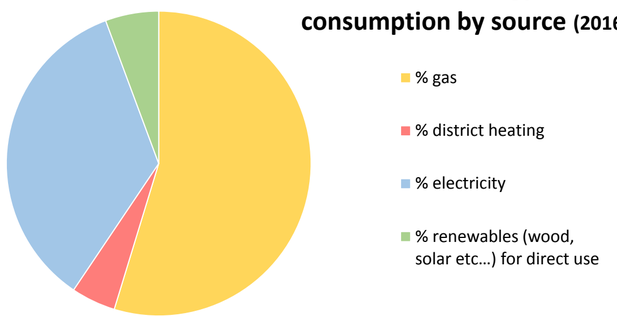
AMSTERDAM

21-12-2017

City Facts

General data		
Size (km2)	2016	**219**
% of green area	-	**-**
% of water (incl recreational)	2016	**25**
Size (population)	2016	**834.713**
Density (Inh./km²)	2016	**3.811**
Density (houses/km2)	2016	**2.728**
Annual population growth (%)	2010 -2016	**1,40**
Purchasing Power (GDP/capita in EUR)	2015	**77.272**

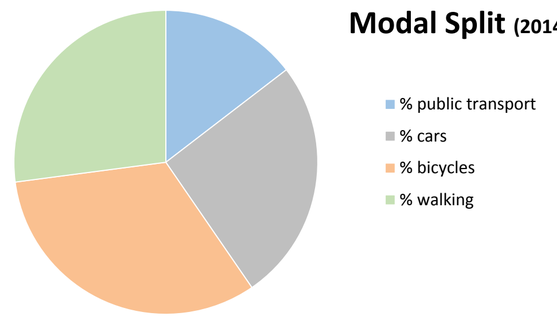
Final energy consumption by source (2016)



Final energy consumption - total (2016): 12.289 GWh
Final energy consumption per capita (2016): 14.722 kWh/cap*a

CO_2 emissions- total (2016): 4.138.000 t CO_2 eq
CO_2 emissions per capita (2016): 5 t CO_2 eq / cap*a

Modal Split (2014)



Cars per 100.000 inhabitants (2014): 277

Approaches towards integrative energy planning

Amsterdam urban planning process with integration of energy

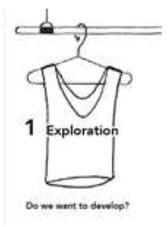
Amsterdam: PLABERUM for urban development areas

13/12/2017

Planning requirements

Structual Vision 2040 | Strategic Plan | Koers 2025 | Agenda Sustainbility | Strategy without gas

Exploration



- Initiative
- 1.1 Scope + ambition of the project
  - Environmental
  - Financial
  - Legal
  - Stakeholders
- 1.2 First check
  - Sustainable energy
  - Circulair Economy & waste recycle
  - Healthy air quality
  - Climate adaptation
- 1.3 Advice policy
- 1.4 Risk analysis

> Goal sustainable, open and affordable energy system

Feasibility

- Principal Decision
  - *high risks* → 2.1 Feasibility / scenarios studies
  - *low risks* → Project Decision

Design/Planning

- 3.1 Master planning
  - Research
  - Calculate & Design
  - Public participation
- Master Plan
- Financial plan
- Energy study / scenarios
  - > Feasibility of the grids
  - > Markt research
- Energy vision
- HEATING PLAN
- Invest Decision
- 3.3 Draft Zoning plan
- Zoning plan
- Tender – Heating system

Implementation

- 4.1 Design Public space & Tender Buildings
- 4.2 Permissions & Contracting
  - Building application
  - > Energy criteria in contracts and permits
- 4.3 Execution & Management

Important issues towards integrating energy aspects into existing procedure

- The city wants to develop a post-fossil free structure; this should be integrated in each development area
- The high potential of the soil as energy storage should be used
- Changing in the framework conditions are giving new opportunities (Environmental law which will substitute many other laws such as Planning Act)
- The strong movement in local energy production have an impact on urban planning
- It is important to distinguish between greenfields and brownfields – need for different approaches

Some recommendations for integrative energy planning

- Integrate sustainable energy early in the planning process and in the instruments
- Regard the caused risks of energy in terms of time and costs
- Involve neighbouring municipalities (especially for the grid infrastructure)
- Use scenarios of energy systems for different settings of the urban project before the design is starting
- Improve the tender criteria for the design of the buildings
- Develop new instruments as format for heating plans which helps to find alternatives for gas
- Use of monitoring of the energy performance (as part of the environmental permit)

This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 649883.