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EXECUTIVE SUMMARY
27.02.2026

Alternative approaches to reviewing the EU energy efficiency target

Why is one consumption target misleading in an electrifying EU?

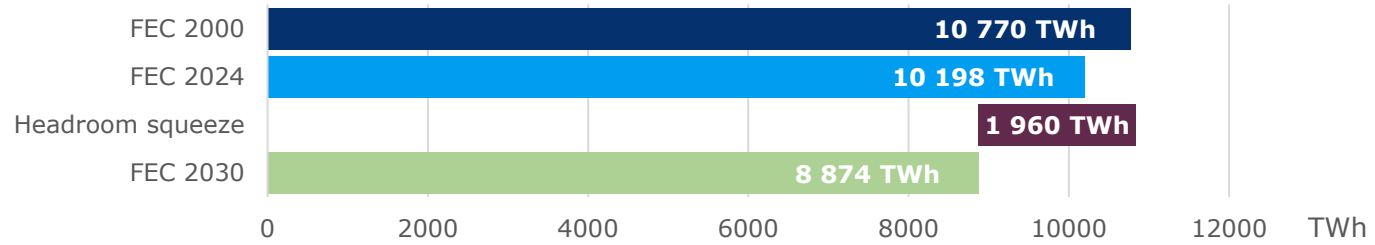
The Energy Efficiency Directive sets a binding EU-level target to cut Final Energy Consumption (FEC) by 11.7 percent by 2030.

Even though FEC target has provided a simple way to track energy use across the EU, it focuses solely on energy consumption, not actual efficiency. Today, as Europe electrifies and the economy changes, the effects from this limitation intensify.

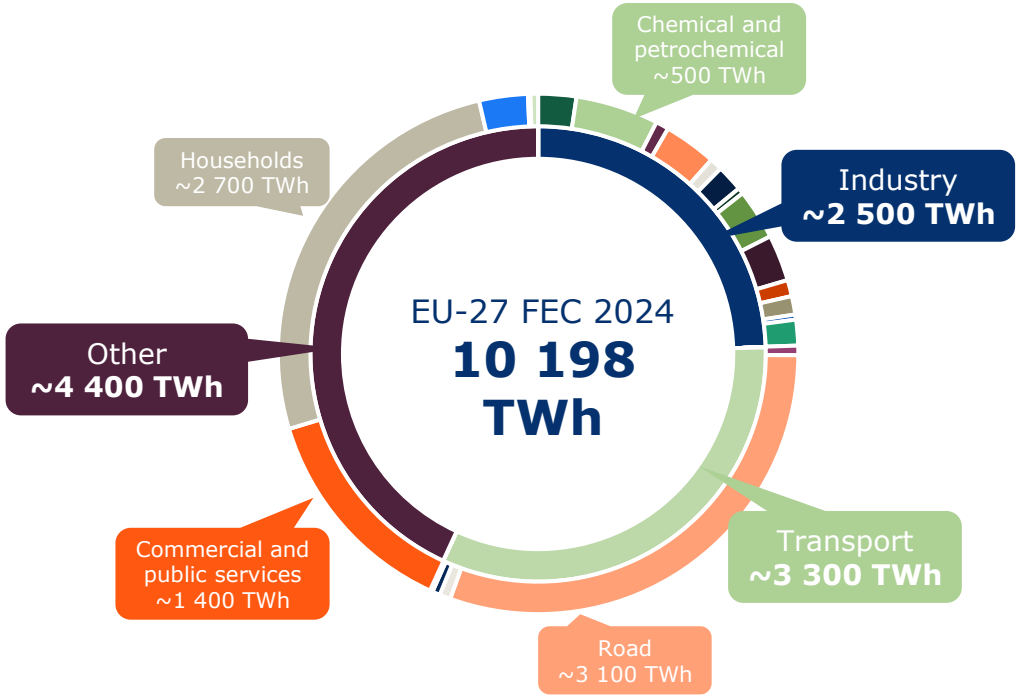
Focusing on only one consumption target, the following risks increase:
- discouraging beneficial electrification
- confusing reduced activity with improved efficiency.

Complementary indicators are needed to show actual efficiency improvements.

In 2024 the EU's FEC was ~10 198 TWh. Comparing this to the 2030 target, equivalent to ~8 874 TWh, there is a ~1 300 TWh gap that grows toward **~2 000 TWh** when new estimated activity is counted.



This report does not set any new targets. Instead, it explains why one single absolute metric cannot show the full extent of change and the trade-offs. Also, it shows how a few supporting indicators with a wider scope can help reveal what is actually improving.



What would it take?

To hit the reduction target (1 960 TWh) through industry alone, it would mathematically imply **cutting industrial final energy use by ~78%.**

This illustrates the implausibility of reaching the target solely through efficiency without structural adjustments to the directive.

