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On the debate around the Swedish “Reduktionsplikt”

The Reduktionsplikt (engl. reduction duty) requires Swedish fuel suppliers to reduce the greenhouse gas emissions of their petrol and diesel, in practice mostly by blending in biofuels. It has become a much-contested policy of the 2026 election, and the debate is almost entirely about the policy’s impact on the pump price.

We argue this focus is too narrow. So long as compliance runs through blending, any price effect is simply what follows from mixing two products with different prices: the mandate level scales it, but its size depends on the gap between biofuel and fossil diesel, which is largely determined by broader market conditions rather than by the mandate level alone. What deserves attention is where that gap is heading, and whether the mandate’s cost is reasonable relative to the emissions it avoids — a question Sweden must answer if it is to choose efficiently between policies to reach its 2030 emissions goals.



The policy and the debate

Fuel prices have become one of the most politically charged issues ahead of Sweden's election this autumn. Several political parties are competing to offer the largest reductions at the pump, while proposals that could raise petrol or diesel prices meet immediate resistance (SVT Nyheter, 2026). The issue has become even more salient following the recent energy shock linked to disruptions in oil flows through the Strait of Hormuz. In response to rising energy prices, Sweden reduced fuel taxation from the beginning of July until the end of November to shield households and businesses (Skatteverket, 2026). This again illustrates how central the pump price has become to both economic policy and the election campaign.

At the same time, Sweden remains far from reaching its climate target for domestic transport. The country has committed to reducing transport emissions by 70 percent by 2030 relative to 2010 (Regeringen, 2017), but emissions have so far fallen by only around one fifth and electrification of the vehicle fleet has progressed more slowly than anticipated (Klimatpolitiska rådet, 2024). Fuel policy therefore sits on a fault line between keeping driving affordable and meeting a binding climate commitment.

No policy captures this tension more sharply than the Reduktionsplikt, which was introduced in July 2018 as a central part of the policy package intended to reach the climate target. It requires fuel suppliers to reduce the average lifecycle greenhouse-gas intensity of petrol and diesel, primarily by blending renewable biofuels such as **HVO**, **FAME**, and ethanol into fossil fuels. The policy can therefore reduce emissions from the

existing vehicle fleet without waiting for all drivers to switch to electric vehicles.

In this brief, we focus on the diesel mandate. Historically, it has been significantly higher than for petrol, as diesel allows much more fuel blending. The diesel mandate was introduced at 19.3 percent in 2018 and incrementally increased to 30.5 percent in 2022–2023, before being reduced to 6 percent in January 2024 following a political backlash over high fuel prices. In July 2025, it was raised again to 10 percent.

A government inquiry on policy measures for phasing out fossil fuels, chaired by the head of environmental economics research at Konjunkturinstitutet, Svante Mandell, has now proposed increasing the mandate to 21 percent in 2028 and 25 percent in 2030. Together with higher fuel taxation, the package has been estimated to raise pump prices by around three kronor per litre (Mandell, 2026). Mandell argues that stronger measures are needed because the current policy mix is unlikely to deliver Sweden's climate commitments. Representatives of the governing parties and their parliamentary allies have rejected the proposal, arguing that it would impose excessive costs on households and businesses. The governing parties instead want to emphasize electrification and lower fuel costs.

What the pump-price debate misses

The political focus on pump prices is understandable, but incomplete. The debate tends to treat the price effect of the Reduktionsplikt as if it were determined primarily by the mandate level itself: a higher Reduktionsplikt necessarily means substantially higher fuel prices.



In reality, the effect depends crucially on the price difference between renewable and fossil diesel at the time. When biofuels are priced close to fossil diesel, a higher renewable share can reduce emissions with little effect on the final blended fuel price. When renewable fuels become more expensive, the same mandate can instead raise blended diesel prices sharply.

In this way, the price effect of Reduktionplikt depends on the interaction between the required renewable share and the circumstances affecting the renewable-to-fossil price gap, including biofuel supply, international biofuel demand, feedstock availability, exchange rates and international energy-market conditions. This makes a narrow focus on the current pump-price effect short-sighted. Whether a higher mandate will be costly in the future depends on how the biofuel market develops, not simply on the mandate level.

Moreover, the extent of the price increase should not be assessed in isolation. A higher price is a cost, but in return the mandate delivers something of value: lower emissions. To judge the policy fairly, the cost paid at the pump must be weighed against the climate benefit it facilitates and weighed in a way that lets the mandate be compared with other ways of cutting the same emissions.

