Master Plan of the City and Region of Hannover
100% for Climate Protection

On the path to a climate-neutral Hannover Region 2050

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City of Hannover
Director of Economic and Environmental Affairs
April 2014
**Energiewende in Germany**
(Decided by the German Federal Government 28 Sep. 2010)

<table>
<thead>
<tr>
<th>Year</th>
<th>Reduction of greenhouse gases</th>
<th>Power generation by renewable energy</th>
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<tbody>
<tr>
<td>2020</td>
<td>- 40%</td>
<td>35%</td>
</tr>
<tr>
<td>2030</td>
<td>- 55%</td>
<td>50%</td>
</tr>
<tr>
<td>2040</td>
<td>- 70%</td>
<td>65%</td>
</tr>
<tr>
<td>2050</td>
<td>- 80 to -95%</td>
<td>80%</td>
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Hannover Region

State Capital Hannover and 20 surrounding communities

Surface area about 2,300 square kilometers with about 1.1 million inhabitants
Master plan for the City and Region of Hannover | 100% for climate protection
Shared project of the City and the Region of Hannover

- Supported by the climate protection initiative of the German Federal Ministry of the Environment (BMUB) to implement the Energiewende on the regional level.
- Competition: A total of 19 cities and communities nation-wide
- Project sponsor: State Capital and Region of Hanover
- Project duration: 4 years, 2012 to 2016

Photos: © Region Hannover
What are we building on?

- **Decisions** made in the city, region and surrounding communities: 40% CO₂ should be saved by 2020

- **Structures** created:
  - Climate Protection Agency Region Hanover, proKlima – The Enercity Funds,
  - Climate Alliance 2020

- **Programmes** worked out by 2020/25:
  - Climate protection programmes in city, region and surrounding communities. Traffic development plan and optimised climate regional planning programme

- **Many good projects** implemented and communicated:
  - e.g. Kronsberg, zero:e park, Passive House Schools and Kindergartens, consultation campaigns such as ÖKOPROFIT®

- **Regional promotional programmes**:
  - by proKlima, city and region
BMUB Funding Programme: Requirements

With the 100% for climate protection master plan, the City and Region of Hanover pursues its goal to **reduce greenhouse gases by 95% and the final energy consumption by 50%** within the borders of the region with appropriate long-term ecological and economical measures by

- increasing energy efficiency
- implementing a sustainable life style
- employing renewable energy, especially from local sources
- closing material circuits

The strategy paper “Master Plan 100% for Climate Protection” was developed from 2012 to 2013.
Overview of the project and work structure

Existing networks → Developing a master plan and scenarios in 7 strategy groups

Coordination team

Advisory Board: Board of Trustees of Climate Protection Region

Steuerungsgruppe Masterplan

Citizens (creative workshops and conferences)

Scientific support (Leibnitz University, Hannover University)

Art and Culture

Working and steering committee Climate Protection Region

Decision of Regional Meeting and City Council on master plan 100% for climate protection
Seven strategy groups

Broadly-designed participation process for creating the master plan
by including 240 experts from the economy, science, NGOs and administration

1. Scenarios (saving and regenerative) potentials
2. Energy supply (including network and accumulator questions)
3. Building energy efficiency
   (focus of concern: existing residential buildings)
4. Mobility and space (land use)
5. Regional economic circulation / waste economy
6. Economy
7. Climate-friendly everyday life (lifestyle change)

Every strategy group meets 5 to 7 times

- Development of visions,
- Measures and recommendation for action,
- Necessary general conditions / framework

