

Infrastructure Planning – a roadmap to the climate objectives RiR 2012:7

Summary

Investments in infrastructure contribute to increased mobility and accessibility and lay the foundations for faster and more efficient travel and transport. The greatest share of travel and transport takes place on the road, and traffic projections from the Swedish Transport Administration indicate continued growth in traffic.

Travellers and freight carriers benefit from additional infrastructure, which can generate economic benefits including those of shorter journey times and a reduced risk of accidents. It is primarily the reduction in travel time calculated to result from the investments that makes it economically viable to invest in new infrastructure.

As the population and economy grow, so does the demand for travel and transport. One measure being taken to accommodate an increased demand is the building of new road infrastructure, which in itself generates more road traffic. Increases in traffic also bring certain negative effects. As traffic increases, so does the emission of carbon dioxide, which counteracts the climate objectives set by the Riksdag.

The Riksdag Committee on Transport and Communications notes that clear prioritisations need to be made when the infrastructure is expanded over the coming years. Decisions we make today will affect transport potential and thereby also, for example, the location of homes and workplaces for a long time to come. The Committee establishes that investments in new infrastructure must contribute to an overall reduction of carbon dioxide emissions and that there is a need for prioritisations that contribute to such a development.

The Swedish National Audit Office's overall conclusions

The Riksdag is not receiving a true and accurate picture

The Swedish National Audit Office (Swedish NAO) finds that the profitability of many objects is based on assumptions about traffic volumes and traffic increases that, with the knowledge currently available, are likely to be difficult to reconcile with the climate objectives.¹ Since the Government has not clarified the relationship between profitability, traffic increases and increased carbon dioxide emissions, its reporting to the

¹ The national environmental objective *Reduced Climate Impact* encompasses a milestone target for the year 2020, and carbon dioxide emissions will fall sharply towards net zero emissions by 2050 (see Chapter 2).

Riksdag is not transparent or consistent, nor a true and accurate reflection of the climate objectives.²

The audit also demonstrates that the carbon dioxide emissions resulting from the national infrastructure plan have been underestimated. In the Swedish NAO's assessment, both the Government's unclear management of how the climate objectives are to be observed and the road and rail administrations' application of projection models during the infrastructure planning process have contributed to this underestimation. It is uncertain whether the national plan will lead to an overall reduction in carbon dioxide emissions and thereby contribute to the climate objectives. True and accurate reporting is needed if the Riksdag is to be able to make informed infrastructure decisions.

Audit background

Reasons

The greenhouse gas emissions of the transport sector are extensive and continue to grow. During the period 2010-2021, about SEK 480 billion is being invested in new and existing infrastructure, of which SEK 417 billion represents central government funds. The Riksdag's transport policy objectives include the environmental objectives (and the climate objectives)³ as equally important as the objective of greater accessibility. This is in line with the Government assessment that the development of transport infrastructure should be “consistent with the established climate and environmental objectives”.

Purpose

The purpose was to audit whether the management towards the objectives of transport policy is transparent and whether reporting to the Riksdag is a true and accurate reflection of the transport policy objectives and of the climate objectives set by the Riksdag. Transparency and true and accurate reporting are needed in order to make informed infrastructure decisions, where the climate objectives set by the Riksdag are also taken into account.

Scope of the audit

The audit relates to the management and implementation of the infrastructure planning on the basis of the transport policy objectives and the climate objectives set by the Riksdag. The focus of the audit is the impact of the infrastructure plan on the climate objectives and how this impact is measured and reported. The audit does not encompass the infrastructure plan as a climate policy instrument. Thus the audit has not addressed whether the plan is cost effective. The audit outlines the potential for greater vehicle efficiency and cleaner fuels.

² If traffic volumes were to decrease, carbon dioxide emissions would also decrease, but then the profitability of many investments would also decrease. The reverse also applies; if traffic volumes were to increase in the projections, carbon dioxide emissions would also increase, but then the profitability of many investments would also increase.

³ As well as with objectives of road safety and health.

