



RiR 2019:4

Planning for the future

– the central government’s work with scenarios within environmental, energy, transport and housing policy

Background and purpose of the audit

It is necessary for the central government to plan 10–30 years into the future within a number of areas. Infrastructure, transport, housing, energy supply and environmental improvements are a few such areas.¹ These areas are characterised by long planning horizons, long-term goals and significant government investment. The areas are also closely linked and interdependent.

Long-term calculations or scenarios² are used for decision-making in the above areas. The quality of calculations is crucial, as they often provide the basis for:

- policy objectives and follow-up of objectives, such as long-term energy policy objectives
- analysis of political reforms and measures at government agencies, for example within the context of the housing policy

¹ See, for example, Swedish National Board of Housing, Building and Planning, *Reviderad prognos över behovet av nya bostäder till 2025* (Revised prognosis of the need for new housing by 2025), Report: 18, 2016; Swedish Energy Agency, *Scenarier över Sveriges energisystem 2016* (Scenarios for Sweden’s energy system 2016), Report: 06, 2017; Swedish Environmental Protection Agency, *Historiska och framtida utsläpp av luftföroreningar i Sverige* (Historical and future emissions of air pollutants in Sweden), Report: 6689, 2015; SOU 2015:106, *Sveriges ekonomi – scenarier fram till 2060* (Sweden’s economy – scenarios up until 2060), Long-Term Survey of the Swedish Economy 2015, Annex 1; Swedish Transport Administration, *Prognos för persontrafiken 2040 – Trafikverkets Basprognoser 2016-04-01* (Prognosis for passenger traffic 2040 – Swedish Transport Administration’s Baseline Prognoses 01/04/2016), Report: 059, 2016.

² These are sometimes referred to as forecasts, but they will often have the characteristics of scenarios rather than actual prognoses with a confidence interval, as these are rarely meaningful in a 10–30-year perspective. The Swedish Transport Administration and the Swedish National Board of Housing, Building and Planning are two of the government agencies that use the term ‘forecast’. This audit primarily uses the term ‘scenario’ to describe long-term calculations.

- economic cost - benefit calculations, for example as the basis of investments into infrastructure, such as electricity grids and roads³
- impact assessments carried out, for example within the investigative system
- bases of international negotiations, for example regarding environmental undertakings
- international reporting (EU, UN, etc.), for example on climate issues
- regional and local planning

The Riksdag, the Government and the European Commission have all requested documentation in the form of calculations and analyses that are of high quality, robust, transparent and which take into consideration the work of other government agencies.⁴ Still there are only a few evaluations of the scenario and prognosis work of individual government agencies, and there is no general auditing of the agencies' collaboration and coordination.⁵

Purpose and limitations of the audit

The aim is to examine whether the Government and the government agencies have created the conditions for scenarios of sufficient quality to allow the Riksdag to make well informed decisions and whether their work is coordinated, transparent and efficient. The question of whether there are conditions for sufficient quality is examined based on the grounds for assessment detailed in Chapters 1, 3 and 4. The audit is limited to environmental, energy, transport and housing policy.

The overall questions are the following:

³ Such calculations have become increasingly important in investment decisions relating to major infrastructure projects, for example.

J. Eliasson et al, Does benefit/cost-efficiency influence transport investment decisions? *Journal of Transport Economics and Policy*, Vol. 49(3), 2015, p. 377–396.

⁴ See, for example, Govt. Bill 2012/13:25 Infrastructure Bill: Investing for a strong and sustainable transport system, Report 2012/13:TU2, Riksdag Communication 2012/13:119; Govt. Bill 2008/09:35 Framtidens resor och transporter – Infrastruktur för hållbar tillväxt (Travel and transport of the future – Infrastructure for sustainable growth) Report 2008/09:TU2, Riksdag Communication 2008/09:145; Communication 2016/17:148 Riksrevisionens rapport om förutsättningar för en säker kraftöverföring (The Swedish National Audit Office's report on conditions for safe power transmission), Report 2016/17: NU21, Riksdag Communication 2016/17:332; Regeringsuppdrag till Boverket att lämna förslag till hur bedömningen av bostadsbyggnadsbehovet ska göras (Government Commission for the Swedish National Board of Housing, Building and Planning to submit a proposal for how to assess the need of new construction of housing) (N2016/03324/PUB); Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC.

