them, leading to varied levels of implementation and outcomes.
- **Challenges of Societal Perspective:** Veronika acknowledges the challenge of aligning individual incentives (e.g., cost savings during energy price hikes) with societal goals. She likens it to climate-conscious behavior, where individuals know what's beneficial yet often act based on convenience or personal gain.
- **Legal Framework as a Starting Point:** Highlights that Article 3, while not perfect, sets a legal foundation for energy efficiency. The next few years will reveal how Member States interpret and act on these requirements.

- **Looking Forward:** Veronika concludes by noting that these first efforts will provide practical examples and lessons for future improvements in applying the energy efficiency first principle.

Stefan's Closing Remarks

- **Evaluation's Role:** Stefan underscores that evaluation should capture both the societal and private perspectives on the cost efficiency of energy efficiency measures.
- **Policy's Role:** He emphasizes that policy should aim to align the private incentives with those that are cost-efficient from a societal viewpoint, bridging the gap between individual and collective goals.
- **Looking Ahead:** He suggests that this reconciliation of perspectives is a topic for further discussion, hinting at a deeper exploration in the next event.

Key Takeaways:

1. Energy Efficiency First Principle

The principle, as defined in the EU's 2018 Governance Regulation and Article 3 of the Energy Efficiency Directive, emphasizes prioritizing cost-effective energy efficiency measures in energy planning and investment. Member States are mandated to consider energy efficiency solutions in sectors like buildings, transport, ICT, and financial services. The goal is to integrate energy demand and supply efficiency without compromising planning objectives.

2. Role of Evaluation

Evaluation plays a critical role in applying the energy efficiency first principle, serving both **ex ante** (before-the-fact) and **ex post** (after-the-fact) purposes:

- **Ex Ante Evaluation:** Focuses on predicting cost efficiency, potential savings, and the broader impacts of energy efficiency.
- **Ex Post Evaluation:** Assesses whether implemented measures achieve intended outcomes, especially when energy efficiency substitutes traditional infrastructure.

3. Insights from Speakers

- **Tim Mandel** highlighted the distinctions between evaluation needs for planning, policy, and investment decisions:
 - Planning requires both ex ante and ex post evaluation for strategies like building renovation and heating/cooling plans.
 - Investment decisions, often with significant financial thresholds, need reliable ex ante projections to assess cost-effectiveness.

- **Veronika Jiříčková** emphasized the holistic view required for energy system modeling, including impacts on non-energy sectors (e.g., agriculture, buildings). She stressed the importance of visible societal benefits in energy efficiency decisions.

4. **Challenges & Scepticism**

Both speakers and participants, including Amandine Gal and Jean-Sébastien Broc, noted differences in evaluation rigor between North America and Europe. Broc referenced the U.S. Unified Method Project as a potential model, while Tim raised concerns about the lack of incentives for private sector alignment with societal energy goals. Veronika acknowledged these challenges, noting that societal incentives are crucial but complex.

5. **Moving Forward**

- **Need for Standardization:** Stefan Thomas and participants discussed the potential benefits of standardized European methods for evaluating cost efficiency in energy efficiency. He emphasized that reliable quantification is essential to boost decision-makers' trust in energy efficiency alternatives.
- **Importance of Practical Examples:** Broc highlighted the demand for real-world examples of successful implementation, suggesting that pilot projects and transparent case studies could encourage adoption.
- **European Commission's Role:** Veronika shared that the European Commission is actively supporting tools like MEETPASS to monetize energy efficiency benefits. The upcoming transposition of the EED could bring valuable insights over the next five years as Member States implement Article 3 requirements.

Conclusion

In his closing remarks, Stefan noted that evaluation must account for both societal and private perspectives to bridge the gap between cost efficiency and actual incentives. He emphasized the importance of policy alignment and suggested further discussion on reconciling these perspectives in future sessions.

Shared links:

<https://www.seenergies.eu/>

<https://micatool.eu/seed-micat-project-en/index.php>

<https://enefirst.eu/examples/>

<https://ieecp.org/projects/enefirst-2/>