

Toward a Sustainable Energy System

Policies, the Agency and Heat pumps

Bert Stuij

Manager Energy Strategy and Transition
SenterNovem

Towards a Sustainable Energy System

- The Energy Report 2008
 - ◆ *Policies and priorities*
- Transition and Energy Innovation
 - ◆ *The Transition to Sustainability*
- The Role of the Agency
 - ◆ *Funding and facilitating*
- Heat Pumps in Policies and Programmes
 - ◆ *'Jack of all trades'*

The Energy Report

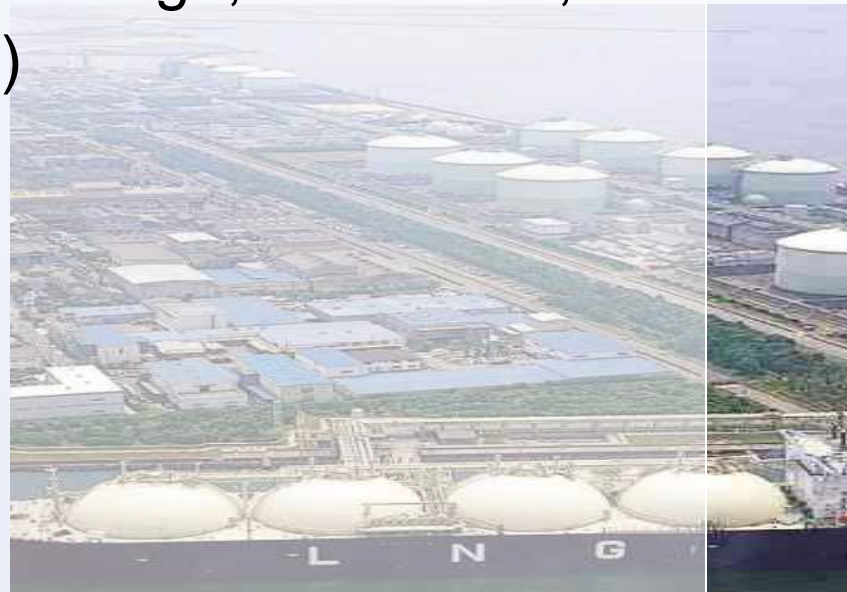
An invitation to invest and innovate

- **A world of opportunities**
 - ◆ ‘with the IEA, we expect a world wide investment volume of at least 22 trillion Euro’s in 25 years’.
- **With Dutch accents**
 - ◆ Gas-roundabout
 - ◆ North Sea Energy Province
 - ◆ Clever networks
 - ◆ Bio-hub
 - ◆ CCS ...

Highlights from the Energy Report (1)

Gas Roundabout

- A key role in European gas trade and infra-structure
- Removal of (trade, legislative) barriers
- International positioning
- Support for solutions such as storage, LNG trade, new gases (SNG, Green Gas)
- ...



Highlights from the Energy Report (2)

North Sea Energy Province

- Wind, waves, CO2 storage, energy island(s) ...
- Total 'spatial' perspective will be developed
- R&D support
- Investment support
- The 'Energy Island' concept will be worked out
- Procedures will be simplified
- ...



Highlights from the Energy Report (3)

Clever Networks

- ‘Transformation’ of the energy infrastructure, for flexibility, inter-connectivity, storage
- The Netherlands as ‘front runner’
- Vision to be developed and agreed
- New regulatory framework
- Support for innovation and investment – although details must be worked out
- ...



Highlights from the Energy Report (4)

CCS

- A key role with international appeal and relevance
- Task force, market players, knowledge institutes
- Transparant regulatory and legislative framework
- Front runner w.r.t. large pilots and demo's
- ...



Highlights from the Energy Report (5)

Renewables

- High and well-defined ambition (20% in 2020)
- Powerful financial instrument (MEP/SDE) – over 1 billion per year
- Sustainable heat as new priority
- Clear criteria for, e.g. sustainability biomass, acceptability wind
- Key role for the North Sea
- ...



