Transition towards a Biobased Economy in the Netherlands

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SenterNovem

Creative Energy
Energy Transition

Contents

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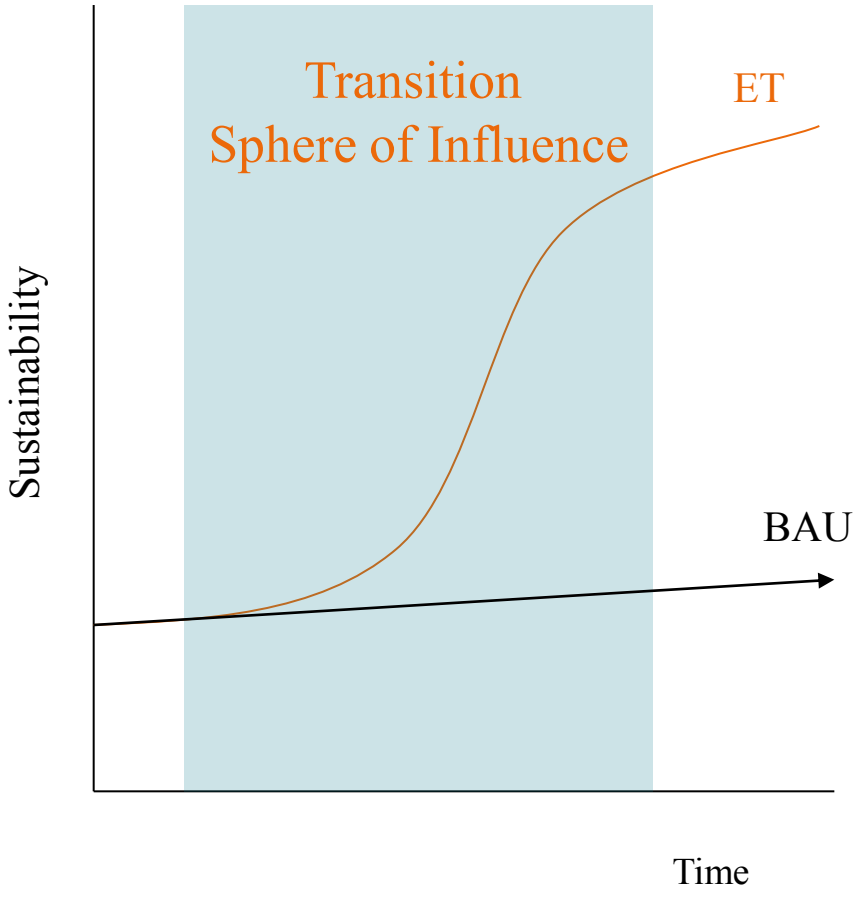
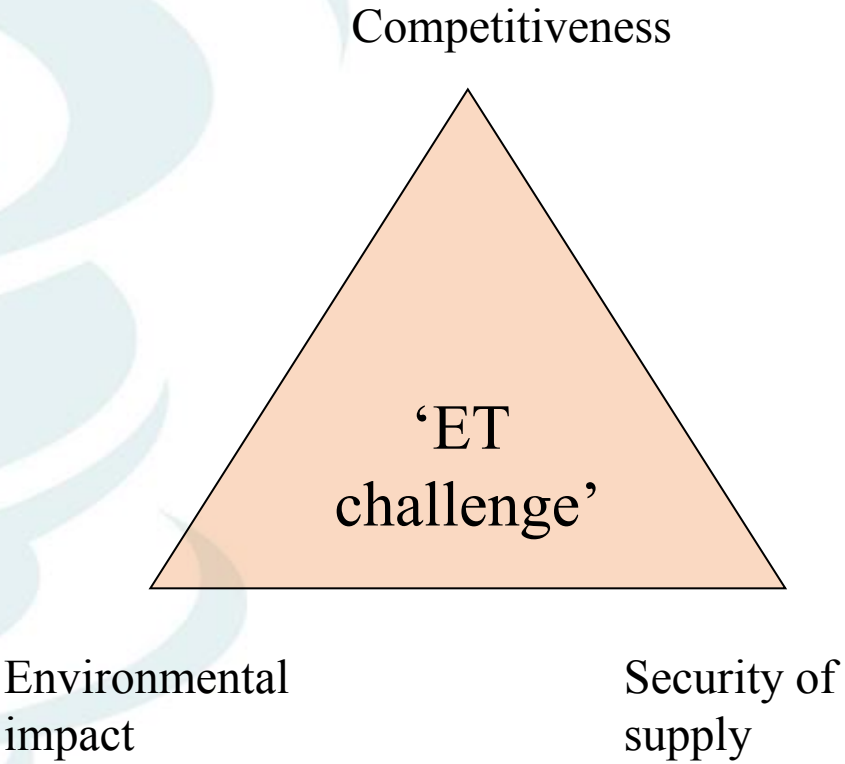
Perspective

