

Amsterdam

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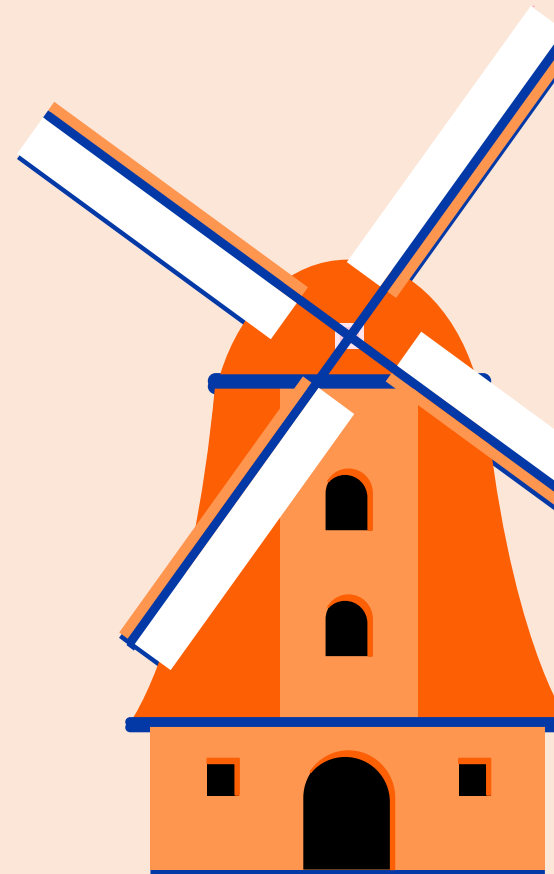
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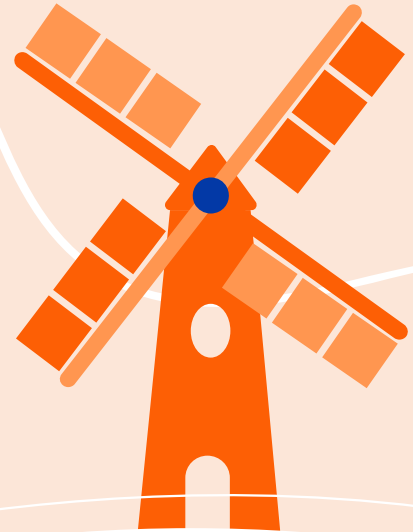
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01

Sustainability



What made Amsterdam so dedicated to sustainability?

Overtourism

“Free, tolerant city of the Golden Age.”

Economy flourished in post-war era. Amsterdam back then was known as a permissive city, attracting influx of tourists around the world

Tourism Gentrification

Locals face rising rents and housing shortages as properties are converted into tourist accommodations. Traditional shops and neighborhoods have been replaced by souvenir stores and tourist-oriented businesses.



What made Amsterdam so dedicated to sustainability?

Environmental activism

Anti-Nuclear Energy
Movement (1970s–1980s)

Green Political Movements (1980s)



What made Amsterdam so dedicated to sustainability?

Tourist-oriented economy

Overtourism
Social movements

Sustainability-centric economy



Sustainable development,
equitable living

Balance growth within limits

Restore citizens' life quality

How did the sustainability ethos reshape Amsterdam?

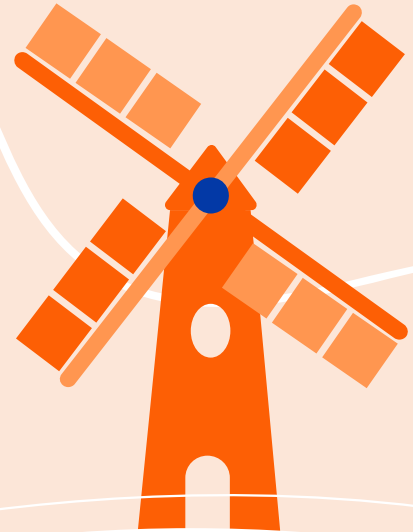
Soft system(Sustainability) ^{CHANGES} -----> **Hard System**

The pivot to sustainability-centric economy has profoundly reshaped many of the city's hard systems, such as:

- High-quality and accessible transportation
- Policies encouraging energy-efficient buildings
- Clean and renewable energy

02

Energy Generation



History of energy system



Wind Power



Fossil Fuels



Renewable Energy

History of energy system

Traditional Wind Power

- 16th-18th Century
- Approximately 8,000 to 10,000 windmills
- Concentrated in and around Amsterdam
- Used for Drainage and Land Reclamation, Milling Grain, Sawing Wood

Although the number of windmills has significantly declined today, they remain a cultural and historical symbol of the Netherlands' early use of renewable energy.



