



Our towns energy neutral in 2030?

How SEA can tell if this is realistic

A case study from the Netherlands

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As part of the new Environment and Planning act (expected going into force 2021), every municipality in the Netherlands is required to have an **environmental strategy**. This long-term strategic vision on the entire living environment should address the spatial relations between water, environment, nature, landscape, transport/ infrastructure, cultural heritage, etc. The strategy is the starting point for one or more **spatial environmental plans**, in which the vision is elaborated into more concrete decisions and developments.

Energy transition in the Netherlands

In its Energy Report: Transition to Sustainability, published in 2016, the Dutch government urges provinces and local authorities to address the necessary energy transition in their environmental strategies and environmental plans (see explanation on the right). Strategic environmental assessment (SEA) – in the Netherlands mandatory for environmental strategies and plans - can offer the rationale and substantive support for this. Also it helps in consulting stakeholders and in seeking to secure support for measures.

What the energy transition is intended to achieve

The Paris climate agreement of 2015 intends to limit global temperature rise to less than 2°C. To achieve this, greenhouse gas emissions in 2050 will have to be 80–95% less than they were in 1990. The goal set in the Paris agreement must be achieved by reducing energy consumption and using sustainable sources of energy.

Two interim reduction targets relative to 1990 emission levels have been formulated at European level:

- a 20% reduction, to be achieved before 2020
- a 40% reduction, to be achieved before 2030

The Netherlands has committed to meeting these targets. Some provinces and local authorities have formulated their own energy or emission reduction targets, such as “energy neutral in 2040”. As meeting these targets will also have spatial consequences, regional authorities

have an important responsibility to take energy transition into account in their spatial planning.

The energy transition's spatial impact

Besides its physical environmental impacts, in a densely populated country like the Netherlands, transitioning to a sustainable energy supply particularly impacts on demand for space. For example, space to generate energy (wind, solar, hydro, biogas, biomass, geothermal), space to transport electricity and heat transmission, and space to store energy (heat/cold, CO₂).

Part of the transition is to strive for gas-free towns and districts. This also has spatial implications: for example, infrastructure is required for geothermal energy and for storing heat or cold. Greenhouse gas emissions can also be reduced by modifying land use: for example, by controlling the dewatering of peat areas (dry peat areas emit large amounts of greenhouse gas).

The role of SEA

Achieving the necessary energy transition will require interests to be weighed at national, regional and local levels, and responses for future innovations to be prepared. SEA can support the discussions between public authorities, industry, interest groups and residents by presenting the options for achieving the energy transition, and the spatial and environmental consequences of the possible choices. This may also help in reducing public resistance to plans and projects important for the energy transition.

The information in the SEA report

To optimally support public debate, in the view of the NCEA the SEA report for an environmental strategy / plan should provide insight into:

- energy demand and the various options (strategies) for saving energy and using sustainable sources of energy such as wind, solar, heat/cold, geothermal, as well as their spatial consequences
- the contribution of these energy strategies to local, regional and national greenhouse gas emission reduction targets
- options for combining the energy transition with other ambitions for the area, such as using flood defences for sustainable energy production (“energy dikes”) or combined wind and solar farms
- the consequences and risks arising from the various energy strategies: for example, for landscape, biodiversity, safety for local residents, flood avoidance and water quality

Practical experience in the Netherlands

Since energy transition is an important topic and will remain so for the coming years, the NCEA will address this issue prominently in its advisory reports. One of our recent examples is the advice on the SEA for the environmental strategy of Hillegom municipality.

The Hillegom case:

Assessing energy neutrality in an SEA for municipal planning

The municipality of Hillegom, which has a population of 20,000 and lies in the flower bulb farming area in the west of the Netherlands, is developing an environmental strategy called “Heerlijk Hillegom” (Glorious Hillegom). It contains aspirations for 2030 and a vision on the direction of developments within the municipal area, for instance:

- sustainable flower bulb farming, by scaling up and using innovative technologies
- realising new attractive residential areas by relocating industrial/business areas
- stimulating recreational services and activities
- improving public health and environmental quality (including nature conservation)

and

- ensuring that Hillegom is 100% “energy neutral” in 2030

100% Energy neutral in 2030

The Paris climate agreement has stimulated increasing numbers of municipalities in the Netherlands to aspire to become “energy neutral”, that is, to achieve equilibrium between their energy consumption and energy production. The consequences of Hillegom’s ambition to achieve this were analysed as part of a regional study commissioned by a consortium of 14 municipalities. For this purpose, the entire energy demand for the region was estimated, and the opportunities for saving energy and for sustainable energy production were reviewed. Demand for energy in Hillegom largely depends on the built environment and industry. The study estimated that an overall energy saving of 30% relative to energy use in 2014 should be possible by 2050, because any further sustainable energy production within Hillegom proved to be limited by a range of conditions. Geothermal energy and energy from biomass are virtually impossible with-