The audit's point of departure

The Riksdag Committee on Transport and Communications has stated that investments in new infrastructure must contribute to a reduction of emissions and that there is a need for prioritisation of objects that contribute to such a development. In addition to this, the Government and the Riksdag have stated that greater vehicle efficiency will contribute to a reduction of greenhouse gas emissions in the transport sector. The Swedish NAO has audited the management on the basis of available knowledge of the potential for greater vehicle efficiency and cleaner fuels. This is described in the audit.

In order to make this potential clear, the audit includes data from international bodies such as the OECD/IEA (International Energy Agency), the European Commission and the European Environment Agency. It also includes data from national actors, including the Swedish Transport Administration and the Swedish Environmental Protection Agency, as well as data from bodies appointed by the Riksdag, such as the Environmental Advisory Council and the Climate Committee. In addition to this, the picture has been supplemented by the research overview that a researcher at the KTH Royal Institute of Technology has produced on behalf of the Swedish NAO.

From the data examined by the Swedish NAO, it appears that the potential to reduce greenhouse gas emissions from the transport sector through greater vehicle efficiency and cleaner fuels is likely to be large, but that there are significant uncertainties about technological breakthroughs and the costs associated with this. All data examined by the Swedish NAO points to the problem of continued traffic increases within carbon dioxide-intensive modes of transport and emphasises the need for supplementary measures. Examples of such measures include transferring freight and passengers to efficient and low-carbon modes of transport and the greater use of public transport.

The point of departure of the Swedish NAO audit has been the probable difficulty, with the knowledge currently available, of reconciling continued increases in road traffic with the long-term climate objectives.

Audit findings

Insufficient reporting to the Riksdag on reduced climate impact through intermodal planning

The Government explained the common planning framework for roads and railways by stating that this planning should be intermodal. According to the Government's report to the Riksdag, the intermodal approach would contribute to reduced climate impact, among other things. The audit demonstrates, however, that the Government had already fixed the distribution (of investments) between roads and railways. Consequently the road and rail administrations' opportunities to influence the distribution between those modes of transport were in practice limited. It is therefore difficult to see how the Government's ambition of an intermodal approach has been reflected in the planning or contributed to reduced climate impact.

By contrast with previous rounds of planning the Riksdag has not had formal transparency or power of decision with regard to the distribution between the modes. Neither has the Government subsequently reported the distribution of the planning framework between roads and railways to the Riksdag.

Profitability based on increased traffic difficult to reconcile with the climate objectives

The Swedish Transport Administration has produced planning documents for the transport sector in which it describes how the long-term climate objectives can be achieved without reducing public transport accessibility. Corresponding documents have previously been produced by the Swedish Road Administration. These documents establish that continued growth in road traffic is difficult to reconcile with the climate objectives set by the Riksdag. However, neither the Government nor the road and rail administrations have coordinated these planning documents with the points of departure that guided the infrastructure planning.

If the infrastructure planning were to be conducted on the basis that the climate objectives shall be achieved, this would probably influence which investments become profitable, a factor which the Government has not reported to the Riksdag.

The Government determines the national infrastructure plan on the basis of the infrastructure planning process conducted by the road and rail administrations. Since the Swedish Transport Administration's reporting of the effects of the national plan is based on that agency's estimates and projections, it is essential that these are based on reasonable assumptions about the Government's climate policy. Otherwise the reporting will not be accurate. If the Swedish Transport Administration is to make reasonable assumptions, the Government needs to clarify the primary measures for reduced climate impact envisaged in the near future and also the approximate emissions trajectory that the Government intends carbon dioxide emissions to follow in the long term so as to allow the climate objectives to be achieved to the desired extent. The Swedish NAO audit finds that Government's management has been unclear in these respects.

One consequence of the Government's unclear statement on how the infrastructure planning should relate to the climate objectives set by the Riksdag is that agencies with planning responsibility plan for continued traffic increases within carbon dioxide-intensive modes of transport.⁴ This has not been reported to the Riksdag in a transparent manner.

Great demands are placed on research that can lead to technological advances

For the climate objectives to be achieved, there must be significant breakthroughs for research and greater vehicle efficiency. Available knowledge indicates that other measures, such as prioritisation between modes of transport, will probably need to be taken.