History of energy system

Decline of Windmills and Rise of Fossil Fuels

Do you know what helps you make your point clear? Lists like this:

- Late 18th and 19th centuries (Industrial Revolution)
- Because of shift toward urban centers and industrial-scale production
- Dutch coal consumption reached 3 million tons annually, gas consumption grew to 30 billion cubic meters annually
- Lead to significant environmental issues

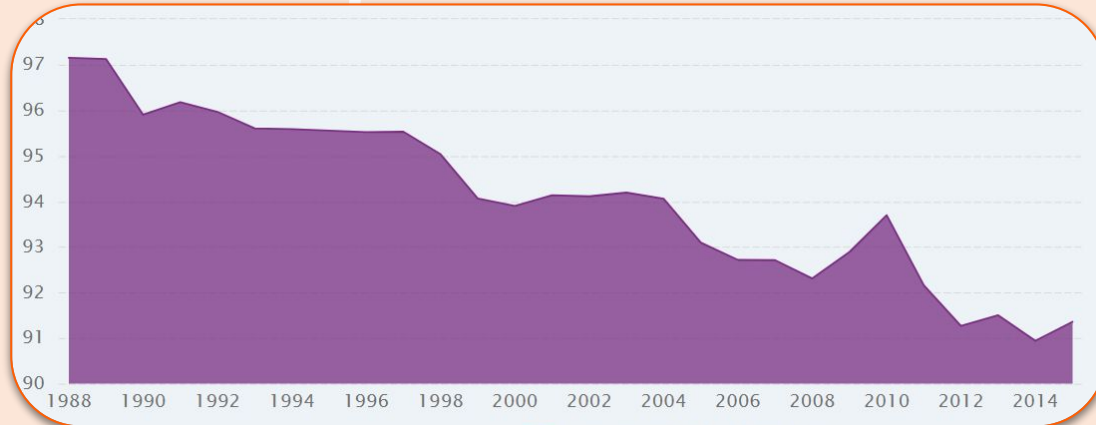


History of energy system

Renewable Energy Adoption

The drawbacks of fossil fuels drove Amsterdam's shift to renewable energy for a sustainable future.

- Government Policies and Urban Planning (2000s)
2008 Amsterdam Climate Program
- Large-Scale Implementation (2010s):
offshore wind farms, green roofs, solar pane, electric vehicle



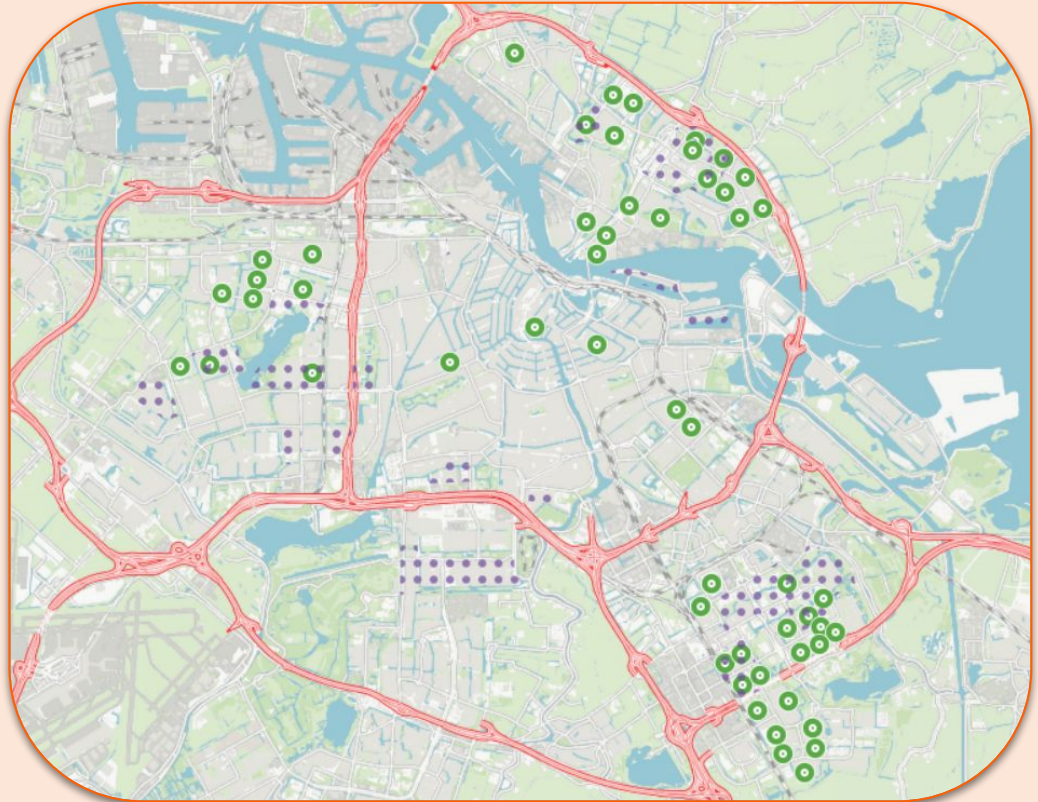
Mineral fuel consumption: percentage of total

