

Climate protection at the local level

The example of Flensburg's path to CO₂-neutrality by 2050

A comprehensive participatory approach based on energy efficiency and renewable energies

20th REFORM Group Meeting – On the Way to COP 21
Salzburg
2/9/2015



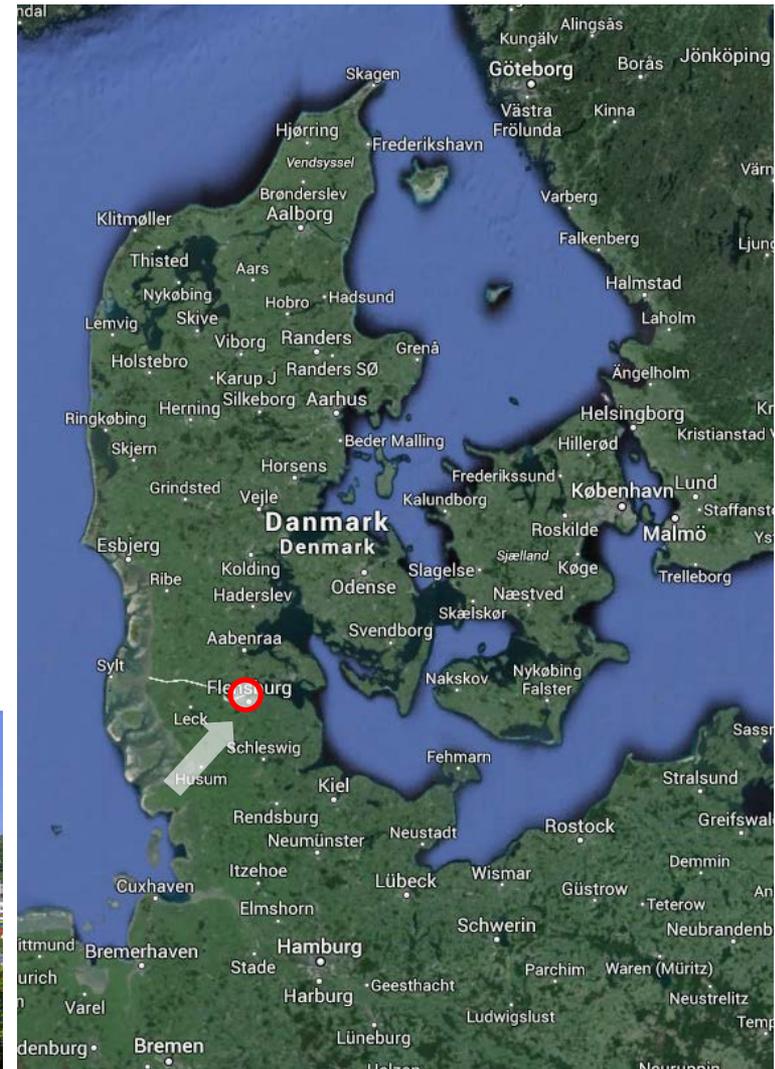
Centre for Sustainable Energy Systems
Department Climate Protection



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Chair of Energy Economics

The city of Flensburg

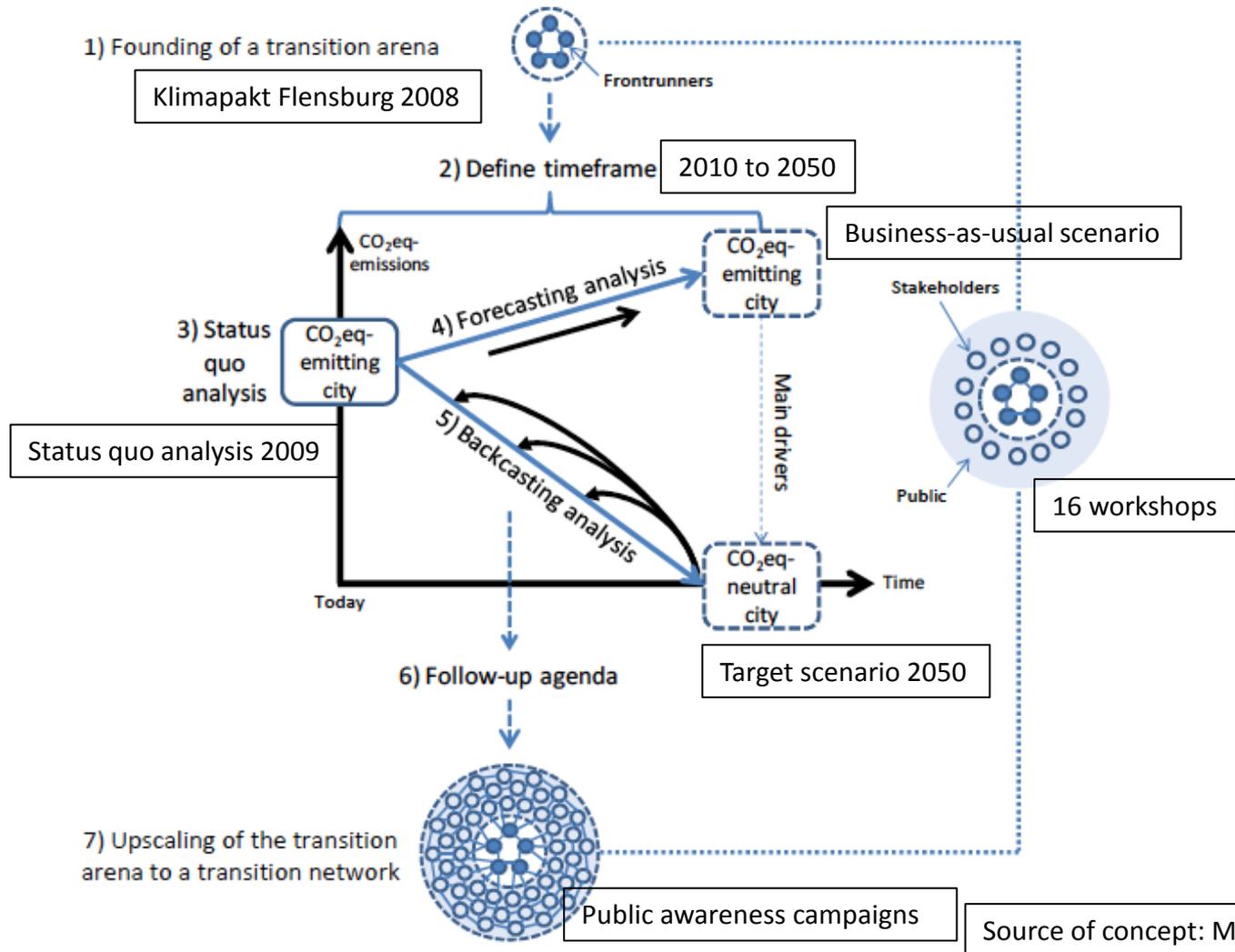
- Regional center in Northern Germany
 - 90.000 inhabitants
 - about 1% of the German CO₂ emissions
 - Commerce & trade, tourism, few large industries
- City of two cultures (D/DK)