Transition to the Future

- Aim: Sustainable Energy Supply
- Perspective: 20 years – plus (→ 2050)
- Focus on innovation and application
- Implementation via the market



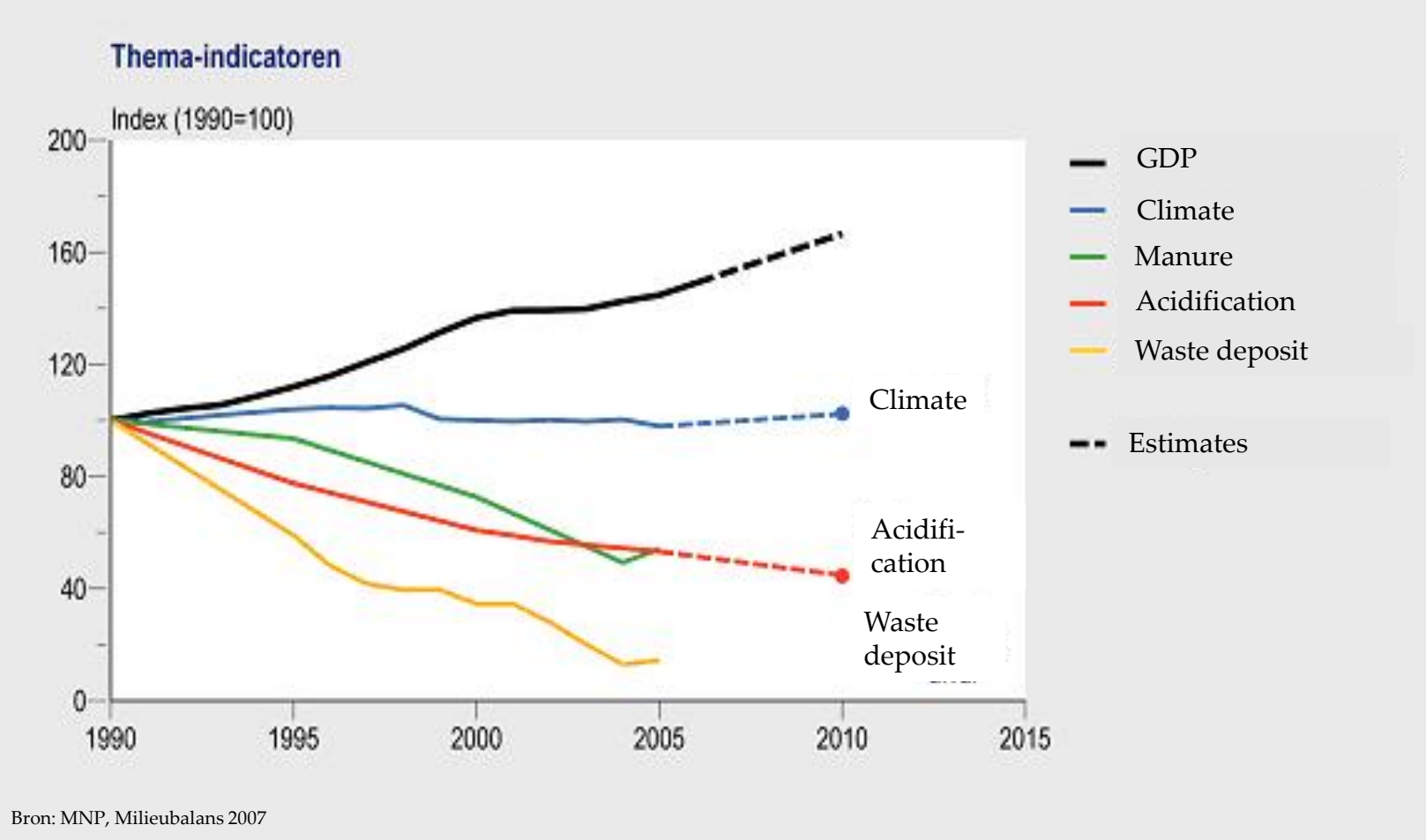
The Transition Challenge



Drivers for change:

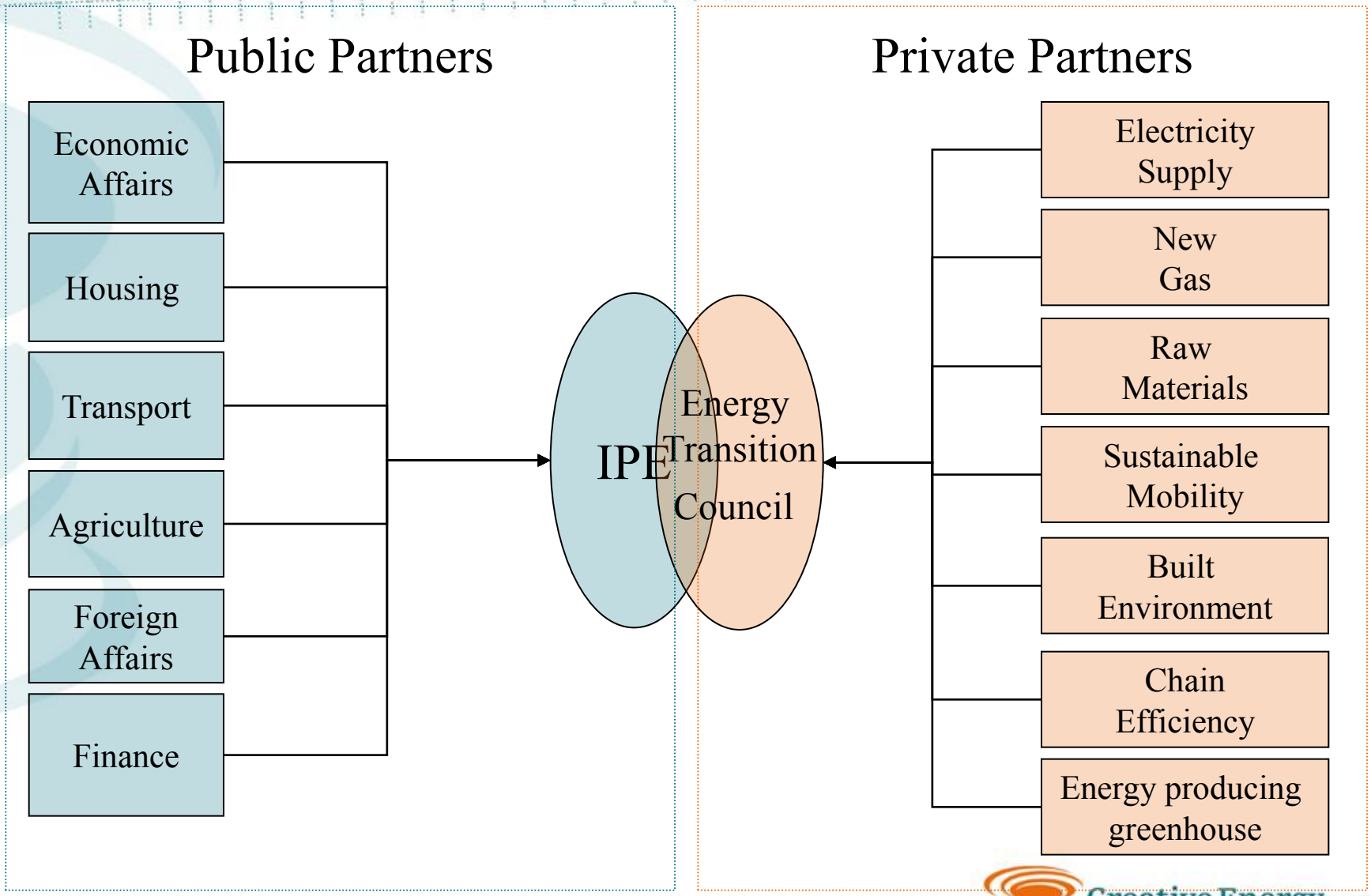
- Technology
- Regulation
- Economics
- Social engagement

Challenge (1)



