Limburg goes climate neutral

Limburg gaat klimaat neutraal

provincie Limburg

Limburg goes climate neutral

'Limburg CO_2 Neutral by 2020.' With this statement in 2008, Limburg initiated the creation of one of the most far-reaching ambitions in the world in terms of climate policy. In so doing, the Province of Limburg further expanded on a whole raft of initiatives on sustainable development. After all, it viewed an ambitious climate policy not only as a necessary contribution to solving climate change; it also had its eye on the opportunities that a climate-neutral province offers in terms of biodiversity, health, environmental quality, North-South relations and – not least – the economy and the competitiveness of Limburg. The first step in the Limburg climate policy was to draw up a scientific study.

Assumptions

The scientific study assignment consisted of three main parts:

- To propose a workable and socially acceptable definition of the concept of 'Limburg CO_2 Neutral'.
- To develop two scenarios that could lead to CO_2 neutrality.
- To formulate recommendations for local authorities.

Already at the start of the study, the Provincial Authority made a number of important choices, all within the sustainable development framework. More specifically, the following three principles were adopted:

1. Besides CO_2, the Province of Limburg also decided to include methane (CH4) and nitrous oxide (N2O) in its reduction policy. Therefore, the term 'climate neutral' has now been adopted.
2. The Province of Limburg is committed to climate neutrality in its own territory. The Provincial Authority has consciously chosen not to simply buy off its own greenhouse emissions through compensation projects elsewhere in the world.
3. For measuring emissions and uptake of greenhouse gases, internationally standardised methodologies would be followed in order to maintain comparability.

Baseline Emission Inventory

With these choices in mind, based on the data set of the year 2008 – the emission and uptake of greenhouse gases in Limburg were measured, divided over various sectors (see table). In addition, the socio-economic situation was mapped. These results served as a basis for further calculations of the scenarios.

TABLE

Sector	total (kton CO_2 equiv. emissions)
Energy	2,320
Transportation	1,630
Household	1,970
Industry	2,270
Trade and services	510
Agriculture and nature (emissions)	1 160
Natural uptake	-720
Total	**9,140**

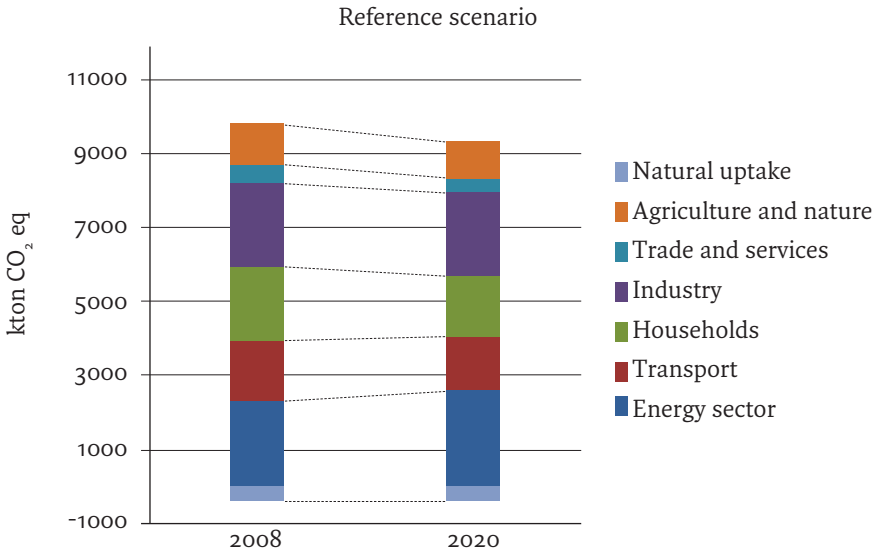
Scenarios

Nobody has a crystal ball, but based on available statistics it is possible to make useful forecasts of the effects of certain measures. Together, these forecasts form possible scenarios that show how we might progress from the current situation to the desired state.

The reference scenario

To enable the effects of various policy choices to be properly visualised, a baseline scenario was identified. To calculate this, the current Belgian and Flemish policy was used as a starting point, but the additional policy measures imposed on us by Europe, or which will be stimulated in the lead up to 2020 have been included. In concrete terms, this means that by 2020 the production of wind and solar power will greatly increase, that first freight and then passenger traffic will be subjected to road pricing (pay-as-you-drive), that the insulation standards for new housing will have been reinforced to E 80, that more efficient lighting is implemented and that certain intensive agricultural activities decrease autonomously.