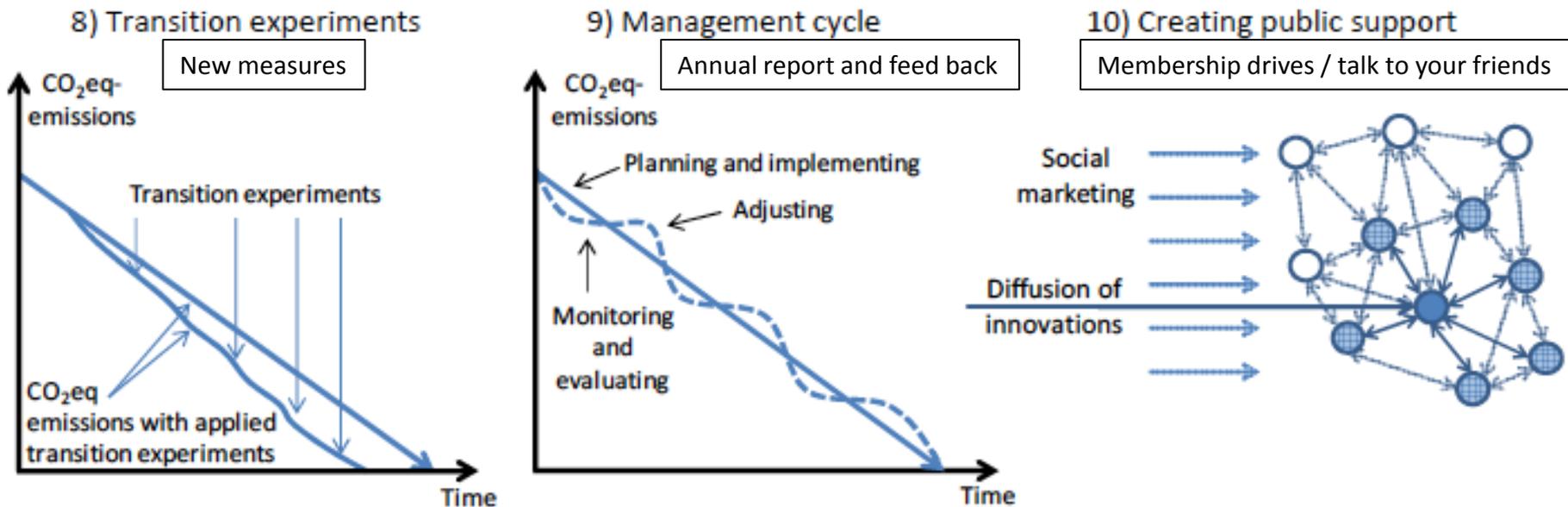
The fundamental approach I

- Started as an initiative of a few influential actors in civil society in 2008 (Klimapakt Flensburg)
- First status-quo and business-as-usual analysis
- Long term target setting for 2050
- Ambitious target setting with 100% climate neutrality
- Transition pathway development based on backcasting
- Participatory approach for strategy development
- Continuous follow up and adjustment of measures
- Continuous expansion of public support