Highlights from the Energy Report (6)

Invitation to Invest and Innovate

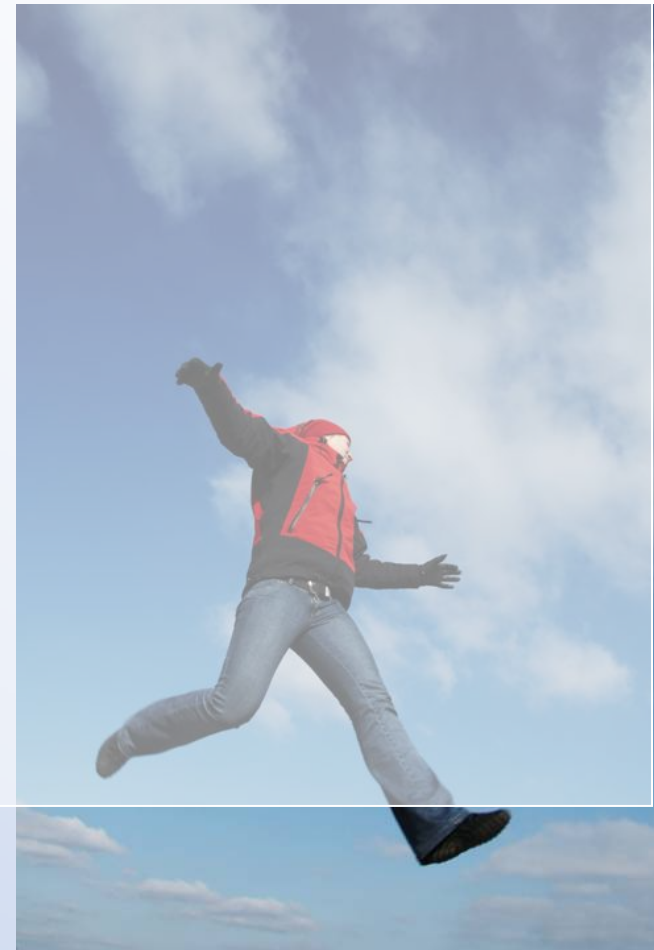
- Very large financial commitment from government
 - ◆ 7.5 billion in total, four years
 - ◆ 4 billion renewables, 1 billion for efficiency, 1 billion for innovation, and one billion for 'other Climate Measures'.
- Total annual 'turnover' in this energy/sustainability domain is 'multi billion' (5 – 10?)
- And this may double again when conventional investments are added (e.g. infrastructure, conventional power, gas, ...)
- *i.e. a vast market in a small country*



Highlights from the Energy Report (7)

Energy Innovation Agenda

- Linked to transition
- Linked to Europe
- 500 million 'extra'
- Let's take a closer look ...



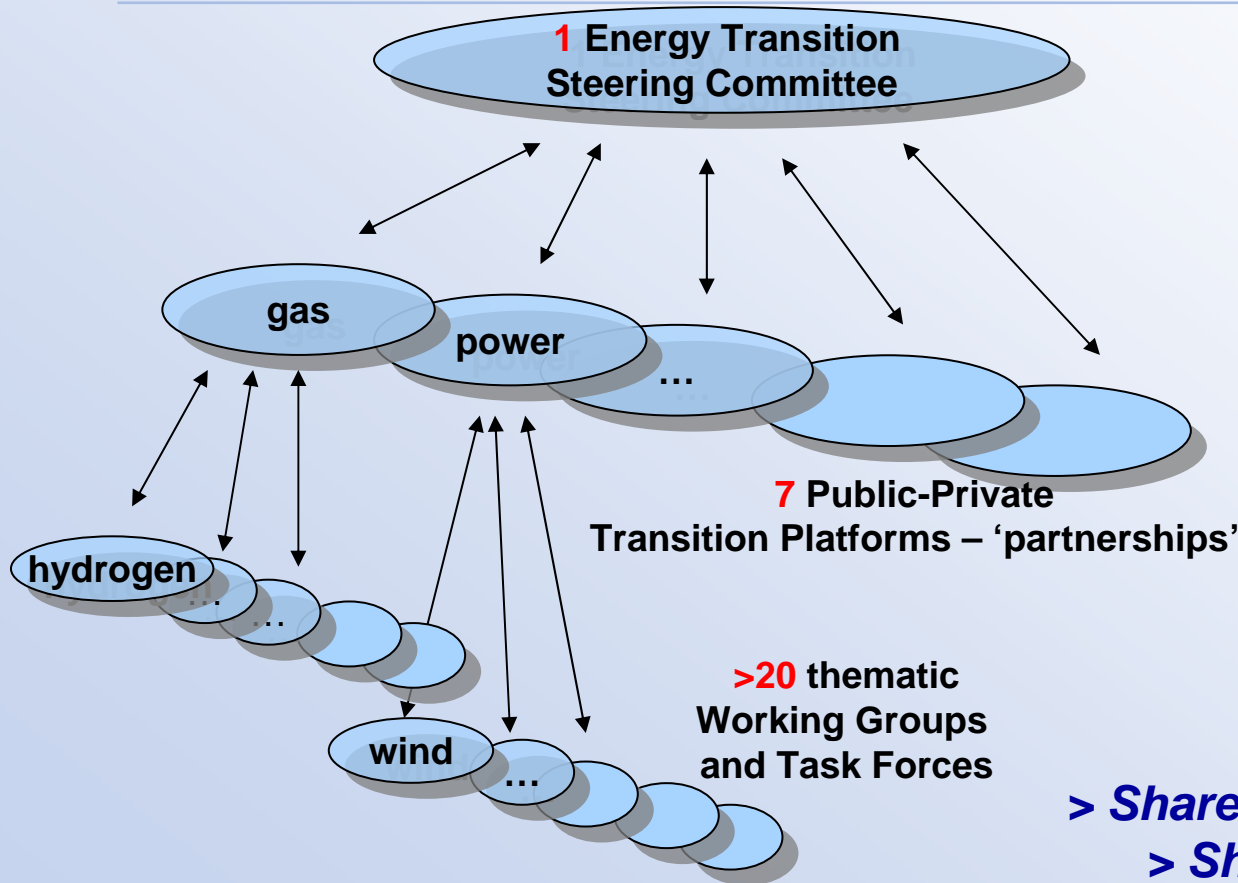
The Energy Transition (1)