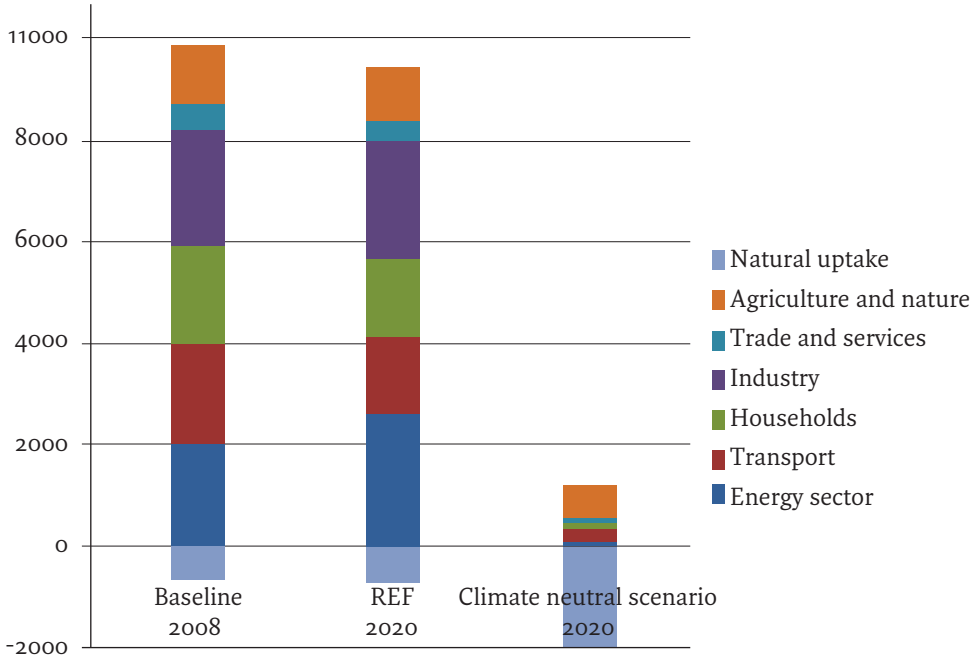
If the forecasts for the reference scenario are plotted against the baseline, we get a modest reduction from 2008 to 2020 (see graph).



However, this reduction is by no means sufficient to realise the ambition of a climate-neutral province. Therefore, additional measures are necessary in addition to the measures already provided for in the European policy. To enable that extra effort to be visualised, two climate-neutral scenarios were developed: the 2020 scenario and the visionary scenario.