The fundamental approach II



The fundamental approach III



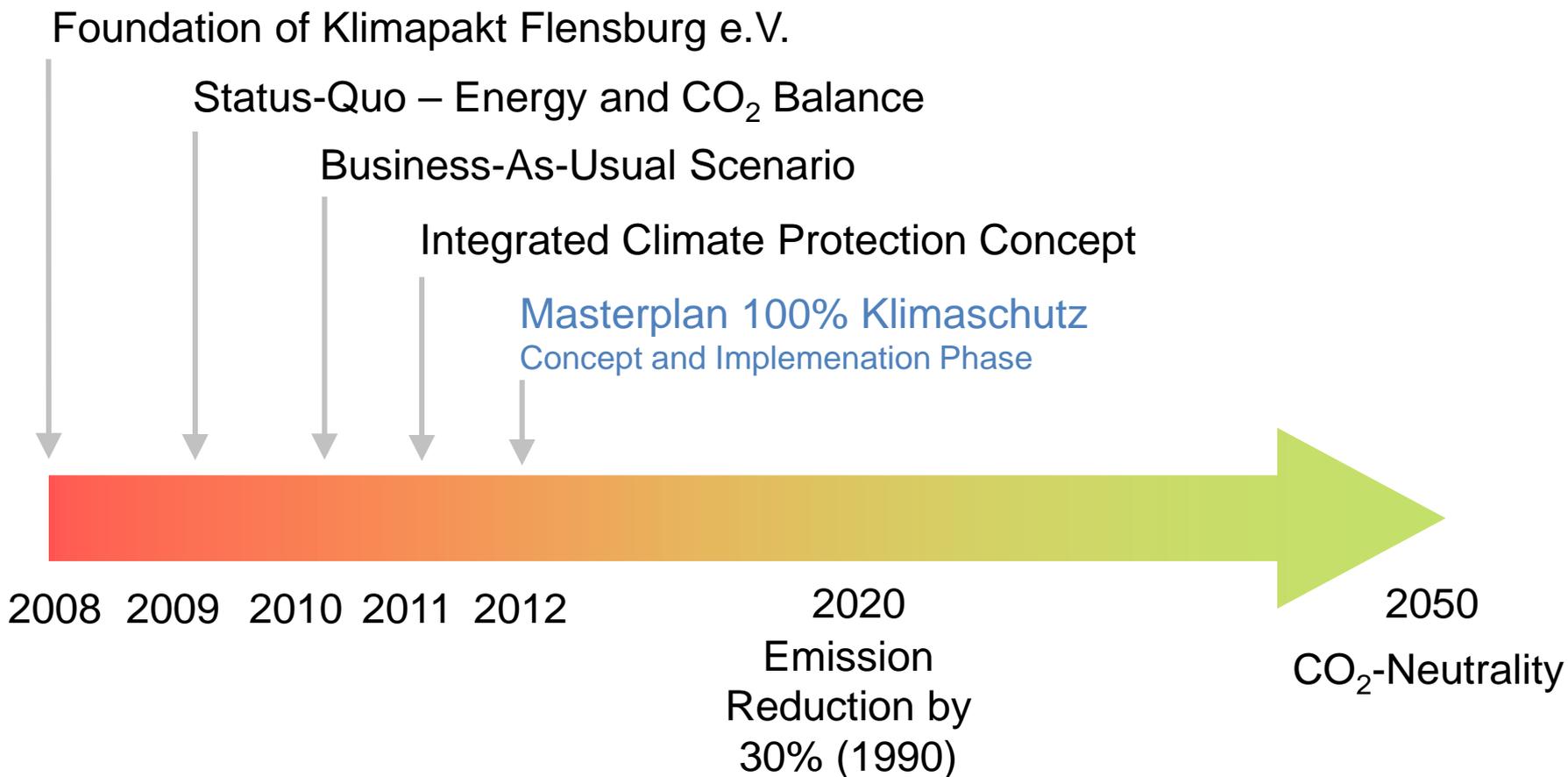
Source of concept: Maas 2014, p. 3

“Climate Pact Flensburg“

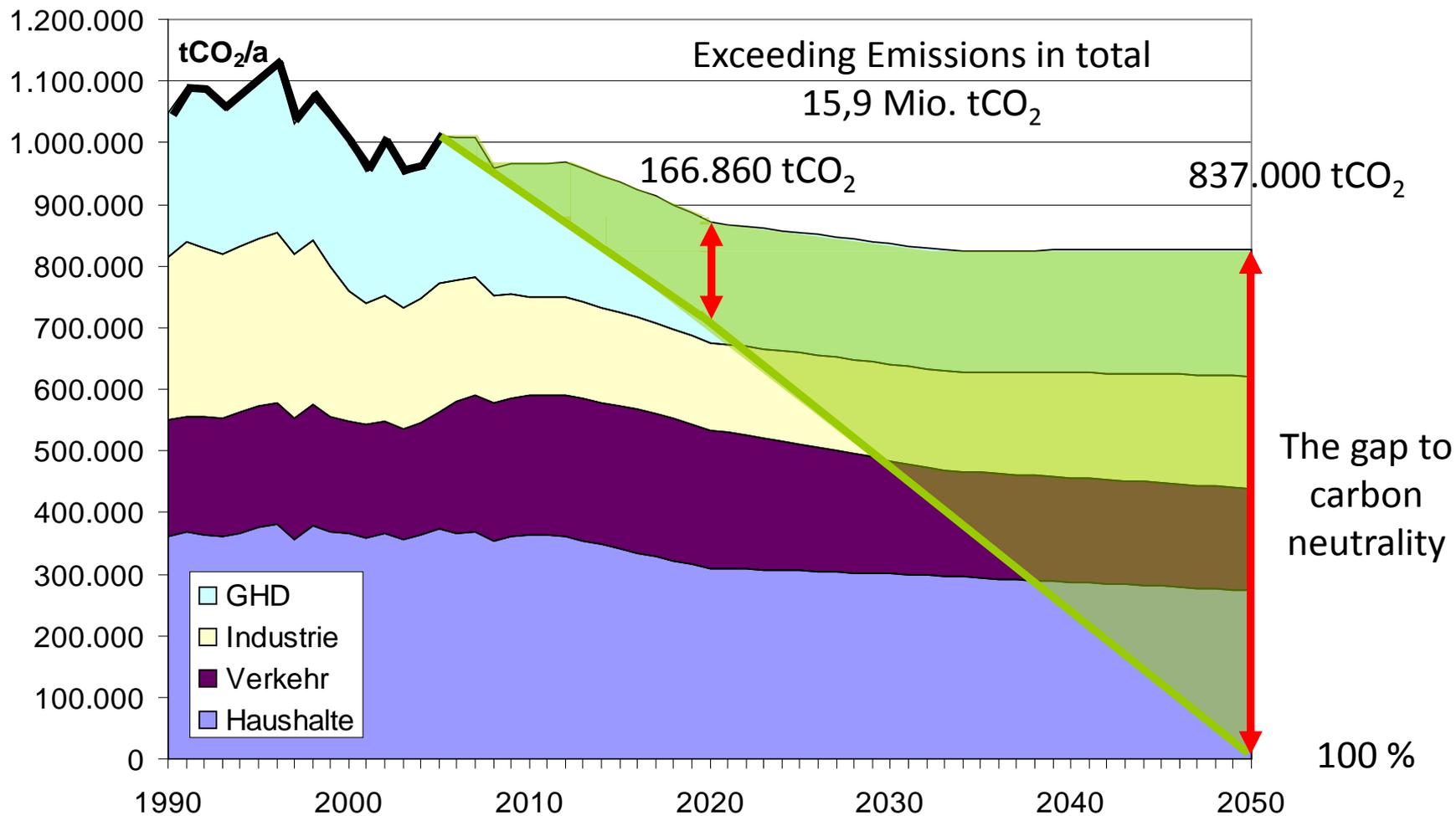
- Association established 2008 by key stakeholders of industry, public sector and civil society
 - Goal: CO₂-neutrality of Flensburg by 2050
- 2009-2013: Development of two Climate Protection Concepts
 - Participatory development (16 Workshops with all relevant stakeholders)
 - Mapping a path to CO₂-neutrality