Bron: MNP, Milieubalans 2007

Energy Transition - Organisation

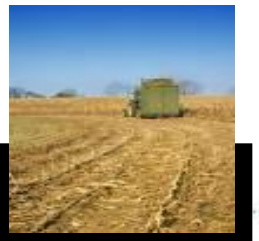


Opportunities for the Netherlands

- **3 main lines**
  - Savings
  - Sustainability
  - Clean fossil fuels
- **Platforms**
  - Biobased raw materials
  - Sustainable mobility
  - Chain efficiency
  - New gas, clean fossil fuels
  - Sustainable electricity

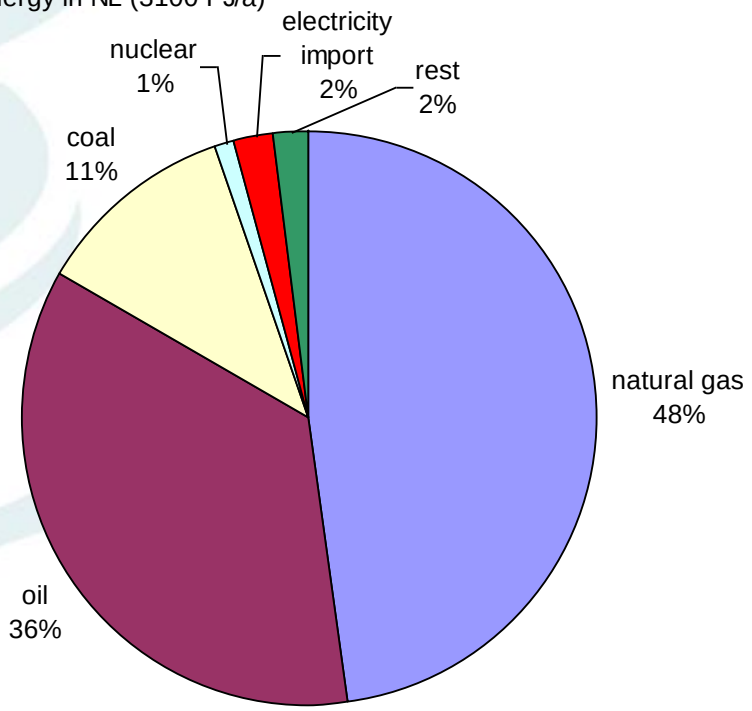




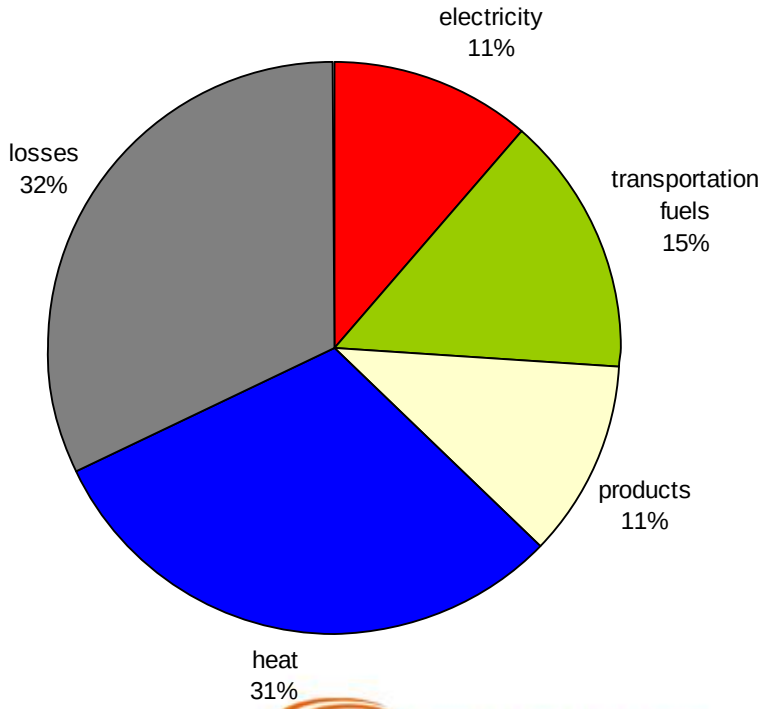



Energy situation in the Netherlands

primairy energy in NL (3100 PJ/a)



secondary energy in NL (3100 PJ/a)