The 2020 scenario

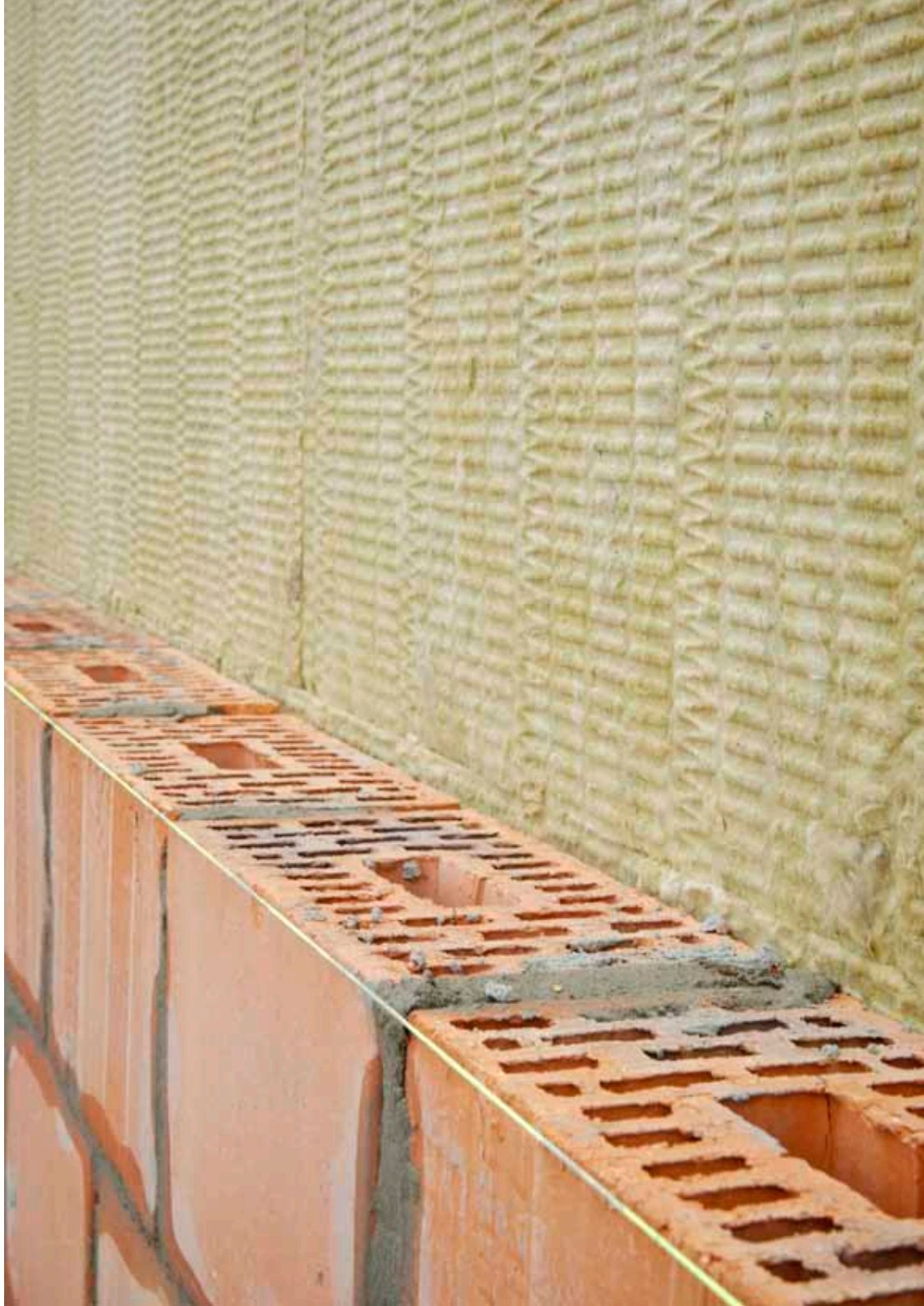
With 2020 as the target date, the possibilities for achieving climate neutrality are fairly limited. Indeed, it would have to be done with technology that is already operational and quantifiable today. Slightly more than 50 measures were found which, in theory, would lead if combined to a (near-) balance between emissions and uptake of greenhouse gases in Limburg in 2020 (see graph).



Among the measures of the 2020 scenario, you'll find included:

- the construction of a heating grid from the power station at Langerlo to the urban agglomerates of Hasselt and Genk (approx. 40,000 homes);
- the replacement of conventional industrial heating systems by biomass installations;
- extensive roof, wall and floor insulation in homes (up to passive house standard);
- the use of heat pumps for heating/cooling of office buildings;
- the accelerated introduction of plug-in hybrid and battery-run electric vehicles;
- putting a stop to the loss of woodlands;
- working with semi-closed greenhouses in horticulture;
- ...

The calculation of the 2020 scenario has shown that, technologically speaking, it is possible to make Limburg climate neutral by 2020. Although the full realisation of the 2020 scenario requires huge investments, this scenario includes a relatively comprehensive package of measures involving little or no social expenditure, or that



would even make money. This makes it a real possibility that investors will feel themselves addressed to implement these measures.

But there are also downsides to this scenario:

- Because the deadline to achieve climate neutrality is very soon, in the 2020 scenario, Limburg is highly dependent on biomass to achieve the objective. This biomass is only available to a limited extent in Limburg. The majority must be imported. The Limburg energy problem would thus be shifted to other places in the world. In other words, this is not a sustainable or ethical choice.
- The 2020 scenario also does not take into account promising technologies that will only become operational after 2020 (such as geothermal energy and CCS (carbon capture and storage)). As a result, certain opportunities for achieving climate neutrality in a more efficient manner will not be utilised.
- A final concern is that technological innovations often encounter non-technological barriers (permits, social resistance, market demand, ...) which can delay the development, dissemination and implementation of technological innovations or cause them to fail. Some measures even essentially require a social transition - i.e. a system change - which is unlikely to be achieved by 2020.