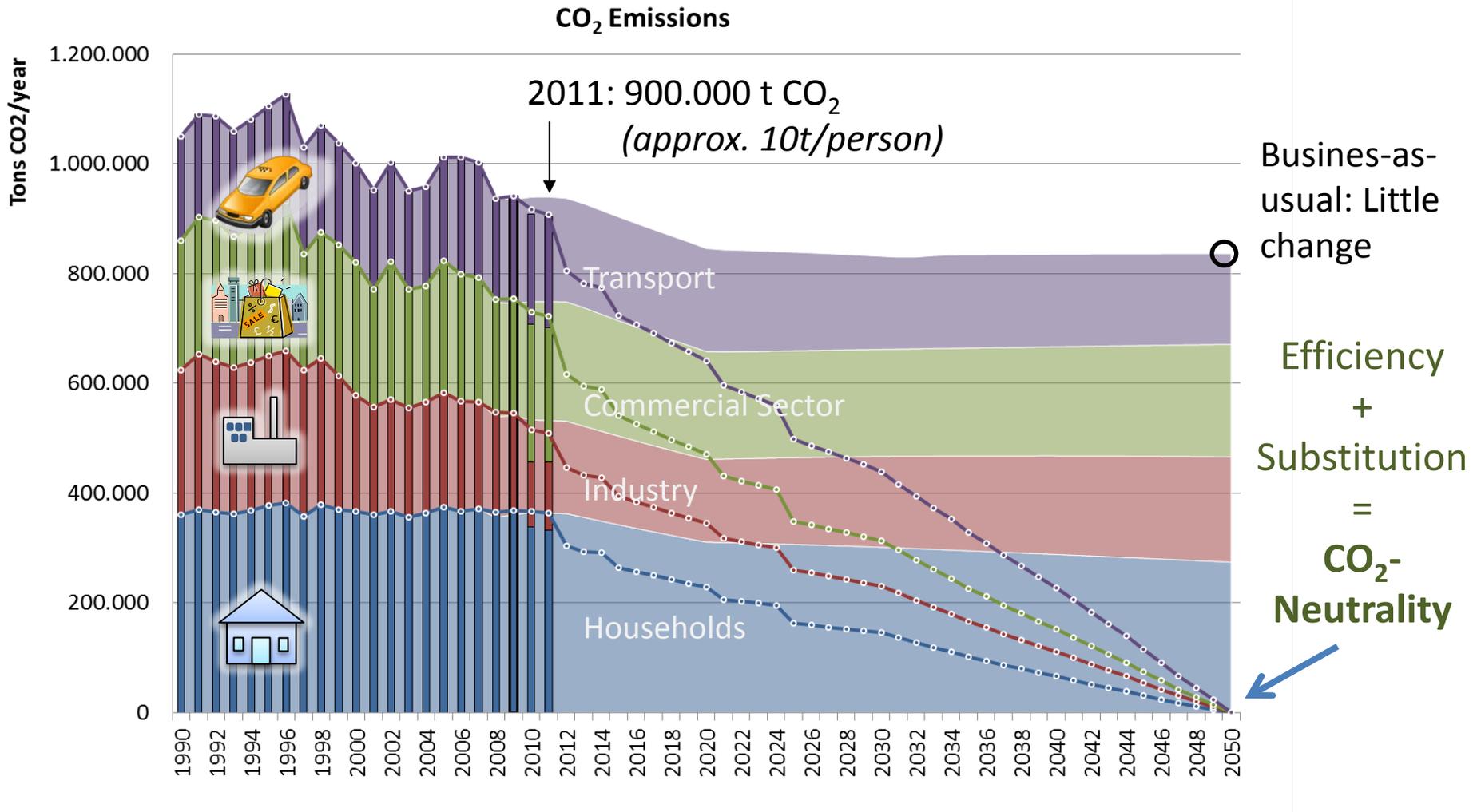
History and future development



Business-As-Usual Scenario

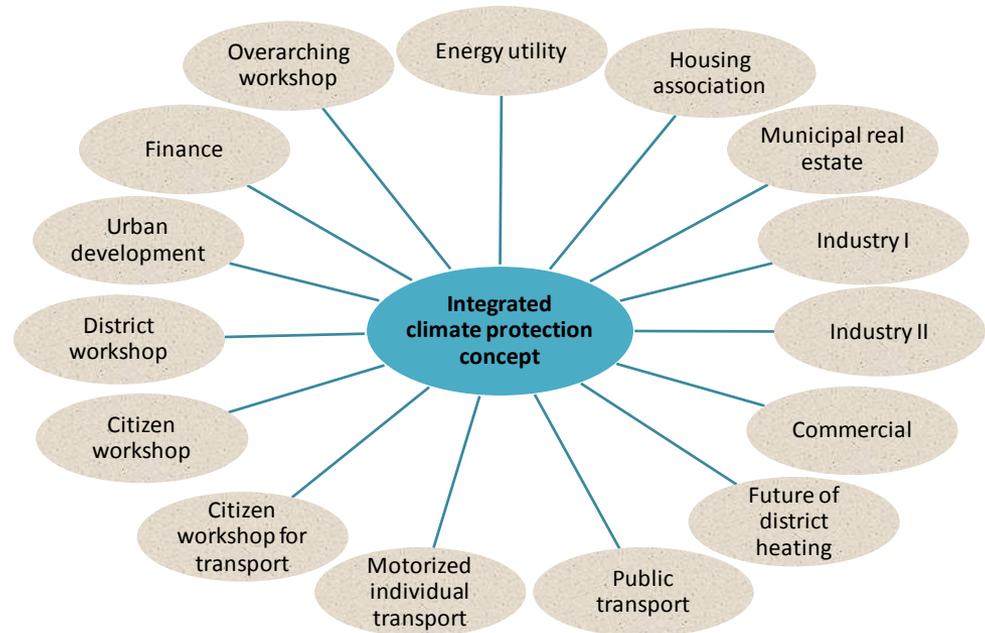


Pathway to CO₂-Neutrality

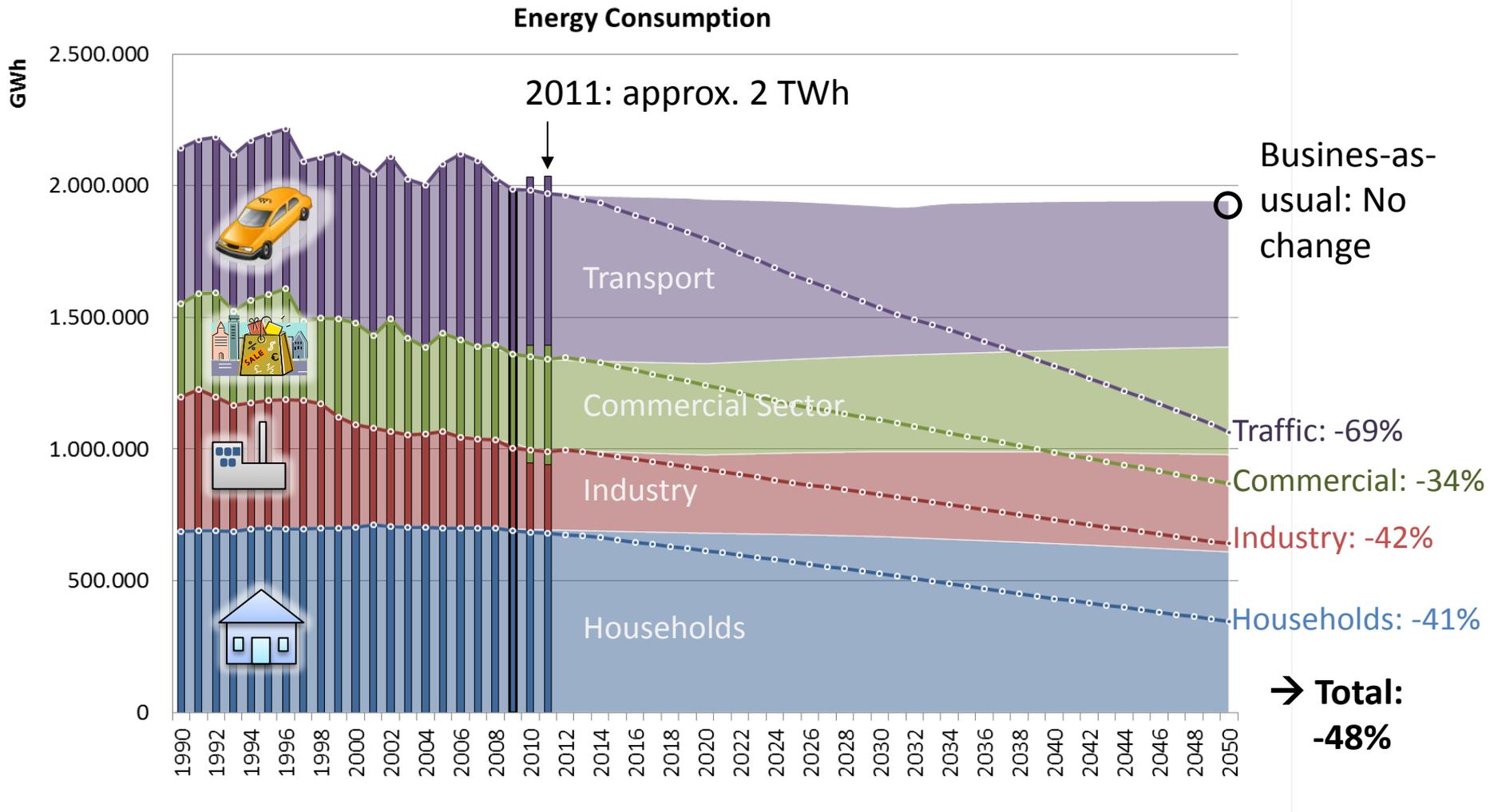


Participation of the general public

- 16 workshops, various preliminary and follow-up meetings
- Involvement of 194 participants from 50 organizations and the public
- Who? What? When? How much? How much does it cost?
- Integrated approach



Climate Concept – Energy Savings



Energy Efficiency Measures

Households



- Increase energetic renovation efficiency
- Increase renovation rate
- Usage of efficient household appliances

Industry & Commercial Sector



- Investments in energy efficient equipment
- Operational energy management
- Switching of lighting
- Building refurbishment