What is at risk when one metric dominates

Climate

Further cuts in total energy use no longer guarantees lower emissions unless remaining fossil production is targeted. Clean electrification can raise FEC while lowering emissions per unit of energy used.

Growth

An absolute cap creates competition for limited “energy space”, dampening investment in clean-tech, grids, and storage and constraining sectors the EU wants to scale up.

Prices

When availability is tight and flexibility lags, caps amplify price sensitivity and volatility. Households and smaller companies face the downside, increasing risk to growing energy poverty.

Security

Shrinking all energy consumption and production evenly does not materially reduce import exposure. However, adding domestic renewables and using waste heat can strengthen resilience.

The risks mentioned above have been analyzed based on the current EU-level target in the Energy Efficiency Directive to cut Final Energy Consumption (FEC) by 11.7 percent by 2030. If other binding caps are set, the risks may change.

What to measure alternatively?

The proposed metrics group into four themes that together show whether energy use creates value, lowers emissions, strengthens security and affects energy prices. This multi-indicator view mirrors international best practice and reveals different aspects and consequences, unlike current absolute target.

Scorecard Themes

Competitiveness

This indicator reveals if growth is occurring and whether it is becoming more energy-efficient over time, allowing analysts to distinguish real productivity gains from activity changes.

Measures for example how effectively energy becomes economic value by tracking energy used per unit of value added and the scale of industry in the national economy.

Sustainability / Climate

This indicator reveals how clean the member state's energy system is and how much emissions does the use of energy create annually.

Tracks for example annual emissions and how much of the energy mix still relies on fossil fuels, which help analysts to distinguish real decarbonization from simple reductions in activity.

Energy Security

This indicator assesses exposure to external shocks and reveals how dependent a country is on imported fuels.

Compares for example imported energy with domestic primary supply and measures the share of imported fossil energy of all available energy. These ratios indicate structural resilience and progress toward self-sufficiency, not just changes in system size.

Affordability

This indicator examines how energy prices affect people and how efficiency actions may ease or worsen energy-poverty risks.

Measures for example what energy costs to household consumers and what share of disposable income those costs consume. Observed together, these show both price levels and their real burden on typical household consumers.

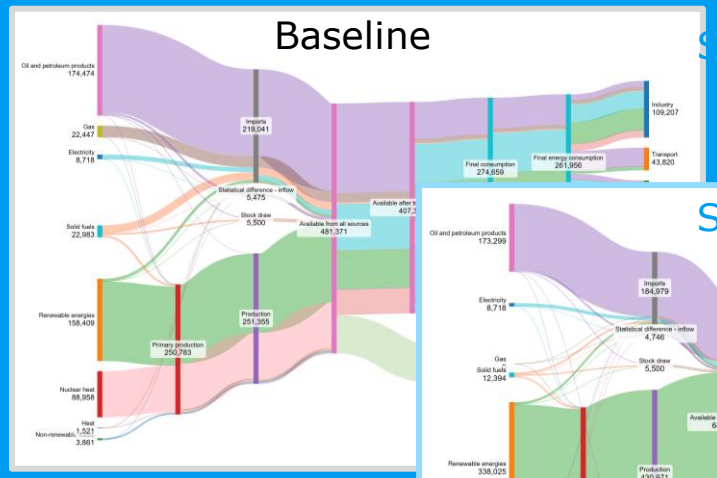
Efficiency analysis through two different scenarios

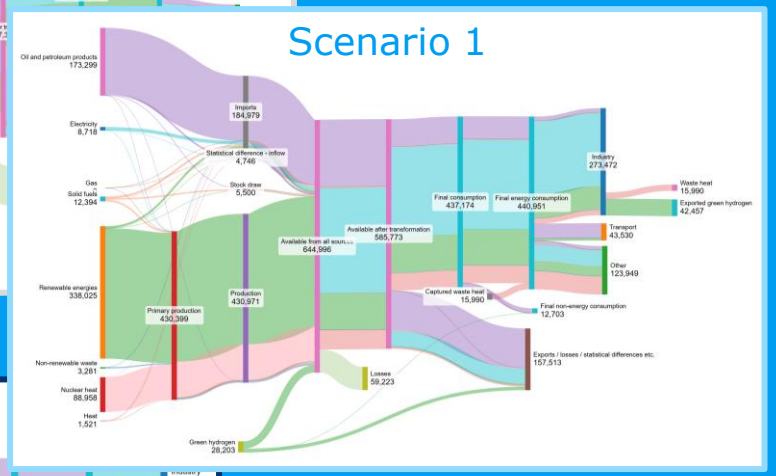
For this report, a case example from Finland was created solely for illustration. It demonstrates how varying assumptions about future development lead to different sector outcomes, reflected in the four proposed scorecard themes.