History of energy system

- Ambitious Goals and Leadership (2020s)

In the first half of 2024, the Netherlands' renewable energy generation increased to 32.25 billion kWh, accounting for 53.3% of the total power generation, becoming the most important source of electricity for the first time.

Aims for 100% renewable electricity by 2030s



Renewable energy locations in 2024

03

Building Infrastructure

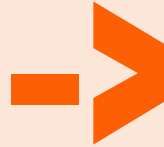


Energy Transformation to energy consumption reduction

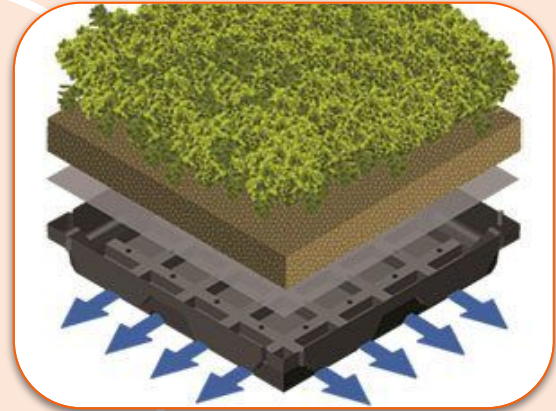
Before 2015



Traditional Energy pattern



Now



Recycling

Low energy buildings



Efficient thermal insulation system

Reduces the need for heating in the winter and air conditioning in the summer



Natural lighting and ventilation

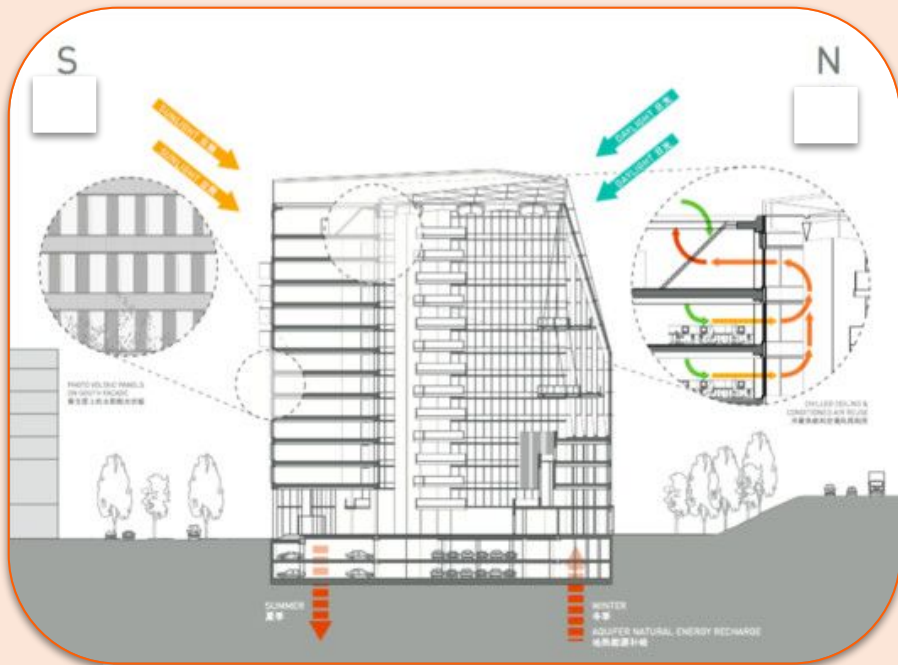
Reduce reliance on artificial lighting and air conditioning



Solar panels and renewable energy

Solar photovoltaic panels can generate some of the electricity

Low energy buildings - The Edge



- Equipped with intelligent lighting system and solar photovoltaic panels covering the entire building.
- Rainwater collection and natural ventilation are used to reduce resource waste.
- Energy consumption is reduced by about 70% compared with ordinary office buildings.

