

Towards Energy Neutral New Housing Developments

Municipal Policy Instruments In The Netherlands

Milly Tambach and Henk Visscher – Hopus Final Conference Rome 23-4-2010

Structure of presentation

- Housing in the Netherlands
- Goals, Policies and Instruments
- Chances to realize energy efficient housing projects
- Cases
- Conclusions

Housing in the Netherlands:

2000	Home owners			Social rent			Commercial rent			S.F.	M.F	Total	%
	S.F.	M.F	Total	S.F.	M.F	Total	S.F.	M.F	Total				
< 1945	751.328	117.797	869.125	123.339	155.525	278.864	159.211	194.243	353.454	1.033.878	467.565	1.501.443	23
1945-1970	671.902	146.703	818.605	590.037	399.641	989.678	73.252	104.860	178.112	1.335.191	651.204	1.986.395	30
1971-1990	1.180.195	76.807	1.257.002	437.912	432.531	870.443	110.248	94.440	204.688	1.728.355	603.778	2.332.133	35
> 1990	443.471	67.466	510.937	61.186	154.928	216.114	13.626	27.423	41.049	518.283	249.817	768.100	12
Totaal	3.046.896	408.773	3.455.669	1.212.474	1.142.625	2.355.099	356.337	420.966	777.303	4.615.707	1.972.364	6.588.071	
%			52			36			12				

- Total 7.000.000 dwellings;
- Yearly production: 70.000
also demolition + refurbishment
- Social Housing: built and owned by Housing Associations
- Private housing: project developers



Municipal policy instruments

European and Dutch policy background

EU climate and energy targets for 2020

- 20% reduction of greenhouse gas emissions (reference year 1990)
- 20% share renewable energy in EU's overall energy mix
- 20% improvement of energy efficiency

Energy performance of buildings directive 2002/91/EG

- Support improvement of buildings overall energy efficiency

Dutch government's Clean and Efficient- targets for 2020

- 30% reduction of greenhouse gas emissions (reference year 1990)
- 2% > 20% share renewable energy in total energy consumption
- Energy efficiency to be improved by 2% per year

Plans, agreements and covenants

NEW HOUSING PROJECTS

EXISTING HOUSING STOCK

Energy Transition Plan PeGO

Spring Agreement

More with less Plan & Covenant

Energy Saving Covenant Housing Associations

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Dutch Energy Transition

Energy Transition Plan PeGO (2007)

- 'Develop a self-learning and continuously innovating chain, in which local and national stakeholders form coalitions to work together on the implementation of new and improved techniques in the built environment.'
- 80 large-scale demonstration projects between 2008 and 2012, including energy efficient housing projects, with rising ambition levels of 45%, 60% and 80% CO₂-reduction in three consecutive cycles.

Subsidy tender 'Towards energy-neutral housing' (UKR)

- 500.000 Euro subsidy for energy efficient housing projects of municipal governments, housing associations and developers
- stimulates technological AND process innovation
- Preconditions: project realizes at least 50 dwellings; reduction of at least 45% CO₂-emissions
- UKR subsidy granted to 15 new and renovation energy efficient housing projects

Municipal policy instruments

Municipal ambitions & steering problem

Municipal governments

High-ambitious climate policy goals to reduce CO₂ emissions, surpassing national ambitions (EPC standard = 0,8).

Municipal steering problem

Lack of efficient private and public law instruments to achieve energy conservation in new housing developments surpassing national standards:

Municipal policy instruments

Case Studies

Project 1 Minewater project, Heerlen

Project 2 Buiksloterham, Amsterdam

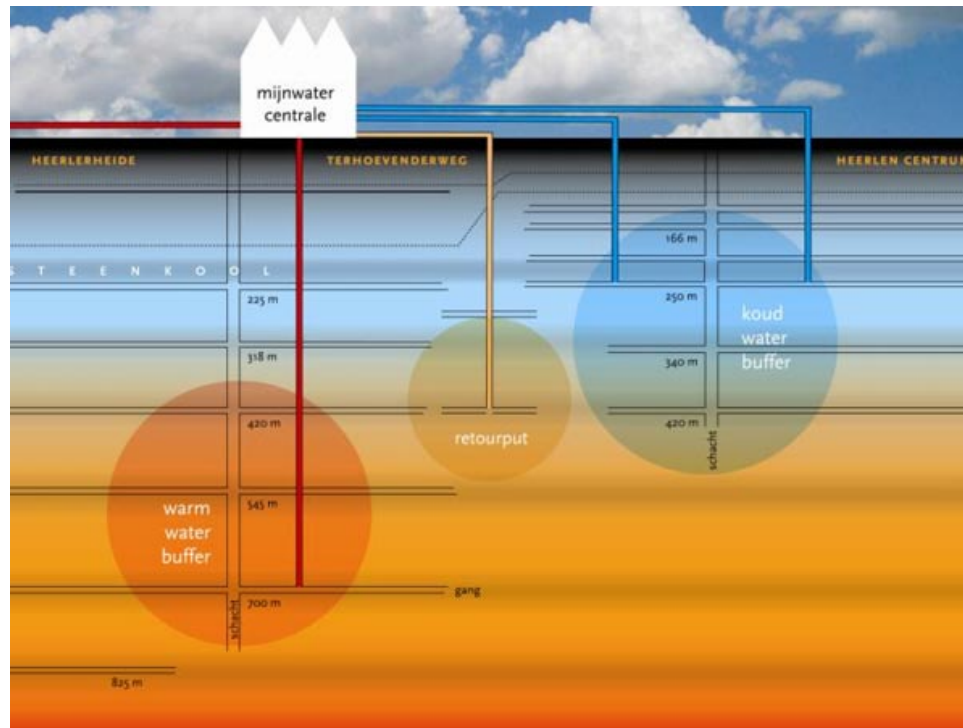
Project 3 Solar island, Almere



Source: <http://maps.google.com/> (2009)

Municipal policy instruments

Project 1 Minewaterproject (geothermy), Heerlen

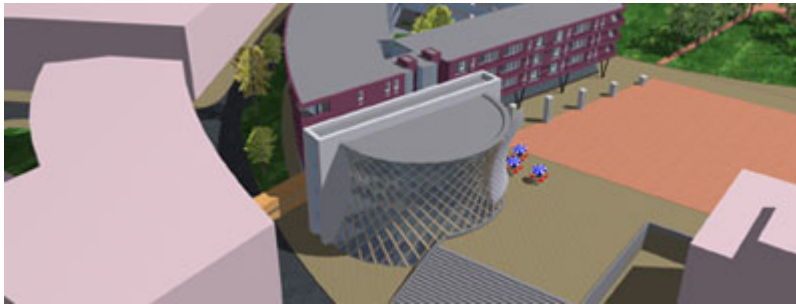


- Old coal mine history
- Today poor regional economy
- Shrinkage of population
- Using old mine shafts, energy station and district heating for heating and cooling of at least 200 new dwellings
- Using mine history to create enthusiasm among residents, public and private parties
- Create new location identity by branding

Source: www.heerlen.nl (2009)

Municipal policy instruments

New housing development, Heerlerheide



Sources: www.wellernet.nl; Reformatorisch Dagblad (2009)

- Central energy station new landmark, which refers to cooling towers of mine history
- Cultural centre 'Gen Coel' new heart of Heerlerheide
- Spin off development shops, cafés, library, supermarket and users of minewater like offices - and -possibly university buildings
- Construction firm builds 50 large and comfortable apartments
- Underground parking

Municipal policy instruments

Project 2 Buiksloterham



Amsterdam

- aims at 40% reduction of CO₂ emissions by 2025
- climate programme: New Amsterdam' Climate to implement this aim in policy, plans and organization.
- from 2015 Amsterdam wants to build 'climate neutral':
'100% of CO₂ emissions of building-related energy use compensated by energy saving, local generation renewable energy and/or use of RES.'
- municipal policy note 2008: 'sustainable construction of new buildings'.
- 'Climate table' to set up sustainable public-private alliances: ABN Amro, KvK, BAM, MKB, Nuon, PricewaterhouseCoopers and municipality will investigate, how Buiksloterham can be developed climate neutral.

Source: Municipality of Amsterdam, 2009.

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Municipal actions at Buiksloterham, Amsterdam

Project Buiksloterham

- transformation industrial estate to climate neutral mixed-use inner-city area with 2.000 dwellings by 2015 (30% social housing).
- realization of 'climate neutral' housing investigated (> tender)
- major investment in public space.
- district heating & cooling. Water, traffic, and noise management.
- public-private initiative to make Buiksloterham climate neutral: Koninklijke BAM Groep, NUON and Municipality of Amsterdam.