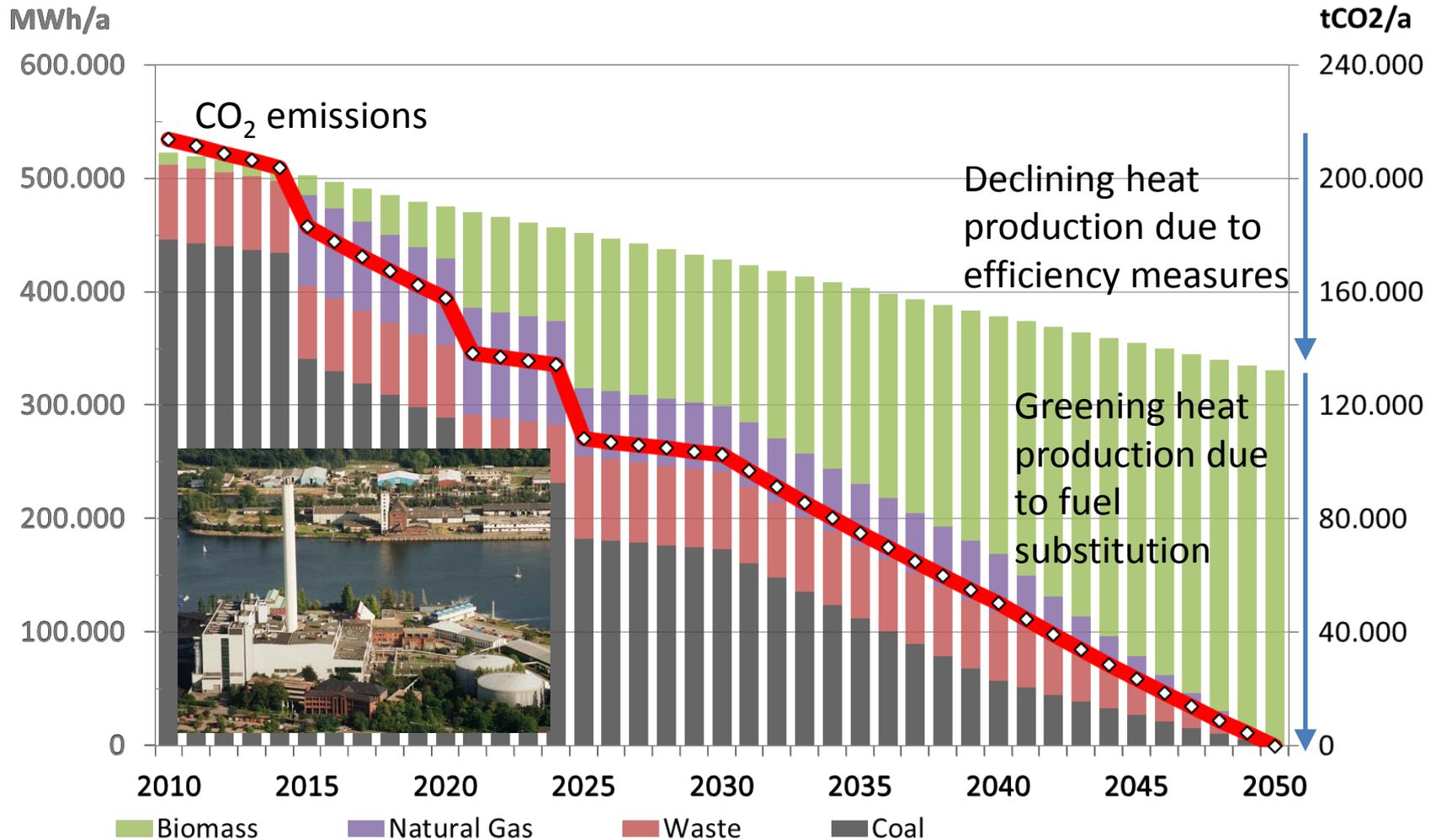
Transport



- Higher share of low-CO₂ modes of transport
- Multi-modality through car-sharing and behavioral change
- Electrification of cars and public transport

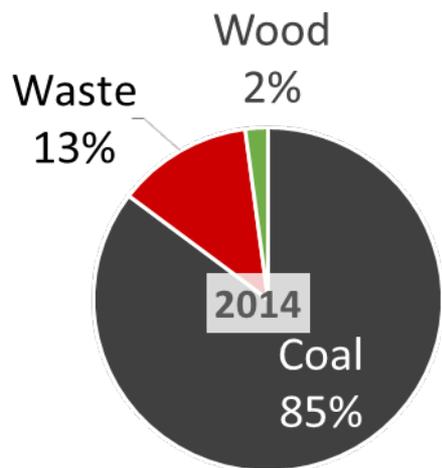
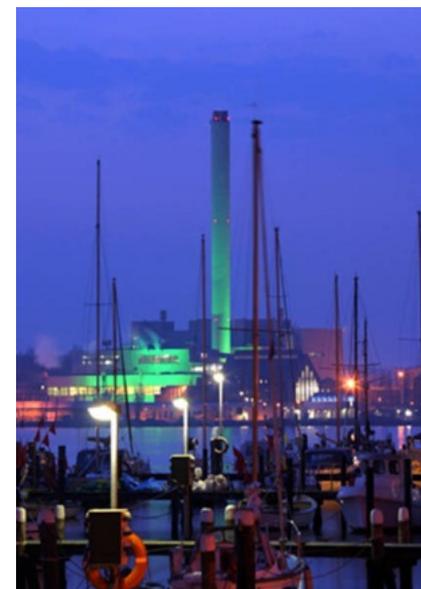
➤ Commitment of Climate Pact members:
Efficiency measures within their influence

Greening district heating & power production



Green District Heating & Electricity

- 98% of households connected to central district heating network
- Heat & electricity from local power plant (cogeneration)
- Utility is a 100% municipal subsidiary → direct influence



→ Need for change!