⁵ Evaluations have been made in the climate reporting process and within the scenarios produced by the Swedish Energy Agency. See K. Kindbom & T. Gustafsson, *Emissionsprognoser och scenarier – en behovsanalys* Report: C 121. Stockholm: IVL, 2015; P. Söderholm, A. Mansikkasalo & T. Ejdemo, *Energisystemets långsiktiga utveckling – en granskning av Energimyndighetens metodik för långsiktiga energiscenarier*, Luleå tekniska universitet, 2010.

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1. Have the Government and the government agencies created the preconditions for scenarios of sufficient quality to allow the Riksdag to make well informed decisions in regard to environmental, energy, transport and housing policy?
 - a. Do calculation assumptions and methods vary between different government agencies and, if so, are the differences justified?
 - b. Are the agency scenarios comparable and consistent⁶ between government agencies and with internationally produced scenarios?
 - c. Are the scenarios transparent, possible to review and clearly described?
 2. Have the Government and the government agencies created preconditions for efficient work?
 - a. Are the work processes well documented?
 - b. Do the government agencies collaborate when this would be justified? Is separate work based on justified choices?
 - c. Are risks relating to the work processes identified and managed in a satisfactory manner in the work with scenarios?

The audit does not consider the quality of the scenario results, i.e. deviations between scenario and actual outcome. The audit also does not consider the quality of modelling tools.

The results of the audit

The conclusion of the Swedish National Audit Office is that central governance and the agencies' scenario work need to be improved. Increased transparency, consistency, comparability, efficiency and coordination are needed. Remaining uncertainties and differences in the government agencies' scenarios also need to be clarified in the reports to the Riksdag. Improvements are necessary to contribute to well informed decisions and to facilitate balancing of different policy areas and to make the work more efficient.

Have the Government and the government agencies created the preconditions for scenarios of sufficient quality to allow the Riksdag to make well informed decisions?

The Swedish National Audit Office's assessment is that the conditions for high-quality scenarios are relatively good, given the resources. However, coordination and coherence between different scenarios are lacking in many parts. Major differences in points of departure and uncertainties that have an impact on the results are not seen in the reporting to the Riksdag. There is a risk of these differences having far-reaching effects, as the scenarios are

⁶ Consistency does not refer to the scenarios being the same in all respects, but rather that they are consistent or compatible, i.e. that they are cohesive and that they are not contradictory in making assumptions or managing cases.

often used as the basis of decisions with a significant impact on public finances and initiatives within various areas. There are for example major differences in how the Swedish Energy Agency and the Swedish Transport Administration calculate future long term traffic volumes. In the end, this lack of consistency can lead to decisions on infrastructure investments and national climate initiatives within the transport sector being based on conflicting views of the future and to priorities being set on incorrect grounds.

The fact that set policy objectives are handled differently in the scenarios also reduces the possibility of making well-founded trade-offs and prioritisations between different areas.

The Swedish National Audit Office's audit shows that there are several examples where the scenario work of different government agencies differs. Different sources are used for the same variable, similar calculations are made in parallel at different agencies without any significant collaboration, and the agencies handle set policy objectives differently.

Deviations and discrepancies between different scenarios may be justified. However, this should be a deliberate choice where the aim is to benefit and learn from one another or to inspire discussion. In these cases, it is particularly important to have transparency and to clarify the significance of the different points of departure and assumptions to the end results.

Good quality assurance of the calculations is crucial for establishing credibility and for the results to be able to be used as the basis of decisions. All the different scenario processes considered in the audit include some form of quality assurance. However, several of the government agencies do not have systematic quality assurance, and the level of ambition differs between agencies.

The possibility of having scenarios produced by government agencies reviewed by independent experts is a fundamental requirement for ensuring that decisions which will have a great impact on society are made based on reliable calculations. The audit of the Swedish National Audit Office shows that there are shortcomings in terms of transparency in the government agencies' scenario work. Generally, transparency is worse when the modelling tools are owned by external parties (consultants), as this often reduces accessibility and openness. At some agencies, privacy restrictions on data can be an obstacle to reviews by independent experts. With one or two exceptions, the government agencies have not investigated if there is a way facilitate independent review of their calculations.

A comprehensible account of any uncertainties in the documentation is important for the Government and the Riksdag to be able to make well informed decisions. The audit has revealed that certain scenario-based documentation presented to the Riksdag completely lack an account of central uncertainties in the calculations.

Have the Government and the government agencies created preconditions for efficient work?