Low energy water control system

Blue-Green Roofs



Energy saving

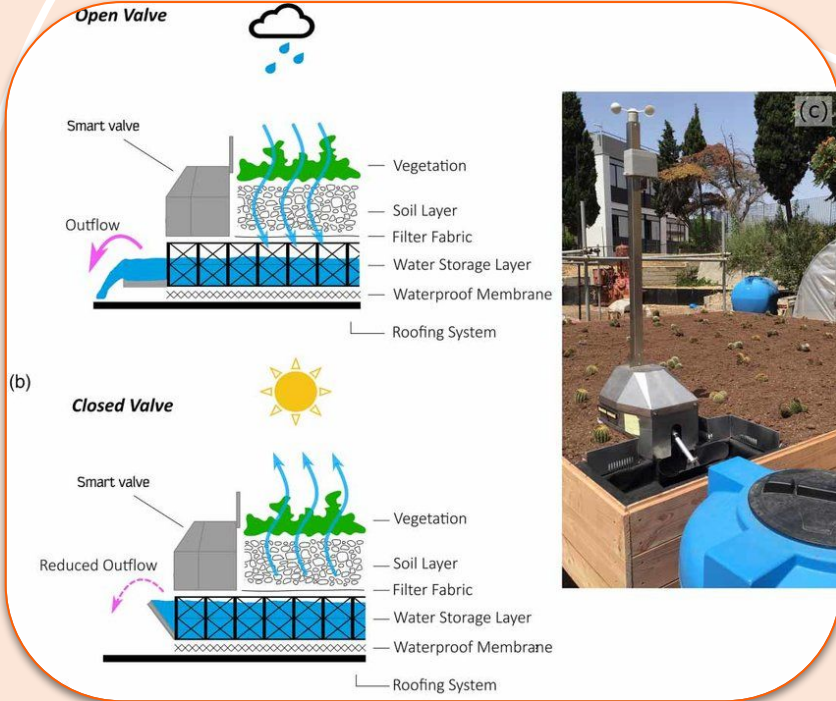
Green roofs can reduce the amount of heat absorbed by exposed roof surfaces, lowering interior temperatures by 2-4°C



Flooding management

Green roofs absorb rainwater through the soil and plant roots, reducing surface runoff pressure

Blue-Green Roofs



Thermal insulation effect

Green roofs can reduce the amount of heat absorbed in summer and reduce the amount of heat dissipation in winter.



Stormwater Management

Green roofs absorb rainwater through soil and plant roots, **reducing flooding pressure**. Part of the rainwater is **stored for plant irrigation** to reduce water consumption.

Blue-Green Roofs

THE BLUE-GREEN NEIGHBOURHOODS build up by RESILO



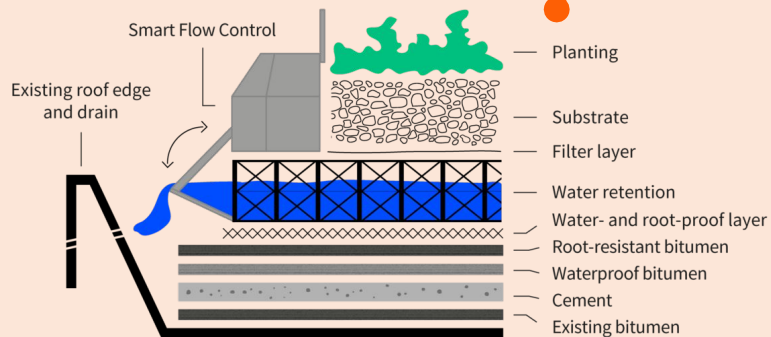
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Stormwater Management

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15-30%

Green roofs can reduce a building's total energy consumption by 15%-30%.