So there were sufficient reasons to hold another option, in addition to the 2020 scenario, up to the light for scrutiny.

The visionary scenario

If the target date of 2020 entails a number of significant drawbacks, it is logical to examine how the possibilities will vary if we are more flexible with that date. In accordance with common international objectives, 2050 was chosen as the end date.

On the one hand, this carries the risk that the time horizon is considered too far away from daily thought and action. Moreover, a fair number of measures become quite abstract and no longer quantifiable. That is not conducive to the investment climate and leaves room for discussion: after all, the cost picture and reduction potential are unknowns. Choices cannot therefore be as well justified, with the result that support may lose strength and actions to be taken may get bogged down.

On the other hand, a prospective view towards 2050 offers a solution to certain problems that arose in the 2020 scenario.

In order to reconcile the two to some extent, several targets were linked to the visionary scenario over and above the preconditions for calculating the 2020 scenario:

- Target 1: in the short term (2020) Limburg will aim to maximise the reduction of emissions.
- Target 2: in the long term (2050) Limburg will aim to achieve optimal sustainable energy generation and maximum energy efficiency.
- Target 3: Limburg is working on an overall strategy to become a resilient and efficient province.

In concrete terms, this means that the departure point for maximally reducing the emissions are the cost-neutral measures in the 2020 scenario. In addition, Limburg must resolutely choose measures that lead to optimal self-sufficiency and energy efficiency. In so doing, it is expected that already now, investment will take place into research and development of a number of visionary techniques and technologies with a reasonable chance of breaking through by 2050.

Outlines

At the present time, Limburg is very dependent on foreign biocapacity and that makes us vulnerable. How do we turn Limburg into a resilient and efficient province? The study sets down several outlines of a mostly non-technological nature:

- The concept of ecosystem services and how to make them economical can help the incorporation of ecological considerations into policy. It is not just about protecting species and natural areas. Even in residential and industrial areas there are very many conceivable measures to promote local biodiversity. Just think of green roofs, roof gardens, green belt areas, unpaved parking lots, ...
- Sustainable regional development is a new form of planning development that addresses the relationship between spatial and social issues of an area and strives for a balance between environmental, social and economic interests. Although the Provincial Authority does not control all the instruments for spatial development, it can still cleverly guide development within the borders of Limburg. It can do this by possibly playing a unifying role, thus aligning public, private and individual interests.
- Policymakers are faced with complex problems, uncertainty, fragmentation of knowledge and policy domains... The solution lies in a process of learning, adjusting and adapting policies, also referred to as ‘adaptive governance’.
- To make a sustainable society possible, cultural norms and values need to change, so that sustainable action becomes as natural as consumerism is today. To create a culture of sustainability, all facets of society must be addressed: education, commerce, media, governments, traditions, social movements, and so on.

Impact

Although its visionary nature does not allow concrete calculations of the impact of the scenario to be made, it was nonetheless attempted to sketch an indicative picture of the possible course of the Limburg emissions between 2008 and 2050 (see graph).

