Netherlands Enterprise Agency

Biofuel Policies in the European Union and the Netherlands

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- Why Biofuels? (IEA scenarios)
- Implementation of RED in EU
- Implementation of RED in Netherlands
- Results in the market (2011 – 2016)
- Discussion about implementation in Ukraine

The Netherlands, a geography lesson

17 million inhabitants

on 40.000 sq. km

46.073 US$ GDP/Cap

390 municipalities

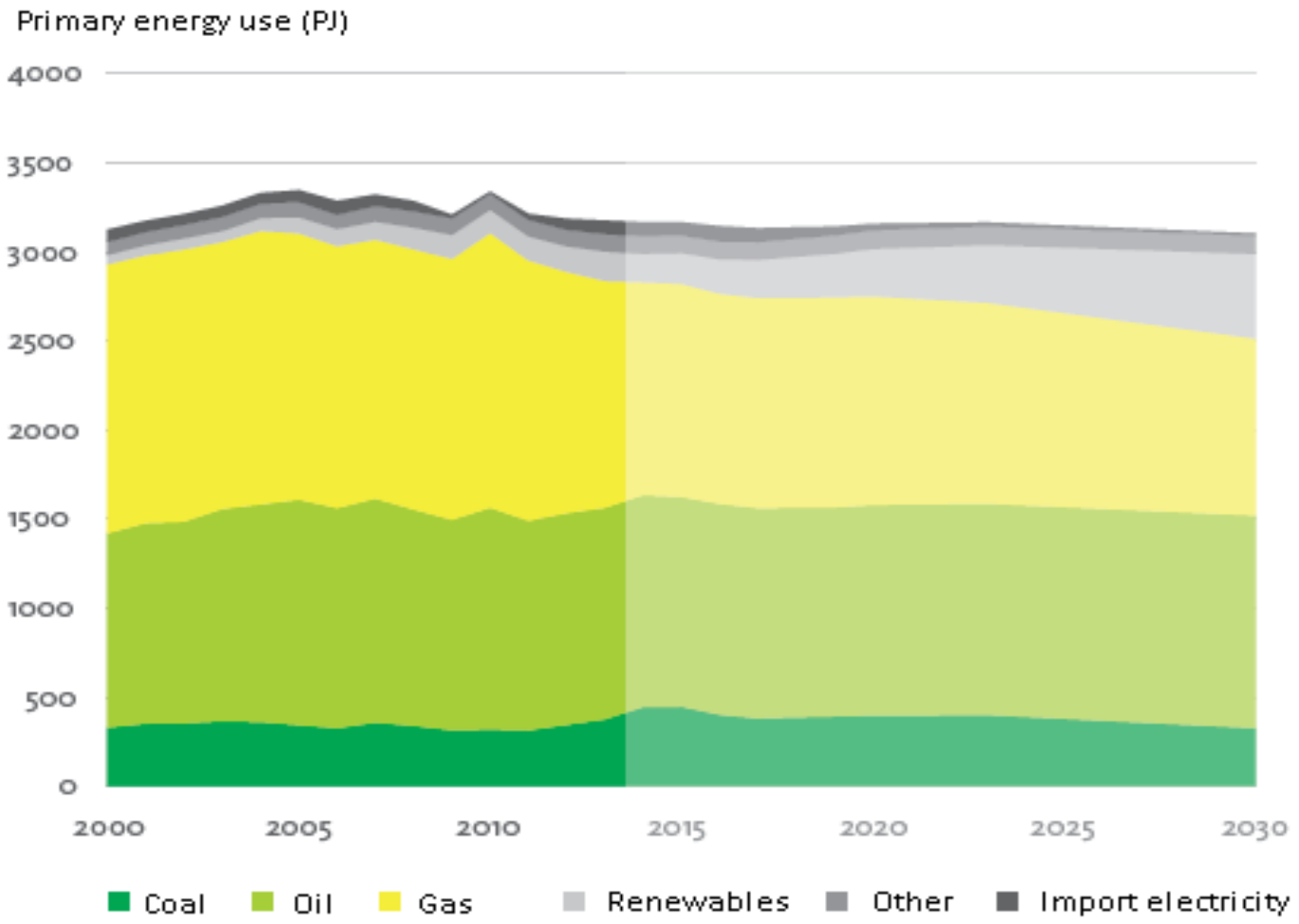
60 million tons waste

9,2 million tons household waste

- Delta downstream large European rivers, 2/3 of the country below sea level
- Surrounded by industrialized area's of Belgium, Germany