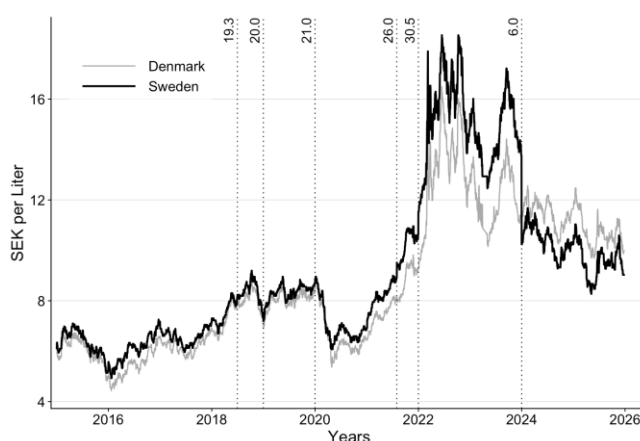
Mandate effect and market conditions

In a recent paper (Larsson and Oberhammer, 2026), we address the above points. We first estimate how much higher Swedish diesel prices were because of the mandate from 2018 through 2023. Since there is no common price for all types

of biofuels, we cannot observe it directly. Instead, we use Denmark as a counterfactual, since Sweden and Denmark participate in the same north-western European fuel market and are exposed to similar oil-price and supply shocks, but Denmark maintained a much lower and more stable biofuel obligation. The resulting Swedish–Danish price premium is therefore our estimate of the mandate's price effect: it measures the cost of the extra biofuel Sweden blends, which is simply the extra mandate share times how much more (or less) biofuel costs than fossil diesel.

As expected, before 2018, we observe that Swedish and Danish diesel prices excluding taxes moved closely together.

Figure 1. Swedish and Danish diesel prices without tax



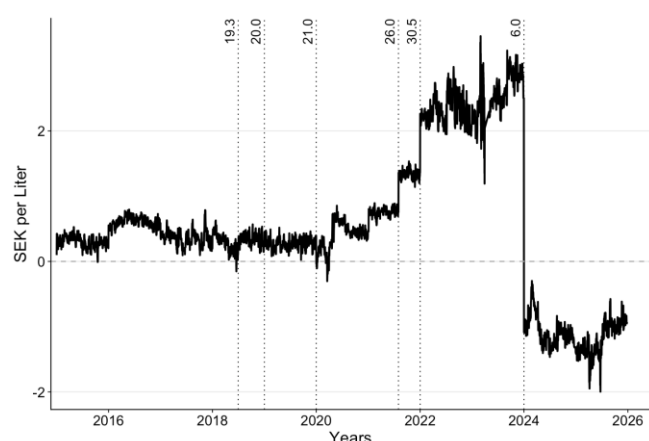
Source: Authors' rendering of price data from Circle K Denmark (2026) and Circle K Sweden (2026) using the daily SEK/DKK exchange rate reported by Sveriges Riksbank (2026).

From 2018 onward, the comparison lets us estimate the price premium at each mandate level. During the early period, with mandate levels of 19.3 and 20 percent and relatively low prices, we find no increase in price at all. We first detect a price premium during the 21 percent level. It starts at 0.17 SEK per litre and then rises to 0.99 SEK per litre during 26 percent policy and 2.05 SEK per litre



during 30.5 percent. When the mandate was cut in 2024, the gap fell sharply and even turned negative — mostly a currency effect, with the remainder following from Denmark's mandate now being above Sweden's.

Figure 2. Price gap between Swedish and Danish diesel prices without tax



Source: Authors' rendering of price data from Circle K Denmark (2026) and Circle K Sweden (2026) using the daily SEK/DKK exchange rate reported by Sveriges Riksbank (2026).

The immediate takeaway is that a high mandate *per se* does not generate the same price effect in every period. Because the premium is the extra blend share multiplied by the biofuel–fossil price difference, its size depends on that price difference as much as on the mandate level. The early years make this concrete: Sweden was meeting an obligation of around 20 percent yet showed no premium over Denmark, which means biofuel and fossil diesel must have been priced at similar levels then. The large premiums emerge only in 2022–2023, when biofuel became expensive across the EU during the energy crisis (Lundberg et al. 2023). Denmark, blending far less, was largely insulated from that cost — which is why the Swedish–Danish gap widens exactly as biofuel prices climb.