PPS, Ecological aims, Economic opportunities

- Develop the Netherlands into the most innovative and clean ‘gas economy’ of the world.
 - ◆ **Public Private Partnership ‘New Gas’.**
- Combine the strength of the Dutch position/potential in Agriculture and Chemical – towards a world player w.r.t. green feedstocks.
 - ◆ **Public Private Partnership ‘Green Feedstocks’**
- Move on – from ‘trendsetter logistics’ towards ‘trendsetter sustainable mobility’.
 - ◆ **Public Private Partnership ‘Sustainable Mobility’.**
- Move on – from ‘most efficient industries’ towards ‘most efficient economy’.
 - ◆ **Public private partnership ‘Integrated Efficiency’**
- Use the development towards a clean and sustainable power supply as an economic opportunity
 - ◆ **Public Private Partnership ‘Sustainable Power’.**
- Turn the ‘built environment’ into an engine for the energy transition.
 - ◆ **Public Private Partnership ‘Built Environment’**
- From Greenhouse to Powerhouse
 - ◆ **Public Private Partnership ‘Energy Producing Greenhouses’**

The Energy Transition (2)

A structure for dialogue and commitment



Role of the Agency

- **Secretariat** - from steering committee down to individual working groups
- **Analyses**
- **Communication**
- **Links/integration** with ‘standing programmes’ – e.g. on energy research

- > **Shared Vision**
- > **Shared Commitment**
- > **Energy Innovation Agenda**
- > **Policy Roadmaps**