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Municipal instruments Buiksloterham, Amsterdam

GPR©gebouw

Communicative performance instrument, used by civil servants, architects, developers and housing associations, to formulate ambitions and optimize performances in the field of energy, materials, waste, water, health and comfort.

EPL Energy Performance on Location

Governmental communication instrument and calculation method to realize reduction in the consumption of fossil fuels and to support local parties in the decision- making process to choose the best energy infrastructure.

Municipal policy instruments

Solar island, Noorderplassen-West, Almere



Cradle to cradle as ideology behind the goal to create an ecological, economical and socially sustainable development of the city.

With the new solar island, the municipality of Almere new icon and entry to the Noorderplassen-West district

Sources: www.nuon.nl; www.almere.nl (2009)

Municipal policy instruments

Solar island, Noorderplassen-West, Almere

7 Almere principles (in short) based on Braungart and McDonnough's Hannover Principles:

- diversity – as characteristic of robust ecological, social and economic systems
- connect place and context - make identity stronger
- combine city and nature - increase human bond with nature
- anticipate on change – include flexibility in plans and programmes
- keep innovating – in processes, technologies, infrastructures
- design healthy systems - solar island combined with district heating
- people make the city – citizens are driving forces behind the making, preserving the city and making it more sustainable

Municipal policy instruments

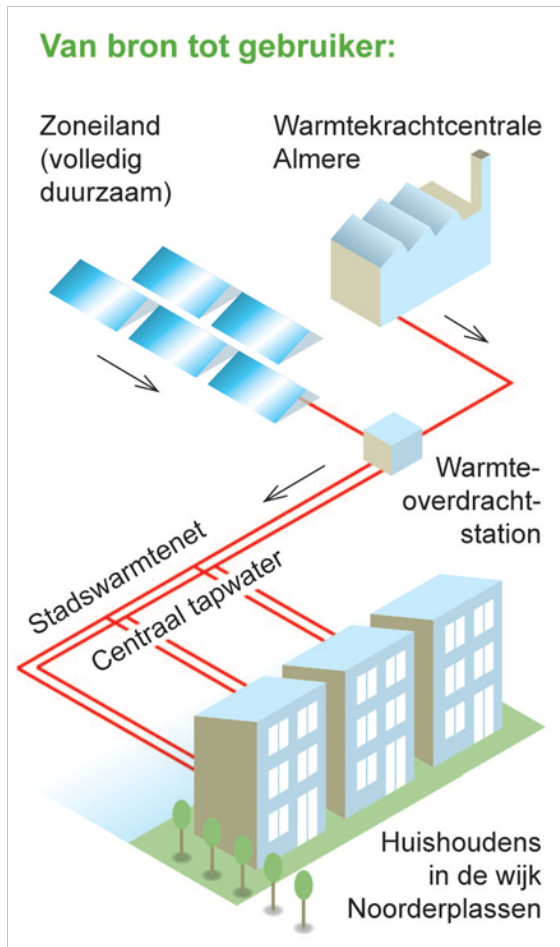
Process innovation Solar island, Almere

Municipal authorities of Almere and energy company **Nuon** signed a Contract

- Nuon Warmte will build an oval island and will assembly a collector, generating 9.750 GJ a year renewable energy, 10% of total yearly energy need of 2.700 new dwellings
- Financing solar island: contribution by Nuon (6 milion Euros), cofinancing by EU project cRRescendo (maximum 1,4 million Euros) and contribution land development Noorderplassen of approximately 350.000 Euros

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Innovation on all scale levels in Noorderplassen-West



District level

- Solar island with collectors and district heating will lead to CO₂-reduction of 50%.

Building level

- Sustainable building policy
- Putting work out to tender with sustainable and energy efficiency criteria
- 2000 eco-homes: in Noorderplassen-West & Columbus district
- certified solar homes and low-energy homes

Municipal policy instruments

Conclusions & Recommendations

- Focus on quality, value creation and on location identity (genius loci), invest in quality of public space & buildings, using renewable energy: energy efficient housing can contribute to spatial quality and create a 'sense of place' – finding a new identity or brand for an area'
- Use of history, landscape and cultural values for new energy projects.
- Create enthusiasm among investing public and private parties for common goal of creating quality place with new identity.