Climate benefits vs. price costs

With the price effect established, we can weigh what the policy achieved against what it cost. We estimate that the Reduktionsplikt reduced emissions by around 14 million tonnes of CO₂e from 2018 until the end of 2023. On average, 94 percent of that came from substituting fossil diesel with biofuel and only 6 percent from reduced consumption during the high-price period. The split reflects how the policy works: it cleans the fuel rather than pricing people out of using it. It also reflects how little diesel demand responds to price in the short run. We estimate that a 10 percent rise at the pump cuts diesel use by only about 2 percent, since the households and firms that depend on diesel for commuting, freight, farming and construction have few immediate alternatives.

By comparing the extra amount paid due to the policy with the emissions avoided, you get the cost of avoiding each tonne of CO₂e. This single figure lets the mandate be judged on the same terms as fuel taxes or electric-vehicle subsidies. Sweden's carbon tax offers a natural benchmark. At around 1,510 kronor per tonne of CO₂e (Government Offices of Sweden, n.d.), it is the price the country has explicitly placed on fossil carbon, and in effect society's own valuation of what avoiding a tonne of emissions is worth.

Against that yardstick, the mandate was a very cheap way to cut carbon in its early years, when it reduced emissions with little or no effect on the diesel price. It became expensive only later, at the height of the energy crisis, when compliance costs ran well above the climate benefit. However, averaged across the whole period, including those



expensive years, the cost of avoiding a tonne came out at roughly 1,574 kronor. That is close to the carbon tax itself. So, despite the unfavorable market developments, the mandate has been a reasonable exchange overall for the emissions it bought.

Reasonable compared to what, though? If the transport target is to be met, one direct alternative is higher fuel and carbon taxation. Such a policy would have to work through consumption reduction — the channel that delivered only the abovementioned 6 percent of the mandate's reductions. Konjunkturinstitutet estimates that reaching the target through fuel taxation alone, with the mandate held at its current floor, would require pump prices of around 42 kronor per litre for both petrol and diesel (Carlén and Hill, 2023) — well above anything reached even when a record mandate coincided with expensive biofuel.

However, the mandate's advantage over taxation rests on biofuels being available at a price not too far above fossil diesel, and that condition held comfortably in some years and barely at all in others. This is the point currently missing from the debate: both the price effect and the cost per tonne of emissions avoided depend crucially on conditions in the biofuel market, not on the mandate level alone. When biofuel markets tighten, compliance costs rise quickly.

One reason for caution is scale. Even Sweden's historically high mandate could only address part of the transport transition. If many countries raise their blending requirements at once, they will be competing for a limited pool of sustainable biofuels. Supply may well expand in response, but whether it expands quickly enough to keep pace is genuinely uncertain. That uncertainty is what

deserves attention: if biofuel can be supplied in sufficient volume at a price not far above fossil diesel, the Reduktionsplikt remains an efficient way of cutting emissions, and if it cannot, the costs of the energy crisis may return.

Future reforms should therefore focus not only on the formal mandate level, but also on resilience to such shocks, by broadening how suppliers can comply to the obligation. The redesigned low-level mandate of July 2025 already allows suppliers to meet part of their obligation by supplying renewable electricity for road transport rather than liquid biofuel. Such electricity credits reduce dependence on internationally traded biofuels and tie the policy more closely to electrification (Energimyndigheten, 2025).

Conclusion

The ongoing policy debate surrounding the Reduktionsplikt is therefore too simplified. A higher mandate does not automatically produce a large fuel-price increase, and even when prices increase, we need to compare the cost of the policy to its environmental benefits.

The policy delivered substantial emissions reductions with little or no diesel-price premium in its early years but became costly in 2022–2023 as high mandate levels coincided with expensive biofuels. Across the full period, however, the cost per tonne of CO₂e avoided was close to Sweden's carbon tax.

The relevant policy question is therefore not whether the Reduktionsplikt is simply cheap or expensive. It is first whether biofuel supply can be expected to keep pace with demand, since a market that remains tight will produce the same



price shocks again. And then, whether Sweden can design a mandate that delivers near-term emissions reductions at a cost comparable to alternative climate measures, while limiting its exposure to those shocks and supporting the longer-term transition toward electrification.

Finally, price and emission effects do not settle every question about the policy. Two broader questions, not captured by the price-and-emissions comparison above, also matter for the policy's future. First, the mandate may either support electrification by cutting emissions from the existing vehicle fleet while electric alternatives expand, or slow it by reducing the pressure to replace fossil-fuel vehicles. Second, the climate benefit depends on the biofuels used: it is larger for fuels produced from genuine waste and residues than for crop-based feedstocks associated with land-use effects (Searchinger, 2008).

The future of the Reduktionsplikt should therefore be judged not only by its effect on today's pump price, but by whether it can deliver cost-effective emissions reductions while supporting the longer-term transition away from fossil fuels.

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