Highlights Energy Innovation Agenda

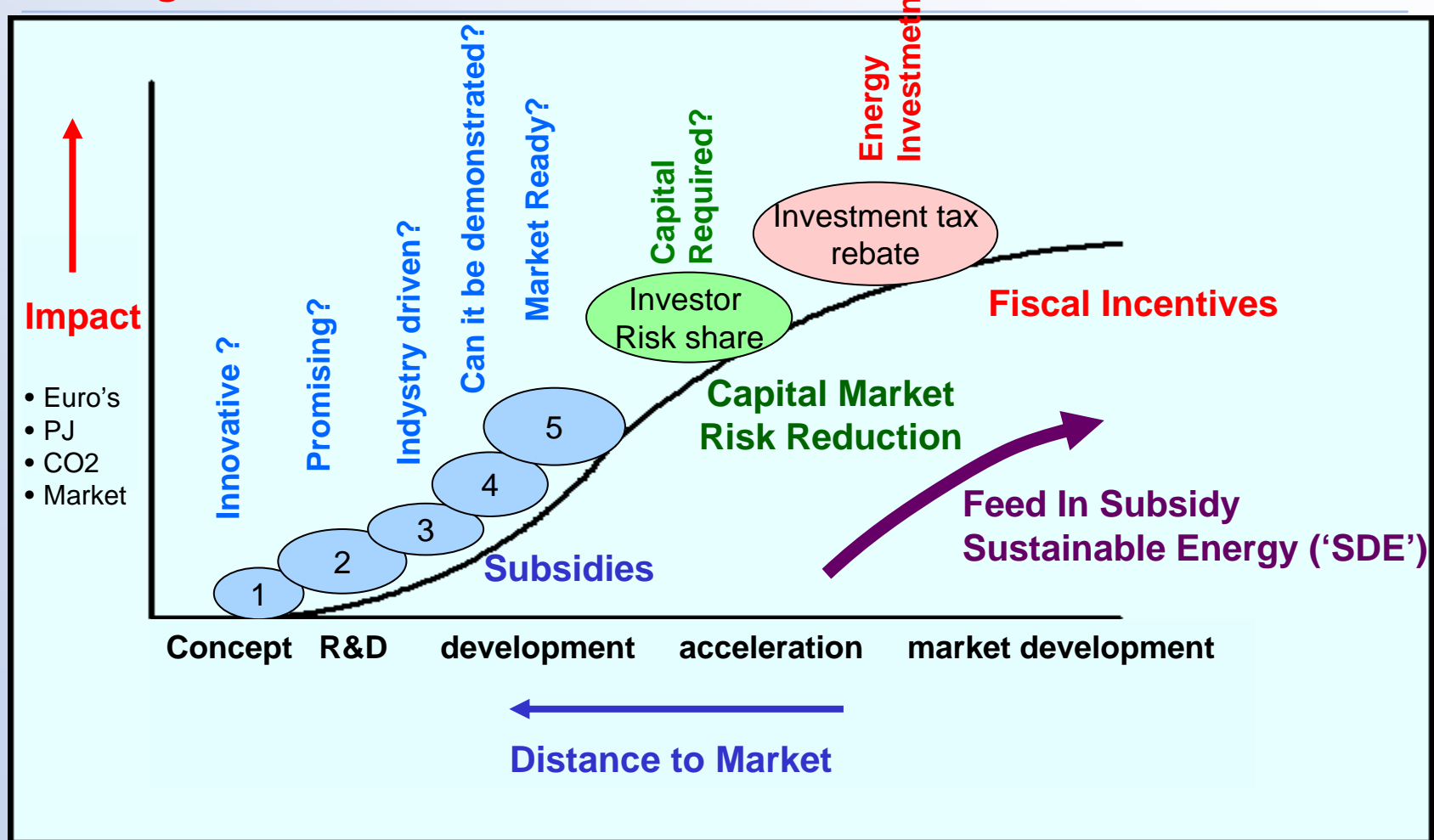
Towards Innovation Programmes

- Innovation programmes will be written for innovation themes e.g.
 - ◆ Green gas
 - ◆ CCS
 - ◆ Sustainable heating
 - ◆ Biobased economy
 - ◆ New Transport
 - ◆ ...
- Programmes may include
 - ◆ Funds – subsidies, loans, guarantees, innovation procurement (SBIR), exploitation subsidies, ...
 - ◆ International collaboration
 - ◆ Regulatory activities
 - ◆ Public dialogue
 - ◆ ...

The role of The Agency

Energy Policy: 'Support the S'