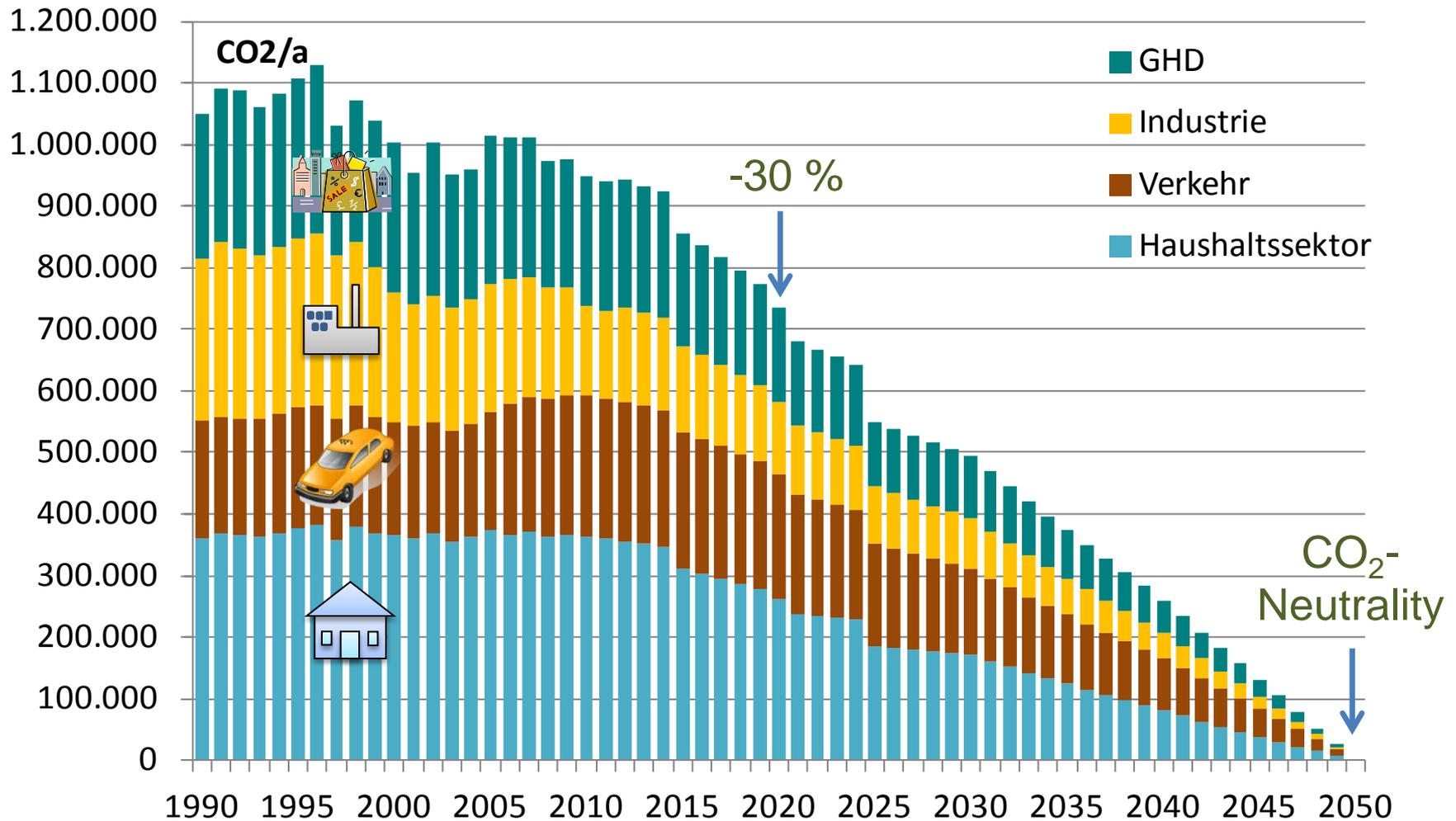


Green District Heating & Electricity

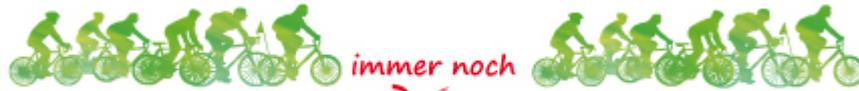
- Replacement of two old coal-fired boilers with modern gas and steam cogeneration boiler
 - 75 MW thermal and electrical each
 - Investment 140 Mio. €
 - 40% less CO₂ emissions
- New electrical boiler & heat storage
 - Using excess electricity („Power to Heat“)
 - 30 MW
 - Investment 2 Mio. €
- Modernizing of other boilers
- Substitution of fossil fuels by biogas, biomass (wood chips) & solar heat



Resulting development of CO₂-emissions



Expanding public participation by campaigns and awareness raising



Wir radeln zur Arbeit!

We are *still* cycling to work!



Cooperation with the adult education centre and the consumer advice centre



Abstract, presentations and exhibition of the integrated climate protection concept



Campaign on sustainable mobility



„School will be cool“

Support Schemes

- Federal funding scheme “National Climate Protection Initiative”
 - 130.000€ first concept
 - 120.000€ second concept (“Masterplan”)
 - 400.000€ implementation (3 years, until 2016)
- Financial (about 500.000€ so far, plus 70.000€ per year to come) and professional support by Climate Pact Members
- Without the financial and political support the success would not have been possible



Conclusions

- Ambitious long term targets need to guide the process (climate neutrality by 2050)
- Efficiency and the switch to renewable energy sources are central
- Cities must and can make a substantial contribution to climate change mitigation
- Public participation in strategy development is a key for success

Thank you for your attention!



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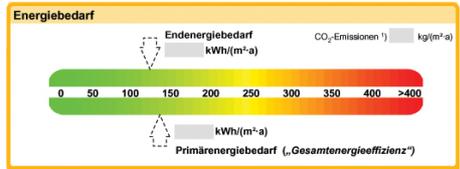
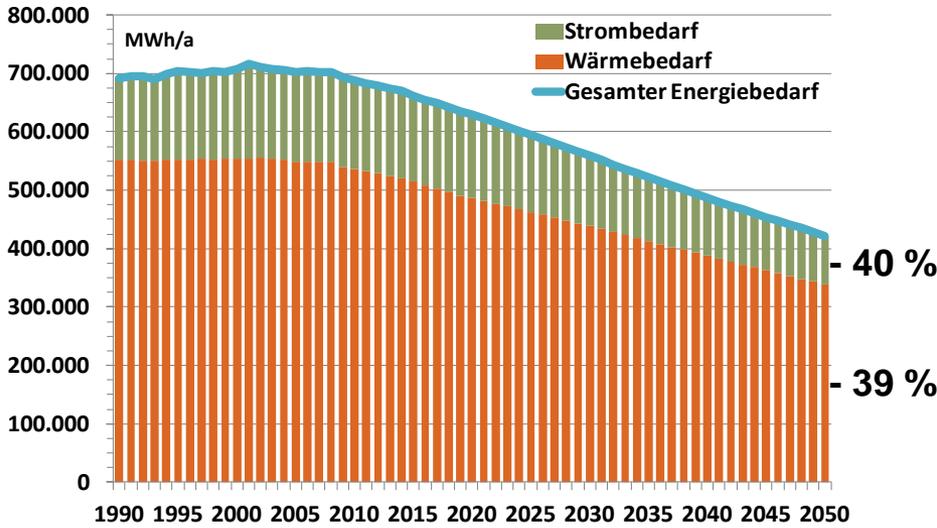
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Developed efficiency strategy for households