The overall assessment of the National Audit Office is that several important conditions are missing for efficient scenario work within the scope of the given resources. More reliable and consistent scenarios with guaranteed continuity requires clearer governance and guidelines both from the Government and within each agency. Coordination also needs to be improved in order to avoid duplicate work and to improve the consistency between different scenarios.

The audit also shows that the government agencies have made both conscious and more unfounded choices in terms of collaborating with other agencies. There are several examples of scenario work being carried out in parallel by different government agencies within the same field. Comparative advantages are not being utilised. This results in duplicate work and an inefficient use of resources, as well as a risk of reducing consistency and comparability between different scenarios.

The National Audit Office notes that dependence on key personnel may pose a great risk in the work of the government agencies. The fact that only a few individuals are aware of or working on different scenarios can mean that knowledge is lost and activities are interrupted in the event of staff changes.

The audit reveals that there are no common general guidelines for how to work with scenarios in Sweden, which makes it more difficult to achieve consistency between different scenarios. When documentation is inconsistent, the different scenarios, for example referring to greenhouse emissions and traffic, can create an unclear or incorrect idea of whether the objectives set by the Government and Riksdag can be attained separately and simultaneously. It also becomes more difficult to determine which measures may be required to achieve different objectives cost-efficiently and to make trade-offs within and between important areas of society.

Recommendations

Recommendations to the Government:

The audit of the National Audit Office shows that there are no common general guidelines for work with scenarios. Such guidelines are needed in order to increase coherence between the points of departure used by different government agencies and thus create more comparable scenarios. It would also promote efficient, coordinated and transparent scenario work at the

government agencies and, by extension, improve the conditions for the Government and the Riksdag to make well-informed decisions. For this reason, the Government should clarify:

- which responsibilities the different government agencies have for scenarios
- which of the concerned government agencies' scenarios regarding economy, traffic, energy, emissions, housing and population, etc. and associated assumptions are to provide the basis for the scenarios of other agencies
- how politically established objectives are to be handled in the scenarios
- how transparency, quality assurance and accounting for uncertainties can be ensured.

This can for example be done through regulations or commissions to the concerned government agencies. EU regulations and corresponding legislation should be taken into consideration in this work.

As the economic scenarios of the Swedish National Institute of Economic Research provide a central point of departure for the emission scenarios, this government agency should be included in the Ordinance on Climate Reporting (2014:1434). The National Institute of Economic Research is the only government agency contributing to the climate reporting that is not also mentioned in the Ordinance. The National Institute of Economic Research operates on the commission of the Swedish Energy Agency. The commission is valid for four years, until 31 December 2019. Funds are therefore transferred regularly from the Swedish Energy Agency to the National Institute of Economic Research, rather than funds being allocated directly by the Government and the Riksdag. This entails a certain amount of uncertainty regarding the National Institute of Economic Research's future involvement in the work, and this can in turn make it difficult to create the emissions scenario that Sweden is obligated to produce in accordance with the EU Regulation on a mechanism for monitoring and reporting greenhouse gas emissions.⁷ For this reason, the Government should:

- include the National Institute of Economic Research in the Ordinance on Climate Reporting (2014:1434) with the task of producing economic scenarios.

Recommendations to the Swedish Transport Administration

Today, the Swedish Transport Administration uses the scenarios from the Long-Term Survey of the Swedish Economy in accordance with the agency's internal steering documents.⁸ The

⁷ Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC and the Foreign Ministry *United Nations Framework Convention on Climate Change*, SÖ 1993:13, 1993.

⁸ However, in the scenarios that the Swedish Transport Administration plans to publish in 2020, the agency deviates from the internal guidelines and intends to use the economic scenario produced by the National Institute of Economic Research, which is the same as the Swedish Energy Agency is using in its climate reporting. The reason for this is that the Long-Term Survey of the Swedish Economy will not have completed scenarios in time to meet the Swedish Transport Administration's needs.

National Institute of Economic Research regularly produces scenarios that contain essentially the same information as those of the Long-Term Survey. The Long-Term Survey has no fixed timetable, and a new Government decision is required every time it is commissioned. Nor does the Long-Term Survey have fixed contents, and there is thus no guarantee that in the future it will contain calculations that are useful to the Swedish Transport Administration. In order to ensure continuity and contribute to increased coherence between the scenarios of various government agencies, the Swedish Transport Administration should:

- use the National Institute of Economic Research's scenarios as the base of its work with traffic scenarios. The economic scenarios are presented every second year as documentation in the climate reporting to the EU.