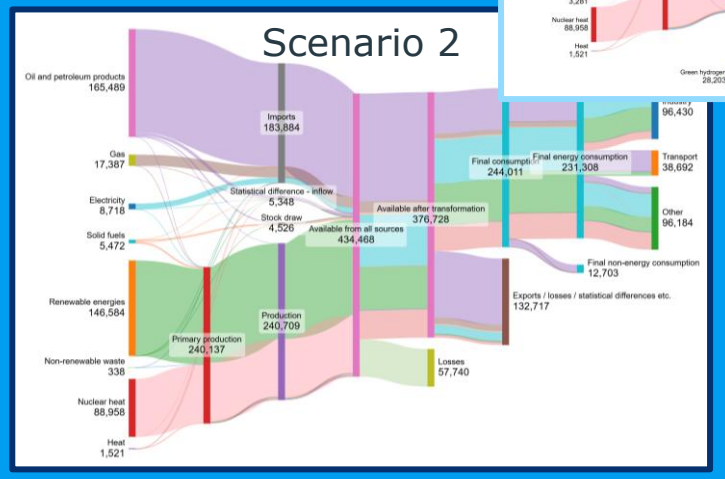
Scenario 1 adds energy-intensive activities but improves sustainability and energy security through renewable production, hydrogen and waste-heat utilization.

Scenario 2 reaches the EED target by reducing consumption across all sectors, but without structural changes it shows declines in competitiveness and affordability.

These results are **not** predictions, nor are they an assessment of Finland's policy choices. They simply highlight how the metrics can help reveal both benefits and trade-offs.



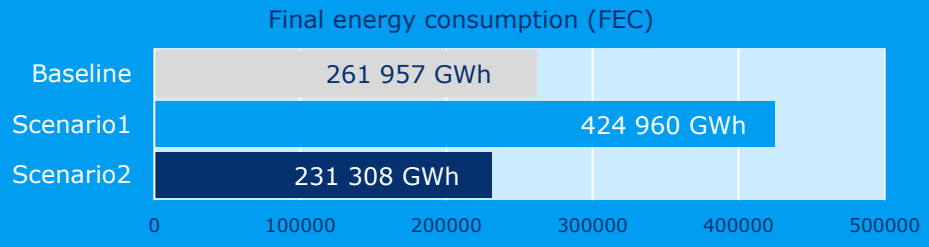




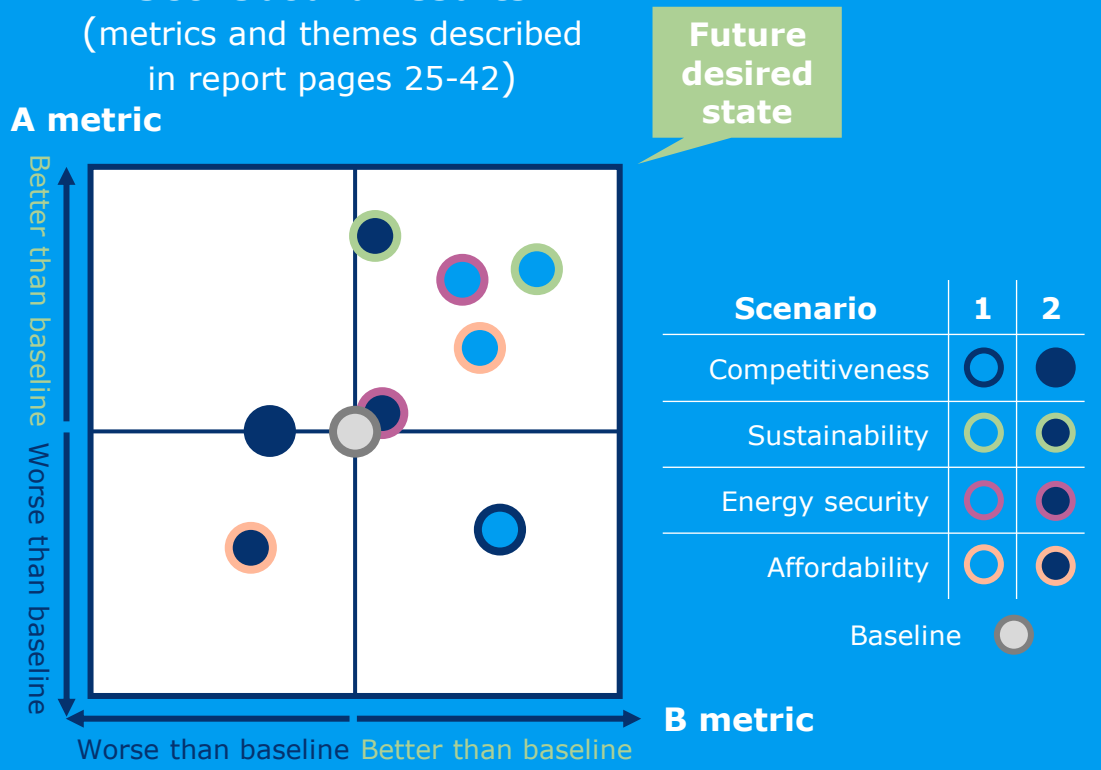
Measure efficiency in context, not in isolation