Photo: State Capital Hanover
Masterplan 100% für den Klimaschutz

Experts of the Economy strategy group

<table>
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<tr>
<th>Company</th>
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<tbody>
<tr>
<td>1. alfasolar GmbH</td>
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<tr>
<td>2. Bahlsen GmbH &amp; Co. KG</td>
</tr>
<tr>
<td>3. Deutsche Messe AG</td>
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<tr>
<td>4. Flughafen Hannover-Langenhagen GmbH</td>
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<tr>
<td>5. Handwerkskammer Hannover</td>
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<td>6. Hannover Impuls GmbH</td>
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<td>7. Hannover Rückversicherung AG</td>
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<td>8. IG Bergbau, Chemie, Energie</td>
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<td>9. IHK Hannover</td>
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<tr>
<td>10. Johnson Controls Power Solutions EMEA</td>
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<td>11. Klinikum Wahrendorff GmbH</td>
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<tr>
<td>12. LH Hannover, Wirtschaftsförderung</td>
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<td>13. Mecklenburgische Versicherungsgruppe</td>
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<td>14. NORD/LB</td>
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<td>15. Privatbrauerei Herrenhausen GmbH</td>
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<td>17. Region Hannover, Wirtschaftsförderung</td>
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<td>18. Ricoh Deutschland GmbH</td>
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<td>19. Sparkasse Hannover</td>
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<td>20. TRW Automotive GmbH</td>
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<tr>
<td>21. üstra Hannoversche Verkehrsbetriebe AG</td>
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<tr>
<td>22. Verlagsgesellschaft Madsack GmbH &amp; Co. KG</td>
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<tr>
<td>23. VGH Versicherungen Hannover</td>
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<tr>
<td>24. Wilkhahn Wilkening und Hahne GmbH &amp; Co. KG</td>
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Photo: State Capital Hanover
Examples of measures from the Economy strategy group: trade and industry consumption sector

Basis: The Hannover region will also be an industrial site in 2050

- Energy-optimised non-residential buildings / industrial estates
- Deployment of highly efficient “Green IT”
- Optimisation of process heat / process cooling / waste heat utilization
- Climate protection as criterion for acquisition / investments
- Mobility and logistics in the economy
- Energy consultation and energy and environmental management
- Education / motivation
Climate-neutral everyday life in 2050:
How do we want to live sustainably in our district / our city?
Visionary studies with citizens

- Creative workshops and conferences in five districts
- School parliaments
- Events in the countryside
- More than 5,000 participants
- Symposium “Climate Art Cities” in Sept. 2013 on the topic of Culture and Sustainability

Photos: Wissenschaftsladen Hannover e.V.
Possible scenarios

- Trend path
- Evaluation of all objectives that have already been decided by the city and surrounding communities (KAP path)
- Master Plan Scenario:
  Target path according to project requirements

Coordination of all assumptions with the 240 experts in the strategy groups
Scenario results for the Hannover Region:
Final energy consumption according to consumption sectors
Scenario results for the Hannover Region: 
Greenhouse gas emissions according to consumption sectors

This means a reduction of the inhabitant-relevant greenhouse emissions from 12.0 t CO₂ eq/EW (in 1990) to 0.6 t CO₂ eq/EW (by 2050 in the target path)
Scenario results for the Hannover Region:
Development of power generation according to fuels

- **Ausgangslage** (Starting position)
- **Trend-Pfad** (Trend path 56%)
- **KAP-Pfad** (KAP path 65%)
- **Ziel-Pfad** (Target path 173%)

### Energy Sources
- Strom-Überschuss: Excess electricity
- Deckung Strombedarf: Covers demand for electricity
- Deponie-und Klärgas: Landfill and sewage gas
- Wasserkraft: Water power
- Biogas
- Photovoltaik: Photovoltaic
- Windkraft: Wind power
- KWK: Combined heat and power
- fossil: Fossil fuels

* Share of renewable energies in demand for electricity

* Excess electricity can be used for remaining heating requirements
Regional creation of value

In 2010, in the entire Hannover region, about 2.6 billion euros were spent by the inhabitants, commerce and industry on electricity, heat and fuel, which corresponds to a value of about €2,300 per person.

The larger the portion that is generated in the region, the higher also the portion of the budget that is available for investments in the region.
Initial conclusions from the project

- A regional energy turnaround is possible.
- The fundamental technologies are available. However, decisions must be made and implemented.
- The basis is a rethinking and transformation process at all levels of society.

What we require

- Reliable general conditions, both on the German Federal level as well as the European level
- A new energy market design
- Allocation of costs on the basis of use, social and economically balanced
- Continuity of subsidies
Keine Klimakiller mehr aus Hannover?

Energieverbrauch soll bis 2050 halbiert werden. Regierungspräsident Heike Jagau: "Ein erheblich hoher Anspruch."
Sabine Tegtmeyer-Dette
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