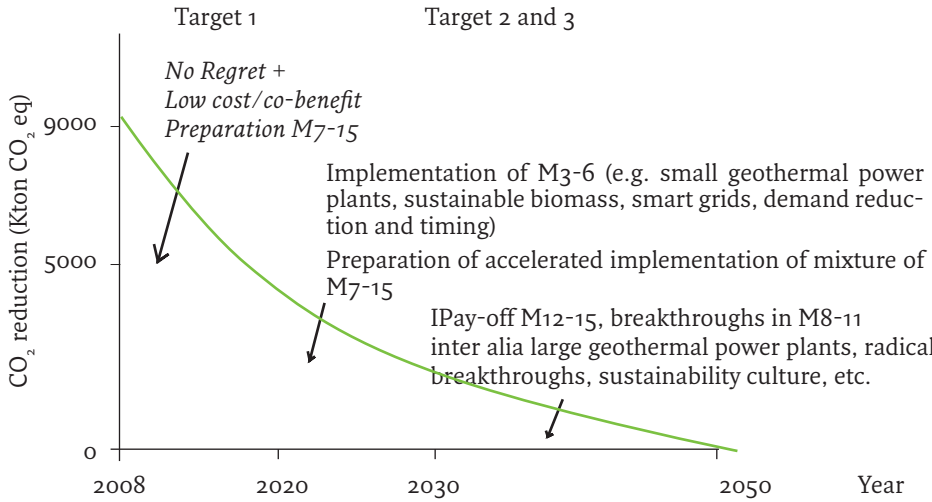


Figure 1. The visionary reduction scenario with a combined short- and long-term perspective. Target 1: in the short term (2020) Limburg will aim to maximize the reduction of emissions. Target 2: in the long term (2050) Limburg will aim to achieve optimal sustainable energy generation and maximum energy efficiency. Target 3: Limburg is working on an overall strategy to become a resilient and efficient province.

Recommendations

Finally, the research team was asked to formulate recommendations for local authorities (provincial and municipal).

- One of the opportunities that is offered to play a leading role as a province is that of spatial planning. Specifically, this can relate to the orientation and positioning of buildings, but also to the preparation of energy plans by region. For example, this would allow for possible linkage between industrial estates and residential areas to be mapped.

- In terms of mobility, the focused expansion of the public transport network is a must, together with an increase in residential densities in specific locations. Very specifically, Limburg must consider the accessibility of its major attractions (Maasmechelen Village, Hoge Kempen National Park, ...) and further expand both the recreational and functional cycle route network.
- Sustainable and multiple use of space is also a sensible guideline. Examples include combining wind towers and mobile phone masts, the stacking of functions: e.g. companies on different floors, rather than everything on the ground floor, the overlapping of functional uses: e.g. installing greenhouses above manufacturing companies, the positioning of offices above the parking lot, designing a car park as a skating rink ...
- Finally, there is a plea for transitional measures or temporary interpretations. A piece of fallow building land or an industrial estate might, for example, be temporarily planted with short rotation trees pending the determination of its final use. The area might also temporarily fulfil a recreational function for the neighbourhood, reducing pressure on other areas.

What now?

- The scientific study is not a policy document. It does describe in detail the measurements, estimates, technical constraints and economic impacts of certain activities and measures, but in so doing, it makes no social evaluations. These evaluations will have to be made by the Provincial Authority – based on the study, but also taking account of other factors – over the next few years in order to shape its policy.
- The study itself was not the final goal, it's an inspiring beginning. It teaches us what measures are relevant and says that in a transition to climate neutrality there are significant opportunities for a better and stronger Limburg.
- This will require, however, that the proposed measures first be tested in a social context. In consultation with the various stakeholders, they will need to be discussed, refined and further developed. After all, the playing field of a Provincial Authority is limited, however much ambition it may have. The Provincial Authority may facilitate or support measures, but cannot itself guarantee the implementation of all measures.
- A dialogue is therefore desperately needed: after all, the various measures must be reconciled with other objectives and aspects of society. For this social and sectoral benchmarking, the Provincial Authority will work through the Cleantechplatform.be (see box p. 17). Also it offers the Limburg municipalities support in making local climate plans. As regards the general public, it continues its tradition of consciousness-raising campaigns (see box p. 17). A Climate Parliament was formed to induce broad stakeholder involvement.
- On 20 May 2011, the key Limburg organisations and companies in the Climate Parliament signed a statement of commitment, declaring their desire to dedicate themselves to the shared ambition: 'Limburg is going climate neutral'.
- Naturally, the Provincial Authority wishes to set a good example itself by monitoring and reducing its net CO_2 emissions (to 0 in 2020). This new target is being integrated into the current work on internal environmental care (and Corporate Social Responsibility). After all, the largest share in the CO_2 emission is a consequence of the provincial energy use (gas for heating and electricity for cooling, lighting and equipment) and commuting behaviour. In 2011, a baseline for the Provincial Authority as an organisation is being developed that will form the basis for an action plan for achieving the proposed reduction and for measuring progress.
- In the coming months, the Provincial Authority wants to move into higher gear to strengthen climate awareness. To that end, it will itself launch campaigns, create the necessary attention in the Limburg media, suggest solutions and publicise efforts.
- The final report of the scientific study and an executive summary (in Dutch) may be found on www.limburgklimaatneutraal.be. The executive summary is also available in a limited printed edition (Dutch).

