Comments to the Swedish National Energy and Climate Plan

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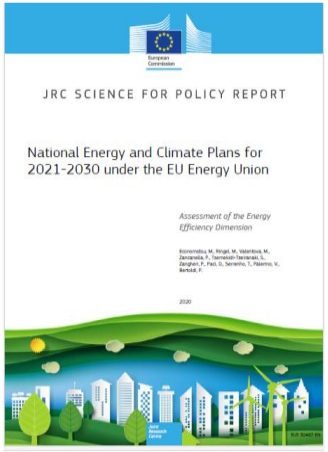
Basis for our assessment

- The EU's Energy Union, for providing secure, affordable and clean energy for EU citizens and businesses.
- Rests on five dimensions:
  1. Energy Security
  2. Integrated, internal energy market
  3. Energy Efficiency
  4. Climate Action & Decarbonisation
  5. Low carbon and clean energy techs.
- NECP is one, out of several, governing mechanisms for the Energy Union
- NECP to be updated 2023 (draft, June)

- 2022 report on the achievement of 2020 efficiency targets…

✓ By 2020 a 20% reduction in final energy use compared to 2007, and by 2030 a 32.5% reduction

✓ Sweden's Policy Measures: Energy and CO_2 tax



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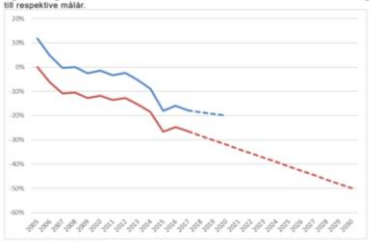
NECP SWEDEN 2019

- Sweden aims for 50% improvement in energy efficiency by 2030 (compared to 2005)…
  - Target in terms of Primary Energy Supplied in relation to GDP
- The mode of ”steering” is via energy and CO2 tax system, no obligation schemes.
  - E.g. metallurgical industri has tax exemptions, and others have reduced rates…
  - Electricity and fuel used to generate electricity are exempt from tax, whereas the electricity produced is taxed instead.
  - The building sector high-lighted for renovation targets to improve efficiency
  - The industry sector high-lighted for energy mapping with possibility to seek support for implementing efficiency measures…
- Circular Energy Systems and Sector-coupling not considered or mentioned in Swedish NECP, but significantly high-lighted on an EU-level…

Figur 5 visar energiintensitetsmålen till 2020 och 2030. Målet till 2020 är en 20-procentig minskning och målet till 2030 är en 50-procentig minskning. Förutom att målen har olika basår och målår skiljer de sig även genom att 20-procentsmålet inkluderar bränslen för icke-energiändamål.

Figur 5 Energiintensitetsmål till 2020 och 2030. Statistik t.o.m. 2017 och därefter en antagen linjär utveckling till respektive målår.



Källa: Energimyndigheten.

Då det svenska målet till 2030 är ett energiintensitetsmål finns ingen fast nivå på tillförd (primär) och slutlig energianvändning vid måluppfyllelse. I figur 6 redovisas vilka energianvändningsnivåerna beräknas bli vid olika antaganden

Conservation and Efficiency in the Building Sector

What the NECP Says:

- Mentions longterm renovation strategy, stating a large potential for efficiency improvements
- Current average rate of efficiency improvement (1% annually) not enough to reach the targets for 2030.

Insights from this project:

- Existing roadmaps for low-carbon buildings surveyed, concluding on general lack of quantitative goals, technical analysis to identify pathways, and weaker goals for renovations.
- Cost-efficiency-driven implementation of measures reduces energy demand by only 5% until 2050, while measures dictated by technical renovation needs lead to buildings with very low energy demand.
- The cost-efficiency of energy conservations measure varies to a large extent, and packages of such ECMs more profitable than applying individual ECMs.

Our recommendations to NECP update:

→ Ensure compliance with the EU Energy Efficiency Directive

→ More ambitious policy measures for renovation, including enforcing mechanisms

→ Adding quantitative metrics for follow up targets.

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Conservation and Efficiency in the Industry

What the NECP Says:

- A number of ”requirements”, like energy audits with proposing improvements, even funds to support this work is available, but no monitoring mechanisms.
- Foresees an increased electricity demand for industry – demand flexibility discussed.

Insights from this project:

- Existing modeling results suggest that industry has limited ability to support the national energy efficiency.
- Increased demand for Swedish products, and intensified recycling of materials, could change this.

Our recommendations to NECP update:

→Clearly defined targets for industry, with indicators allowing for longterm monitoring of efficiency as well as conservation.

→Consider means to enforce action.

Material Conservation and Efficiency

What the NECP Says:

- Mentions the Sustainable Building Information Centre, also promoting the use of sustainable materials.
- Lacks mechanisms for enforcing the transition to increased circularity.

Insights from this project:

- Survey of policy instruments reconfirms the need for requiring documentation on the quality and content of building materials.

Our recommendations to NECP update:

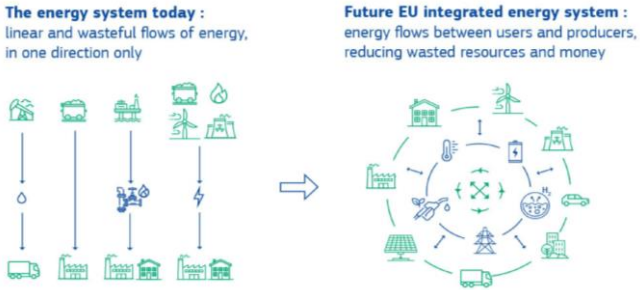
→Clearly defined targets for material use, with indicators allowing for longterm monitoring.

→Implement the policy instrument regarding documentation.

Sector-coupling – a holistic approach for conserving energy

What the NECP Says:

- ONE indicator on the national level – (energy supply/GDP)
- Measures to lower this value discussed, and only per sector.
- Does not acknowledge EU's Strategy for Energy System Integration, where a circular energy system is one where "no" energy is wasted.
- Estimates a potential for use of industrial surplus heat to increase from 6 TWh presently, to 9 TWh in total, that is + 3TWh



Insights from this project:

- Spatio-temporal planning identifies an additional 10 TWh to be cost-effective for integration until 2050, including Urban Excess Heat.

Our recommendations to NECP update:

→ Implement strategies, specific targets, and follow-up mechanisms to promote sector-coupling

→ Emerging heat producing technologies, like H_2-production, should be planned from the start to co-locate close to a heat sink.

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Some words on Nordic Cooperation

- At first glance, Energy Conservation and Resource Efficiency consist of local measures, like for industrial activities or buildings…

→However, demand-side management, improving efficiency, and conserving resources at national levels could facilitate the collaboration in the electricity sector, considering that:

  insulated buildings, for example, will be less affected by changes in temperature

  loads will be less aggregated to a specific time in the morning and evening

  heat pumps, compared to direct electric heating, will decrease peaks

→ Collaboration on regulatory frameworks, relevant targets and metrics for monitoring.

  Target for electricity load-levelling, per country?

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Thank you!