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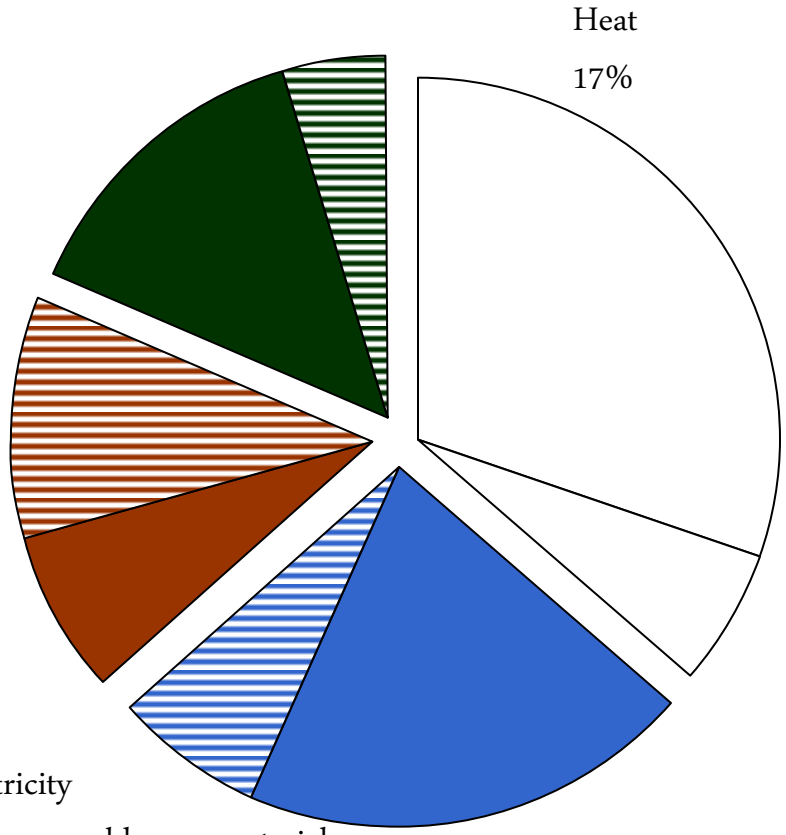
Vision:
30% replacement of fossil raw materials by renewable raw materials in 2030