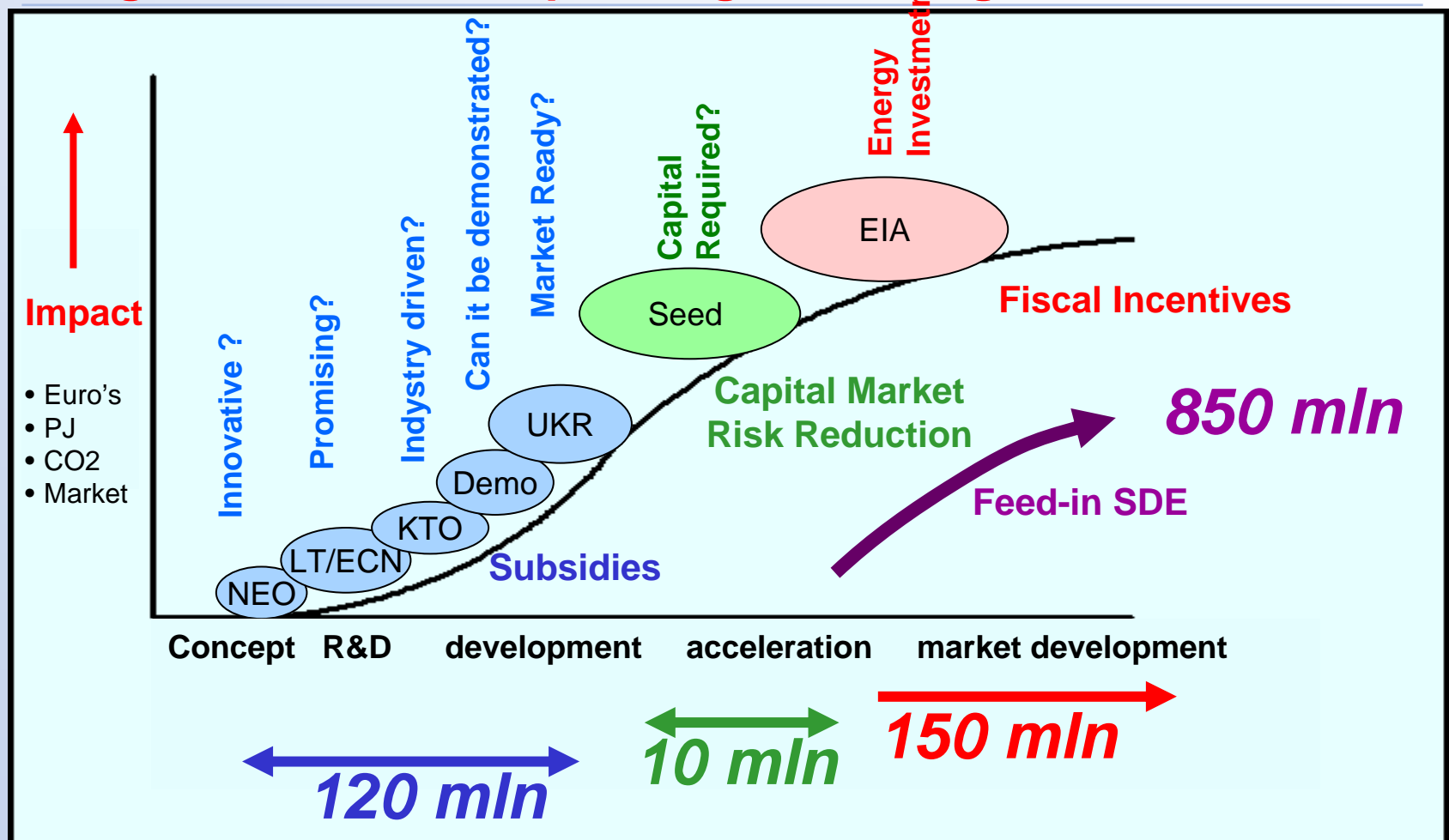
A range of financial and non – financial instruments available



The role of The Agency (cont'd)

Energy Innovation Policy: 'Support the S'