More info:

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Local Climate Plans

The Limburg municipalities are ranging themselves, by word and deed, behind the great effort of the Provincial Authority to make Limburg climate neutral by 2020. The municipal councils are committed to drafting and implementing their own local climate plan. The Provincial Authority, for its part, together with its partners the 'Bond Beter Leefmilieu' (the Flemish umbrella organisation for the environment), Infrax (grid management company for gas, electricity and sewerage) and Dubolimburg (supporting structure for sustainable building), is providing support by way of expert guidance, training and promotion. On 30 November 2011, the mayors of Limburg will sign a statement of commitment and formally enter into the provincial climate objectives. All of this will align with the European 'Covenant of Mayors'.

Cleantechplatform.be ready for a greater challenge

In 2007, the Centre for Environmental Sciences of Hasselt University, in collaboration with the Limburg Reconversion Company (LRM) started Cleantechplatform.be. This project was made possible by support from the European Regional Development Fund and had as its main objective the stimulation of the development of cleantech activities through research, the sharing of knowledge and the bringing together of relevant partners. At the end of 2010, the Provincial Authority was seeking suitable structures for putting the results of its climate study into practice in a way that could create the maximum social benefit. Because of its built-up network, the Cleantechplatform.be formed an excellent starting point. With this more elaborate goal, the project was relaunched early 2011 in a partnership with the University of Hasselt, the Provincial Authority and Provincial Development Corporation (POM Limburg). Driven by a central think tank, some ten thematic do-tanks will develop concrete project proposals including reducing the climate impact of various (economic) sectors through the promotion of clean technology. The project will cost approximately 550,000 EUR, of which 220,000 EUR is a grant from the European Regional Development Fund.

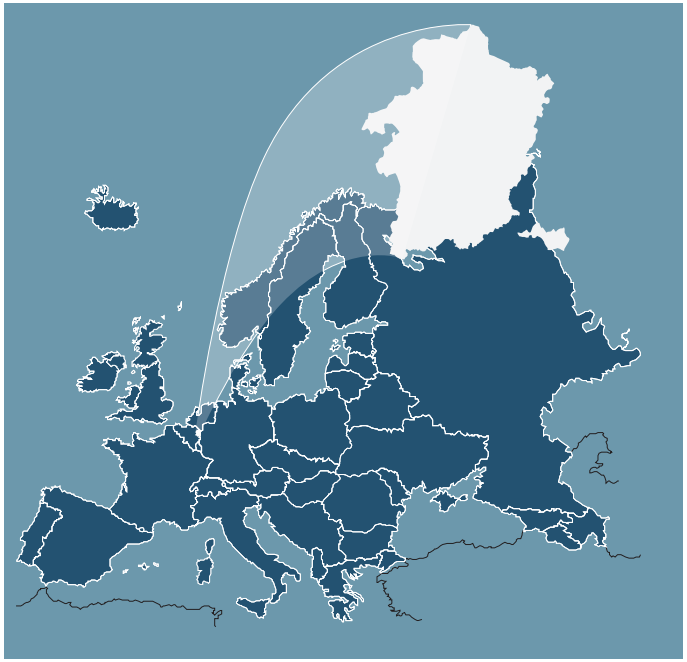
Limburg

Limburg combines the best of Flanders with the opportunities of Europe. Limburg lies in the north-east of Belgium, in the very heart of the European Union. It borders Holland, Germany and the Belgian provinces of Flemish Brabant, Antwerp and Liege. In the east the Meuse river creates a natural frontier with the Dutch province of Limburg.

Limburg can boast of an excellent infrastructure. Three major arteries traverse the region: the E313 (Antwerp-Liege) and E314 (Brussels/Louvain-Aachen) motorways and the Albert canal.

Facts & Figures

Area: 242,231 ha
Capital, administratieve centre: Hasselt
Number of municipalities: 44
Population: 838,505 inhabitants – 346/km²
(as per 2010-01-01)



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