⁴ This applies provided that the Government continues in its intention for the investments to be economically justifiable.

In the absence of guidelines, the road and rail administrations assumed that the EET strategy would be implemented

In the Government's directives to the road and rail administrations for the infrastructure planning process 2010-2021, there were no details as to the climate policy the Government was planning. In the absence of management, the road and rail administrations chose to assume that the EET strategy, which involved powerful climate policy instruments for the transport sector, would be implemented. This led to the effects of the national plan being analysed in a scenario with half the growth in road traffic compared to a scenario without climate policy instruments. The EET strategy also meant a significant transfer of traffic to railways in the projection models. The fact that the national plan was analysed in such a scenario contributed, paradoxically, to an underestimation in the plan's impact on carbon dioxide emissions. The Government and the Riksdag did not, therefore, receive a true and accurate picture of the plan's effects.

Carbon dioxide emissions were underestimated at several levels

The Swedish NAO audit demonstrates that the road and rail administrations' use of projection models during the infrastructure planning process meant that the infrastructure plan's impact on carbon dioxide emissions was underestimated at several levels. It is therefore uncertain whether the national plan really leads to an overall reduction in carbon dioxide emissions, thus contributing to the climate objectives.

New infrastructure generates new destinations for transport, which is assumed to yield an overall increase in the demand for transport and thus also an overall increase in the carbon dioxide emissions from that mode of transport. Effects of this type are called 'induced traffic demand' and are only partially captured in the Swedish Transport Administration's projection.

The projections for how the freight business is affected by the national plan took into account new investment in railways but *not* the new road investments included in the plan. This means that the demand for road transport, also in this respect, risks being underestimated in the projection.

The road and rail administrations' projection model estimations of the proportion of cars with low carbon dioxide emissions is also very optimistic compared with the results of current research. Carbon dioxide emissions from the production and distribution of motor fuel is not included in the road and rail administrations' climate impact analysis for road transport, which means that a significant portion of the carbon dioxide emissions is not covered in the report. During the infrastructure planning process, car ownership was also underestimated. In this way, the projection underestimated the carbon dioxide emissions for road passenger transport.

The increased track access charges that the Government has announced it will introduce will lead to a greater demand for road transport, a factor that was not analysed during the infrastructure planning process conducted by the road and rail administrations.

It is the assessment of the Swedish NAO that it is essential to report changes in carbon dioxide emissions resulting from the national plan, even

though these are relatively minor in relation to the total emissions of the transport sector and the climate objectives.

Recommendations

The Riksdag Committee on Transport and Communications has established that investments in new infrastructure must contribute to a reduction of carbon dioxide emissions and that there is a need for prioritisation of objects that contribute to such a development. The purpose of the Swedish NAO's recommendations is to make Government reporting to the Riksdag transparent and accurate. True, accurate and consistent reporting is crucial if the Riksdag is to be able to make informed infrastructure decisions that observe the climate objectives to the desired extent.

Recommendations to the Government:

- In its reports to the Riksdag on the infrastructure plan, the Government should clarify the relationship between profitability, traffic increases and increased carbon dioxide emissions in the light of available knowledge.
- The Government should, for example in connection with the development and implementation of Roadmap 2050, establish an approximate trajectory for the reduction of emissions. This is to ensure that the Swedish Transport Administration coordinates the reporting of carbon dioxide emissions with the infrastructure planning.
- The Government should report to the Riksdag in a clear manner how the Government has distributed the planning framework between modes of transport in the long-term infrastructure plan.

Recommendation to the Swedish Transport Administration:

The Swedish Transport Administration's planning documents for reduced climate impact state that a continued increase in road traffic volumes is difficult to reconcile with the climate objectives. The infrastructure plan is based on continued traffic increases. This conflict of objectives needs to be reported to the Government and to the Riksdag.

- The Swedish Transport Administration should coordinate that agency's planning documents for reduced climate impact with the infrastructure planning, so that the Government, and therefore the Riksdag, can receive a true, accurate and consistent picture as a basis for infrastructure decisions.