Avg Annual Public Spending on a Range of Instruments

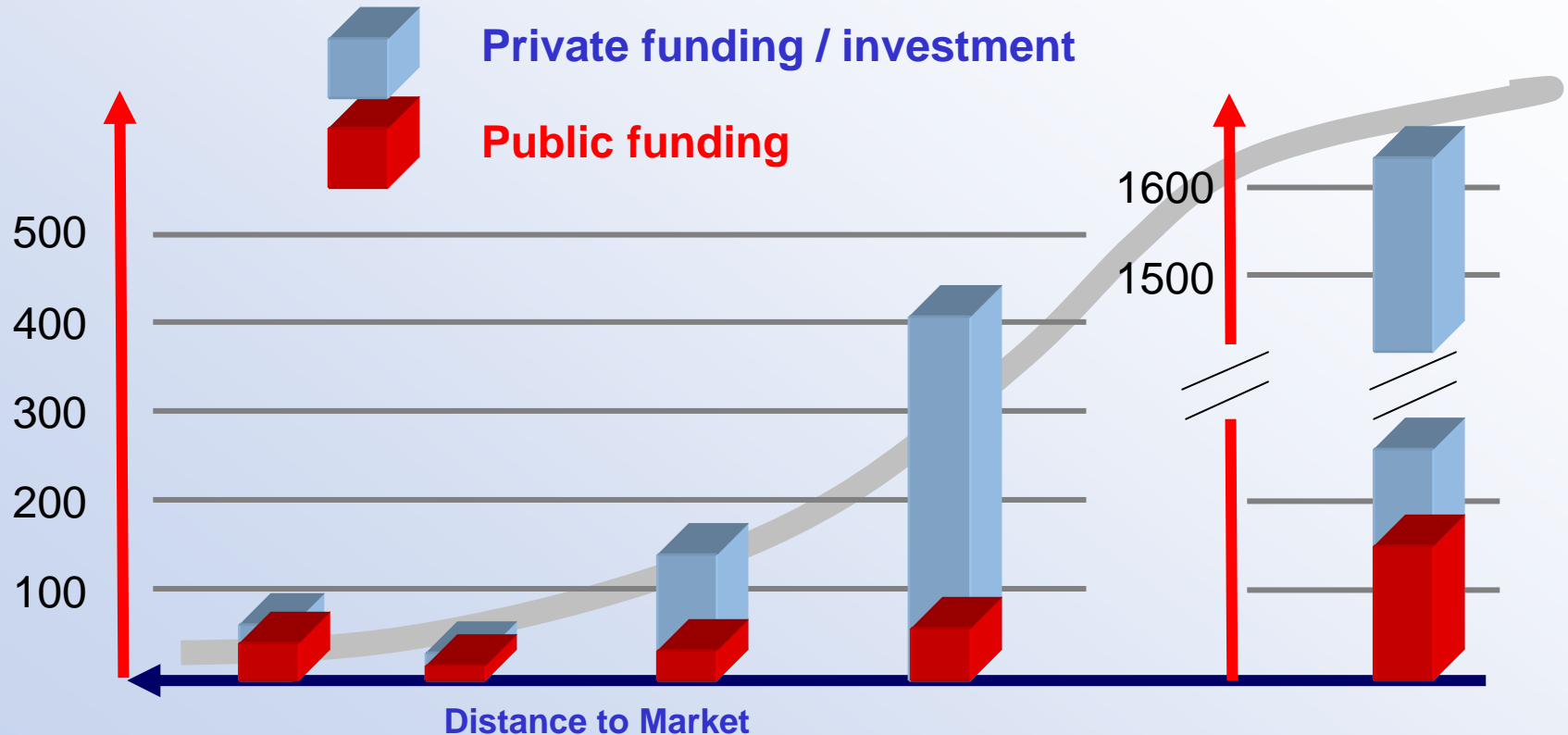


The role of The Agency (cont'd)

Energy Innovation Policy: 'Support the S'

Public R&D (and investment) funding has significant leverage

Average Annual Funding 2005-2008
(Millions x Euro)



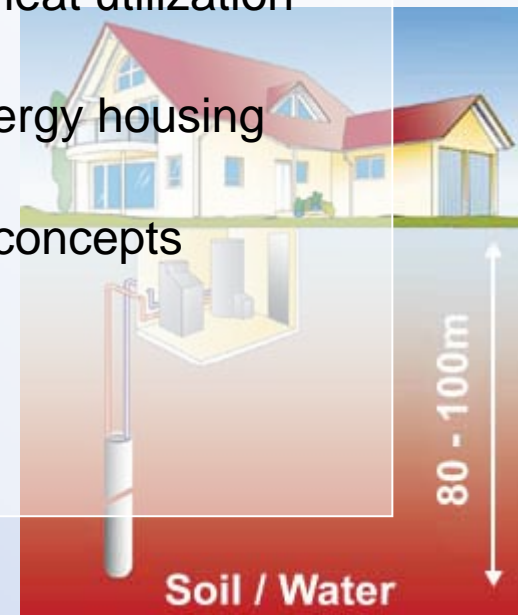
Long Term R&D	Market Driven R&D	Demo Projects	Unique Opportunities	Total
10	10	120	350	490
40	10	20	50	120

Energy Investment Tax Rebate
1500
150

Key Role for Heat Pumps

The *'Jack of All Trades'* for Energy Transition

- 'New Gas'
 - ◆ 'smart power, smart heating', gas fired heat pumps, system approach
- 'Sustainable Power'
 - ◆ System approach, integration of heat and power demand
- 'Integrated Efficiency'
 - ◆ Process Integration, Industrial heat pumps, waste heat utilization
- 'Built Environment'
 - ◆ Heat pumps, year-round comfort demand, zero-energy housing
- 'Energy Producing Greenhouses'
 - ◆ Heat/Cold storage, integration with buildings, new concepts
- Cross Cutting Theme: 'Sustainable Heating'
 - ◆ Heat pumps as Key Technology



Thank you