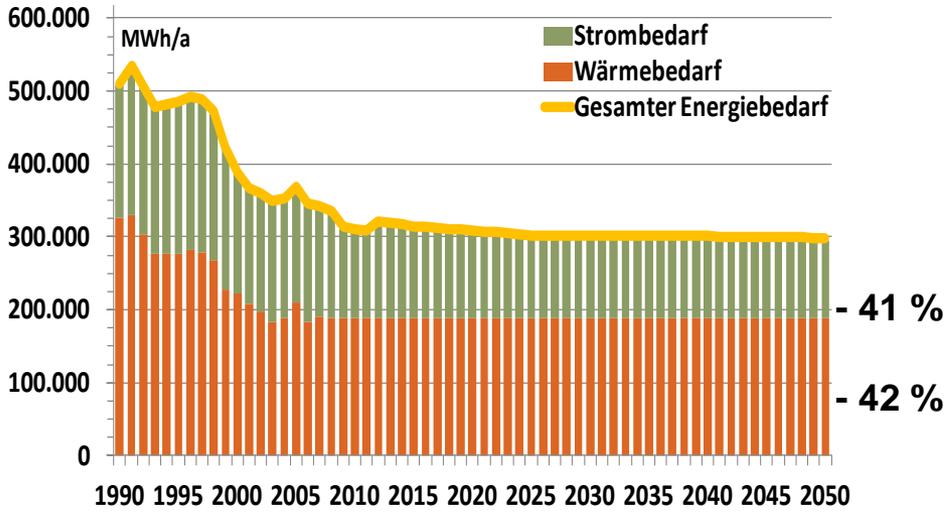
Sector information:

- 90.000 citizens
- 45.000 households
- District heating coverage of 98 %

Main Measures:

- Increase renovation efficiency
- Increase thermal refurbishment rate
- Usage of efficient household appliances

Developed efficiency strategy for industry



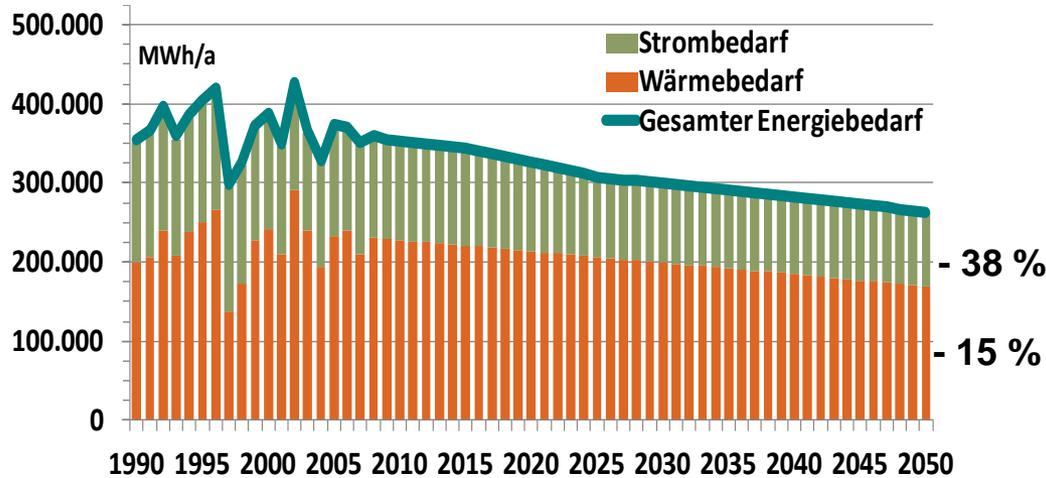
Sector Information:

- Economic growth as a main driver for energy consumption
- 7 participating companies (> 80 % ED)
- 35 % natural gas, 5 % heating oil, 60 % electricity and district heat

Main Measures:

- Steady investments in up-to-date equipment (e.g. E-drives, lights)
- Operational energy management
- Substitution of fossil fuels

Developed efficiency strategy for commerce, services and trade



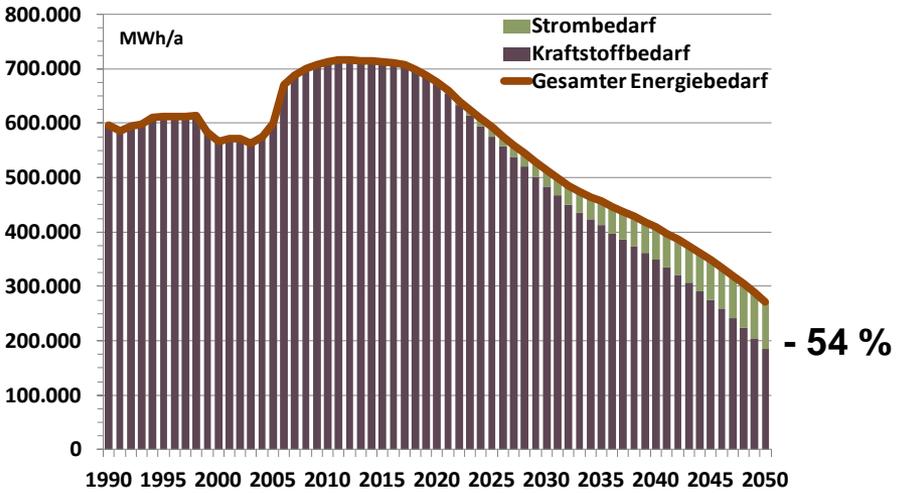
Sector information:

- Extremely heterogeneous sector: craftsmanship, industrial-like, household-like, public buildings, trade and logistics
- Little involvement of companies so far

Main measures:

- Switching of lighting
- Energy-focused building refurbishment

Developed efficiency strategy for transport



Sector information:

- Car, bike, walking, public & goods transport
- 60.000 cars in Flensburg
- 60 % Diesel and 40 % Petrol

Main measures:

- Increase the share of environmental modes of transport in the modal split
- Multi-modality through car-sharing and behavioral change
- Electrification of cars and public transport

Role of the City's Administration

- Political support for vision/concept (adoption)
- Efficiency measures in its own sphere
- Steering municipal subsidiaries towards climate protection measures
- “Coordinator“ through it's climate managers
 - Trigger climate protection measures
 - Coordinate stakeholders
 - Creating public awareness (solar roof register)
 - Link between stakeholders and municipal administration
- Influence limited:
 - many decisions taken on higher government levels (e.g. RE support schemes)
 - Only motivation of stakeholders to measures