Chemicals and materials
25% renewable raw materials



Total 3000 PJ

2030 = 2000

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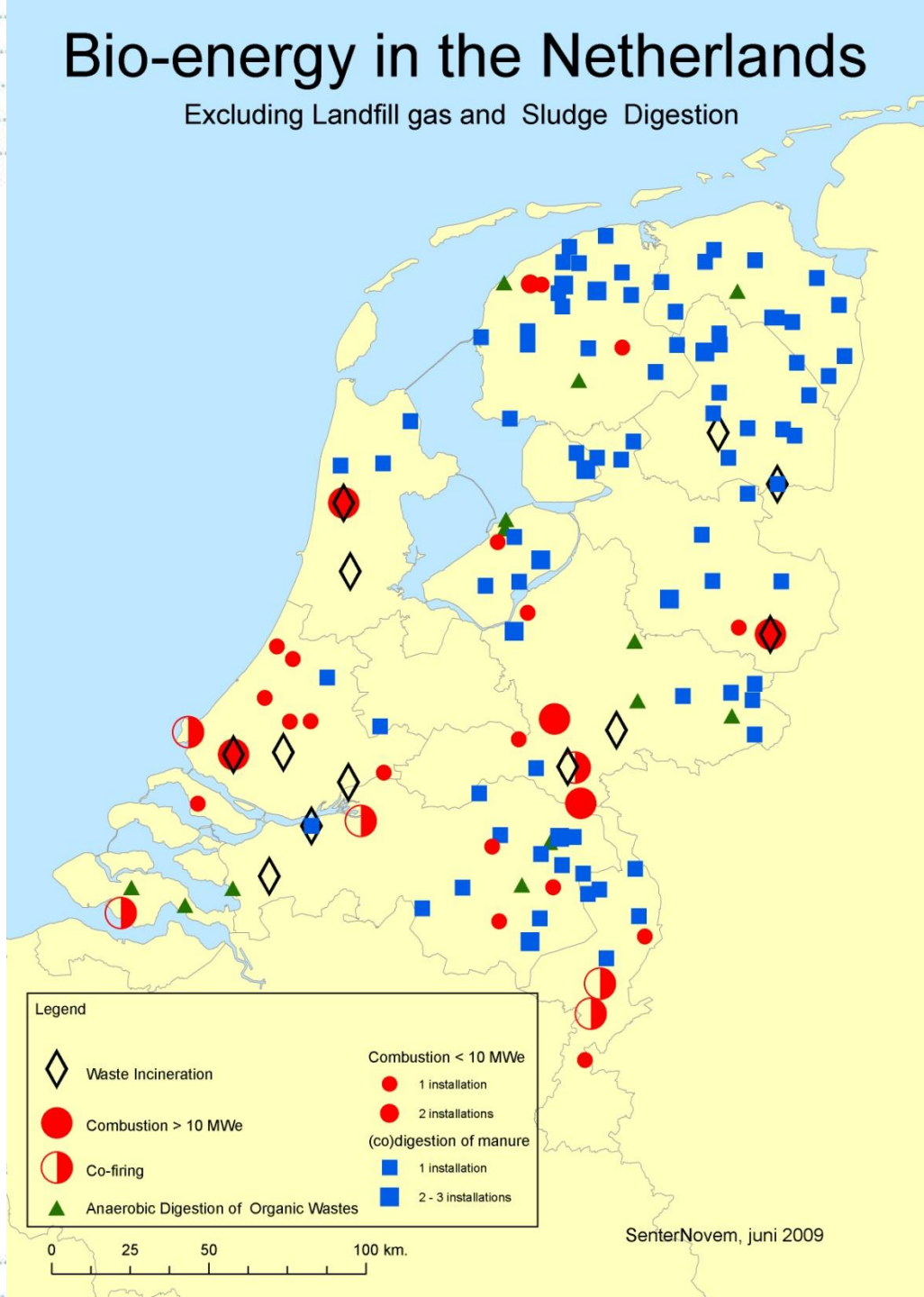
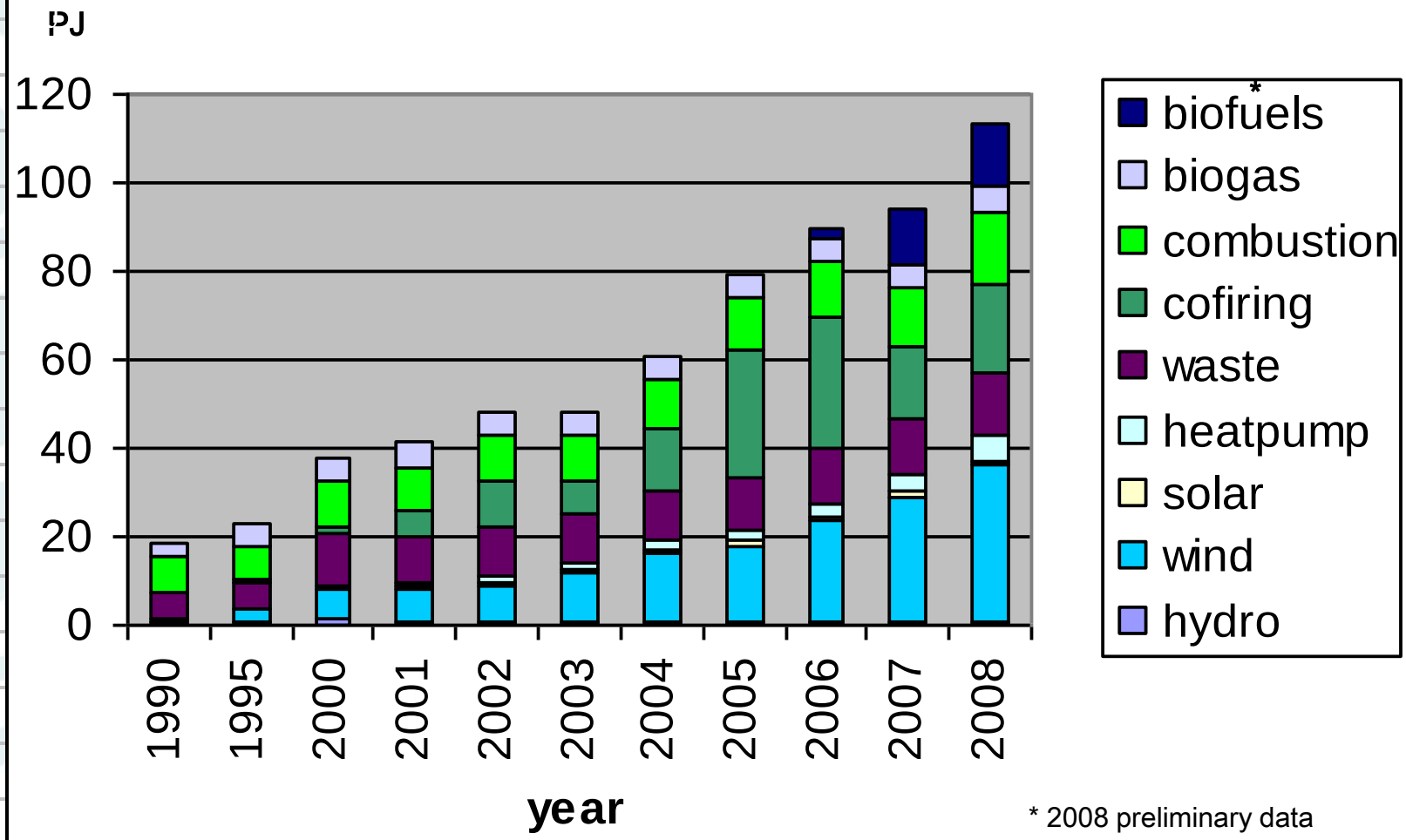
2. Results till now:

Bioenergy projects



Renewable Energy [PJ]

Netherlands 2008
Renewable Energy : 3.4 %
Renewable Electricity: 7.5 %



* 2008 preliminary data

Support for Renewable Electricity (Green market -> MEP -> SDE)

- 2000 – 2003: Green consumer support

- 2003 - 2006: MEP support
- 2003 subsidy per kWhe
  - 10 yr contract till 2015
  - Only support of additional cost
  - Tariff set at contract date

- 2008 - .. : SDE support
  - 10 – 15 yr contract
  - Additional cost minus market price

•na •€ct/kWh	•Juli 2004	•Jan 2005	•Jul •2005	•Jul •2006
•Biomassa > 50MW (3yr) wood pellets	•5.5	•7.0	•0 •new	•2.5 •6.1
•Mixed flows	•2.9	•2.9	•3.6	•3.6
•Biomass <50 MW	•8.2	•9.7	•9.7	•9.7
•Olieen >10MW	•8.2	•9.7	•6.0	•6.0
•Wind on land	•6.4	•7.8	•7.8	•7.8

MEP Subsidy

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3. Transition Paths:

1. Sustainable development and production of biomass

2. Sustainable import chains

3. Co-production of chemicals, transport fuels, electricity and heat

4. Production of SNG (synthetic natural gas) for the natural gas infrastructure

5. Innovative use of biobased raw materials and increased sustainability of processes and products in the chemical industry

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Sustainable Biomass
CRITERIA AND INDICATORS

- Greenhouse gas balance
- Competition with food, local energy supply, medicines and construction materials
- Biodiversity
- Prosperity
- Welfare
- Environment

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4. Innovation Agenda

- 438 M€ in 2008 – 2012
- Plus 356 M€ R&D in innovation chain (2008-2012)
- Expected investment volume: **3 miljard**
- CO2-effect: 3-6 Mton
- TERM: Tijdelijke Energieregeling Marktinnovatie

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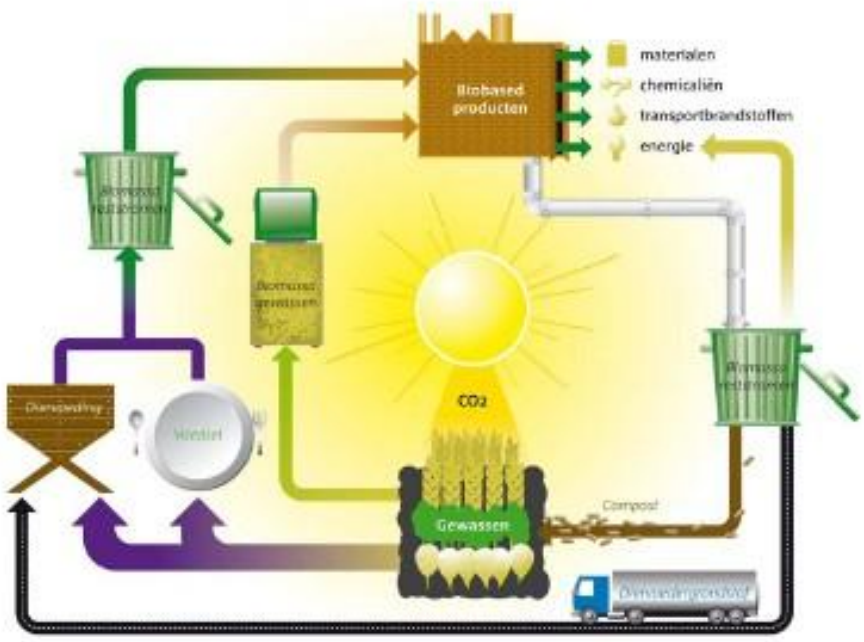
Governmental Opinion
Biobased Economy, October 2007