04

Transportation Infrastructure

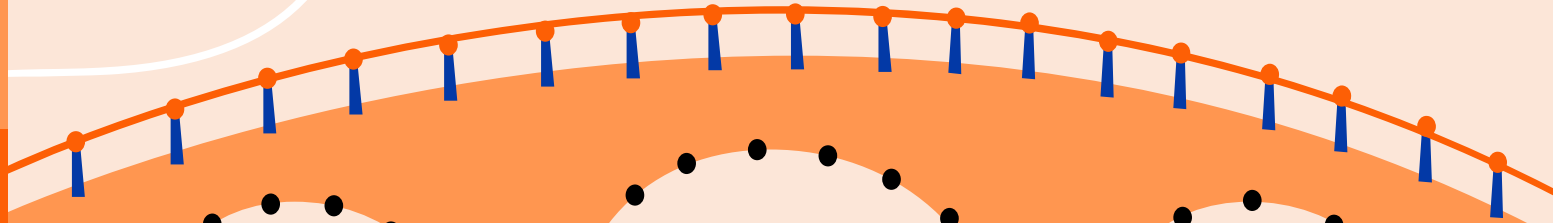
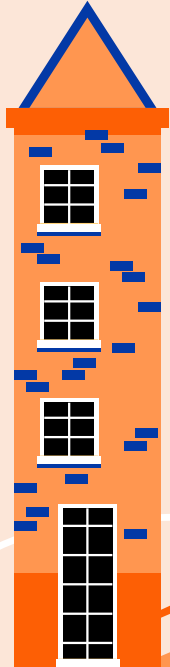


The History of Transportation



Car Gaining Dominance (1950-1970)

- Post-war economic boom made cars more affordable.
- Amsterdam neighborhoods were demolished for motorized traffic, **overtaking parks, playgrounds, and pedestrian zones**, while increasing **air pollution** and **noise, disrupting communities**.
- Bicycle usage declined by 6% annually.



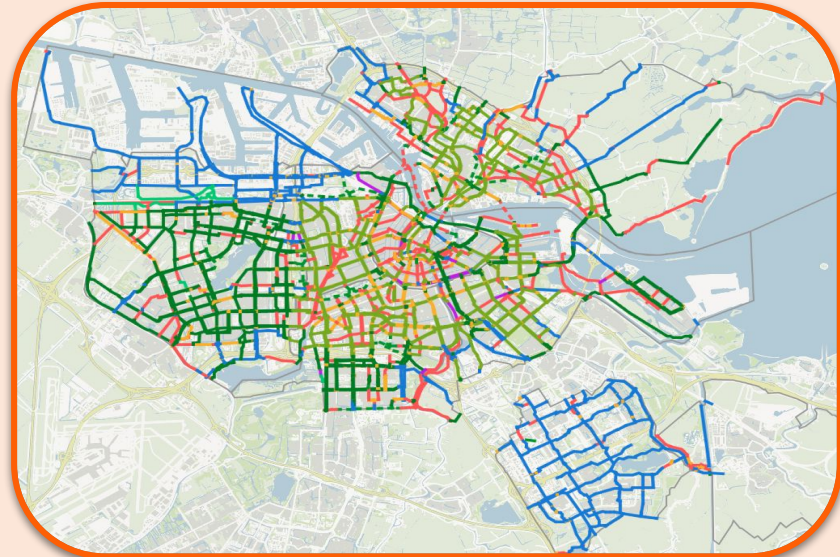
White Bicycle Plan (Witte Fietsenplan)

- White-painted bicycles were intended to **reduce car dominance** and **promote sustainable, non-polluting transportation**
 - ★ **Highlighted the role of bicycles** in sustainable urban transport.
 - ★ **Sparked** debates about **urban planning** and traffic safety policies.
 - ★ Influenced investments in dedicated **bike paths and parking**.



The Bicycle Capital of the World (Present)

- ❖ Bike-Friendly Infrastructure:
 - Extensive **bike lanes** separated from traffic.
 - Dedicated **bicycle parking** spaces.
- ❖ Public Transport Integration:
 - Combined use of bikes and public transport through park-and-ride bike systems.

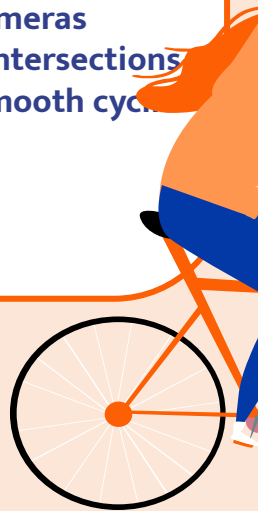


Cycle Network



Advancing Cycling Infrastructure (The Future of Amsterdam)

- ❖ Amsterdam implemented smart traffic lights in the mid-2010s. **800** smart traffic lights installed in the Netherlands by 2021. Plans to add **1,000** more smart lights nationwide.
- ❖ **Sensors such as detection loops and cameras detect cyclists' presence and speed at intersections**
- ❖ **Data adjusts green light duration for smooth cycle flow.**



Conclusion



**Energy
Generation**

**Building
Infrastructure**

**Transportation
Infrastructure**