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in Hillegom because of their environmental impact and expected low effectiveness. Wind turbines are possible but will be limited by conditions such as air traffic (Schiphol airport is nearby), nature and landscape conservation, and lack of space. Only a few small turbines in rural areas are likely to be possible. This means that solar energy provides the best possibilities, although limitations to this are also imposed by nature areas, cultural heritage and lack of space. The regional study concluded that given the limitations, Hillegom will be able to meet no more than 40% of the energy demand by exploiting sustainable energy sources.

What did the SEA address?

The SEA sketched the outline of the risks and opportunities caused by the strategic “direction” laid down in the draft environmental strategy for seven subareas and two themes. The SEA showed that on the one hand, there are several options for improving physical environmental conditions, such as improving environmental quality in urban areas by relocating industries. On the other hand, it

became clear that realising some of the goals will have significant social, environmental or economic negative impacts, such as heavier traffic or changes in the landscape.

The SEA conveys the impression that not all ambitions from the environmental strategy are attainable. There will be conflicts of interest, which will provide fundamental dilemmas for decision making. For example, the aspiration to be energy neutral in 2030 is unrealistic for Hillegom under the current conditions. If more rigorous measures need to be taken, this might possibly have an effect on other ambitions.

Independent review of the SEA

The NCEA noted appreciatively that the SEA had prominently addressed the energy transition. However, we also concluded that the information provided was inadequate. Even though the SEA report touched on several impacts and conflicting ambitions, it did not give the crucial information needed to be able to make the fundamental choices. For example, where the report mentioned that “rigorous measures might have an effect on other ambitions”, it did not identify what those effects might be. And exactly this information is needed to equip the local government with a basis for prioritising ambitions. For example energy neutrality in 2030 versus negative effects on nature and landscape.

In our advisory report we therefore recommended a more thorough analysis of the important qualities of the municipality (for example cultural history, landscape, tourism) as well as of the bottlenecks caused by conflicting ambitions. With that, the environmental impacts of the ‘strategic direction’ and the consequences for each of the ambitions can be better assessed.

In the Netherlands, an independent **review** of an SEA by the NCEA is **mandatory**.

The NCEA evaluates whether the information in the SEA is complete and reliable, to ensure that the interests of the physical environment can be taken into account in the decision making.

Good practice SEA?

When we look at the four key energy topics to be addressed in an SEA for spatial planning (p. 26), we note that this SEA report:

- did indeed provide insight in the energy demand and the various strategies for saving energy and using sustainable sources of energy.
- did provide (indirectly) insight in the contribution of these energy strategies to greenhouse gas emission reduction targets. The reduction targets are not mentioned in the report, however are incorporated in Hillegom's ambition to be energy neutral in 2030 and climate neutral in 2050.
- did mention - albeit superficially - options for combining the energy transition with other ambitions for the area; For three subareas possible combination solutions are given, for example a solar field -flower bulb farming 'rotation system'; energy neutral housing projects and combining factories with solar panels.
- did mention - albeit superficially - the consequences and risks arising from the various energy strategies. As mentioned in NCEA's review, this topic could and should have been addressed more profoundly, for it to be a significant added value in the decision-making process.

On a more general note, as one of the first SEAs carried out for an environmental strategy, it was a good test case to find out the importance and points of attention of an SEA in a process like this. For the NCEA, one of the most important criteria will always be whether an SEA process and report support decision making. As far as this SEA report is concerned, we could conclude that its role was predominantly indicating and agenda setting, rather than providing the information necessary for good decision making.

Decision making and further steps

After the NCEA's review, an obstacle map showing more prominently actual or potentially conflicting interests in subareas was drawn up as an addendum to the SEA report, to guide decision making. The revised environmental strategy, which also included a "sustainability programme" as an annex, was subsequently accepted by the municipal council. In response to the conclusion that it is impossible to achieve energy neutrality within Hillegom itself or within the broader region, Hillegom (and other municipalities in the region) have opted to seek other ways of becoming energy neutral, such as investing in energy production outside the region, on land or even at sea.

In the coming months or years the strategy will be elaborated into an environmental plan for Hillegom that will also be subjected to SEA. In this next step the NCEA's recommendations on the SEA for the environmental strategy will be taken into account.

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