-Positive but Careful & Sustainable
-Should contribute to GHG savings
-Match Economic strength : chemicals, logistics, food, research
-Cooperate internationally

-No-Regret Policy Agenda:
- Biorefinery: more efficient use of biomass
- Worldwide sustainable production
- Encourage green power & gas
- Develop Market



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Program Biobased Economy

- Leading Ministry of Agriculture
- Budget: 30 M€ for 2 years
- Program lines:
  - Biorefinery (17 M€)
  - Sustainable import (10 M€)
  - Sustainable production (land, algae) (3 M€)
  - Level Playing field (chemicals/energy/..)
- Leading Ministry of Economy
  - New Gas (30 M€)

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Sustainable Import Support

- Ministry of Foreign Affairs 13 M€ for developing countries
  - Call (6 M€) for proposals, 1 october, December 2009
- Ministry of Agriculture/Economy to develop innovative sustainable import chains 7.5 M€
  - Now call open, closes in 15 October 2009 (4 M€)
- goal:
  - attain sustainable production
  - Knowledge transfer and capacity building
  - Macro monitoring of indirect effects
  - Certification of sustainable trade chains
- Build up knowledge for improving policies of biomass and biofuel use and support

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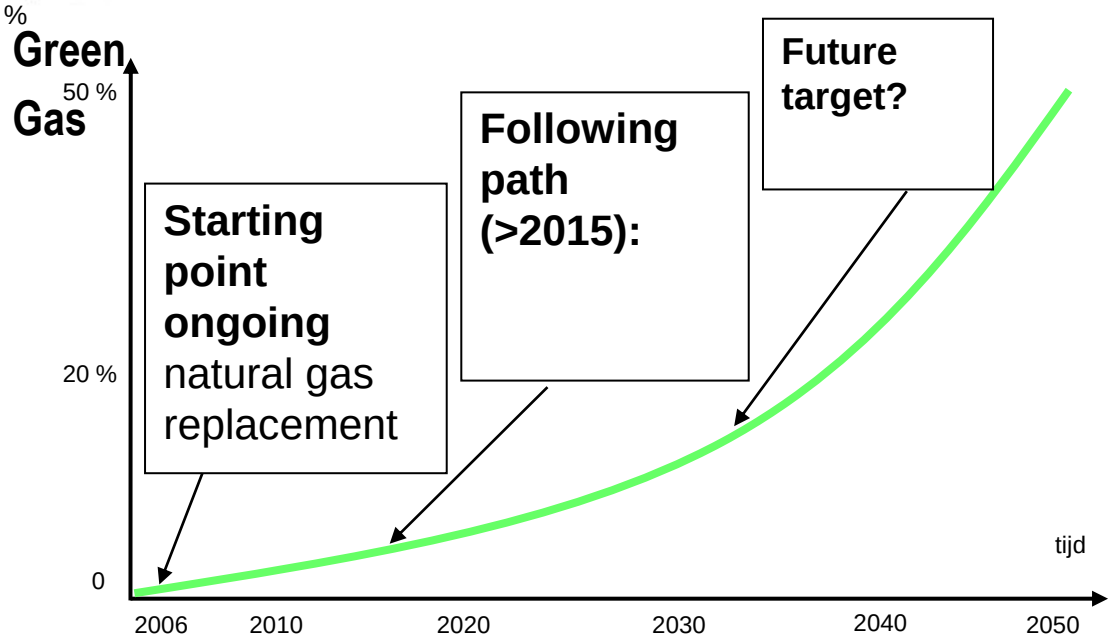
Program Green Gas

- Short term: upgraded biogas 1-3%
- Midterm target: 8-12% SNG from biomass



- Proposed Program:
  - Demonstration of Gasification Technologies (12 M€)
  - Improved Anaerobic Digestion (9 M€)

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5. Conclusion

- Renewable Electricity and Biofuels develops
- Need for switch to biomass application in chemicals, heat and biofuels in the Energy Transition
- Need for Sustainable Production and Application
- Innovation Agenda to start the routes of the Energy Transition
- International Cooperation

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Thank you for your attention

Like to know more?

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