The 2x2 matrix shows the results from scorecard approach for the two scenarios analyzed. Each circle shows where the pair of metrics (two metrics per theme) land for one theme in each scenario. Read right/up as "better than baseline" and the upper right corner as the future desired state.

Additionally, chart below shows FEC in baseline and two scenarios.



Scoreboard results
(metrics and themes described in report pages 25-42)



In **Scenario 1**, final energy consumption rises, yet annual emissions and emissions per unit of energy fall, import reliance declines, household energy costs and income share ease, and industrial value added grows, so the higher use reflects clean electrification and new value creation rather than inefficiency. **Scenario 2** cuts total emissions mainly by reducing activity, keeps emissions per unit close to baseline, offers little structural security gain, increases the household burden and lowers industrial value added, showing why one consumption number cannot reflect the real balance of outcomes.

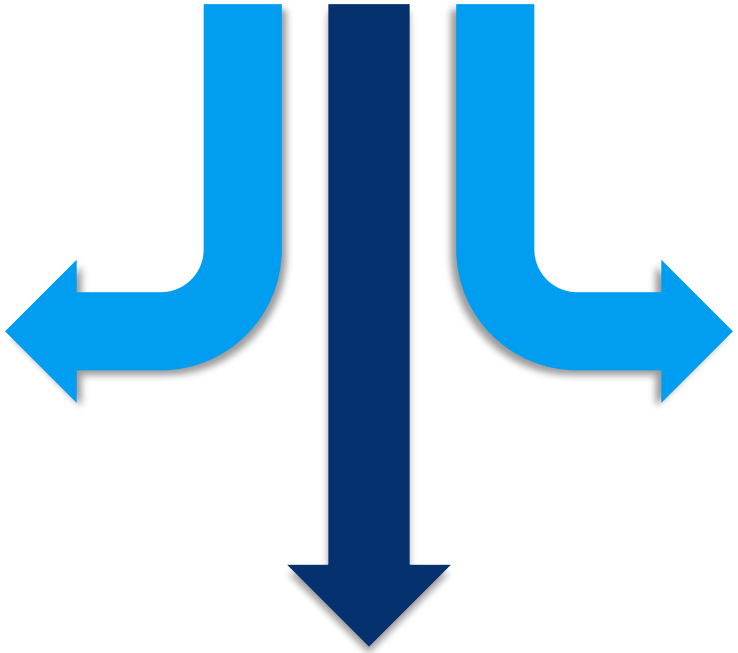
Conclusions

Summary	Case example	Two scenarios	Results
Relying on a single Final Energy Consumption (FEC) number masks what matters in an electrifying EU. Electrification, new industries and more renewables can lift measured consumption while improving emissions, security and affordability. One cap misreads cause-effects and trade-offs.	A case example from a member state 2024 baseline with two illustrative scenarios were used as a case example. The purpose was to show how a small set of contextual indicators clarifies whether changes are cleaner, more secure, more affordable and more competitive—not just "more or less energy."	Scenario 1 adds clean electricity, green hydrogen and waste-heat use, increasing FEC but improves sustainability and energy security. Scenario 2 lowers total emissions mainly by shrinking activity, with limited structural gains and weaker competitiveness and affordability.	No single metric can fully show if Europe is becoming more efficient, cleaner, secure, or affordable during electrification. Small ratio-based indicators help distinguish true efficiency from less activity and reveal when increased electricity consumption supports decarbonization, resilience, and competitiveness.

Conclusion:

Aligning energy efficiency with EU's growth and climate goals

Energy should be used efficiently, but the EED should not artificially constrain the use of clean energy.
Clean growth can increase energy use, while reducing emissions.



EU energy efficiency target for 2040 should not be a binding reduction target for energy consumption.
Instead, EU could use a set of well-chosen indicators with smart tracking:

- accelerating **decarbonization**
- strengthening EU **competitiveness**
- improving energy **security**
- improving energy **affordability**

The present EU's energy efficiency target must be re-oriented to measure and support clean growth outcomes, rather than serving solely to reduce energy consumption.

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