>> Focus on environment

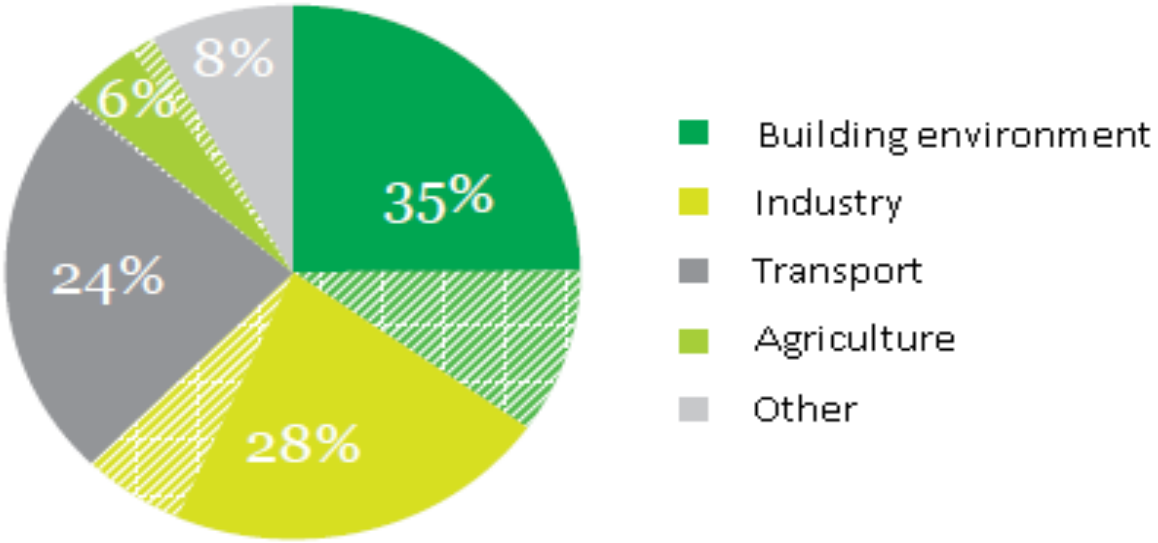
Primary energy use



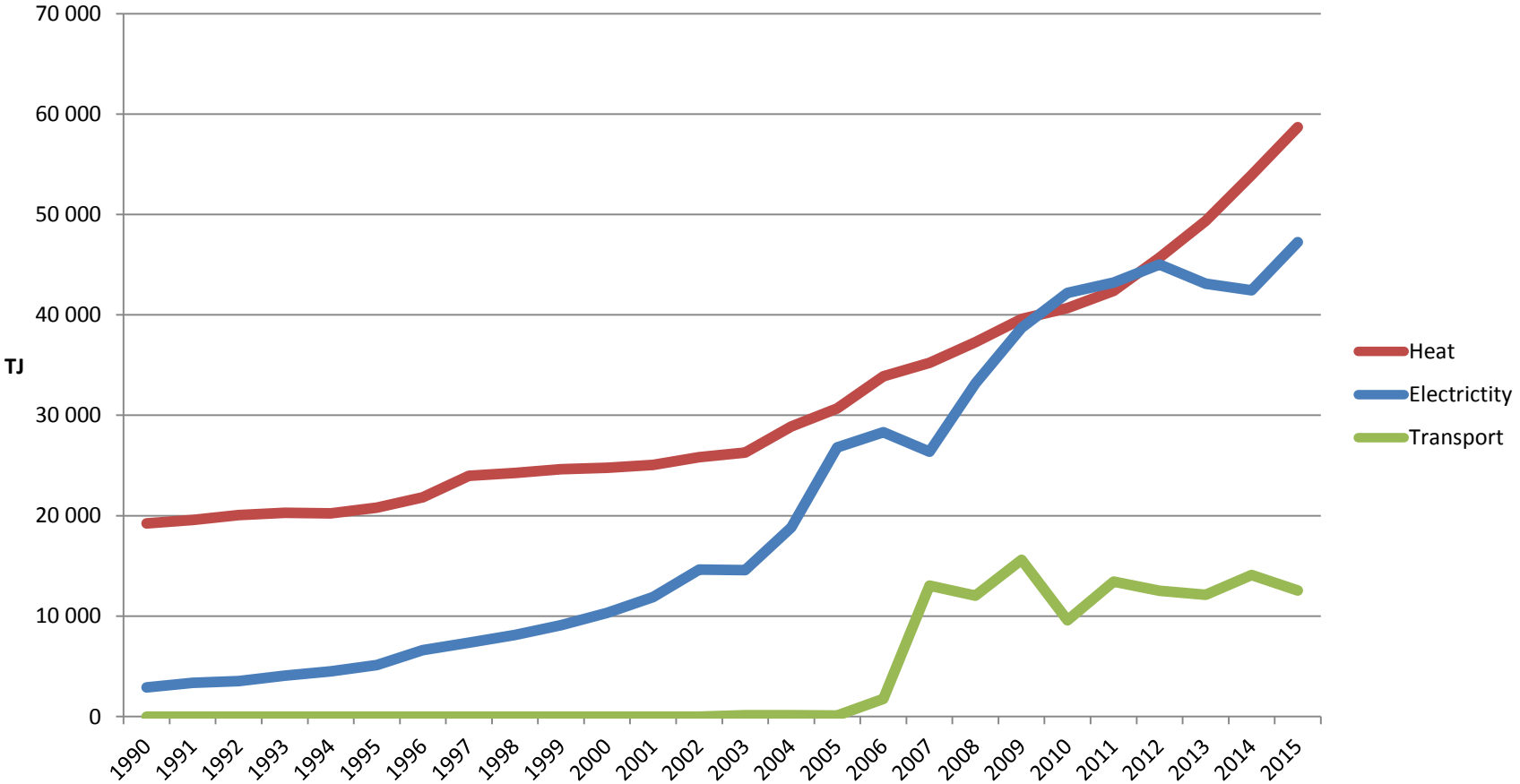
Gross final energy use (2012).

Total is 2.185 PJ.

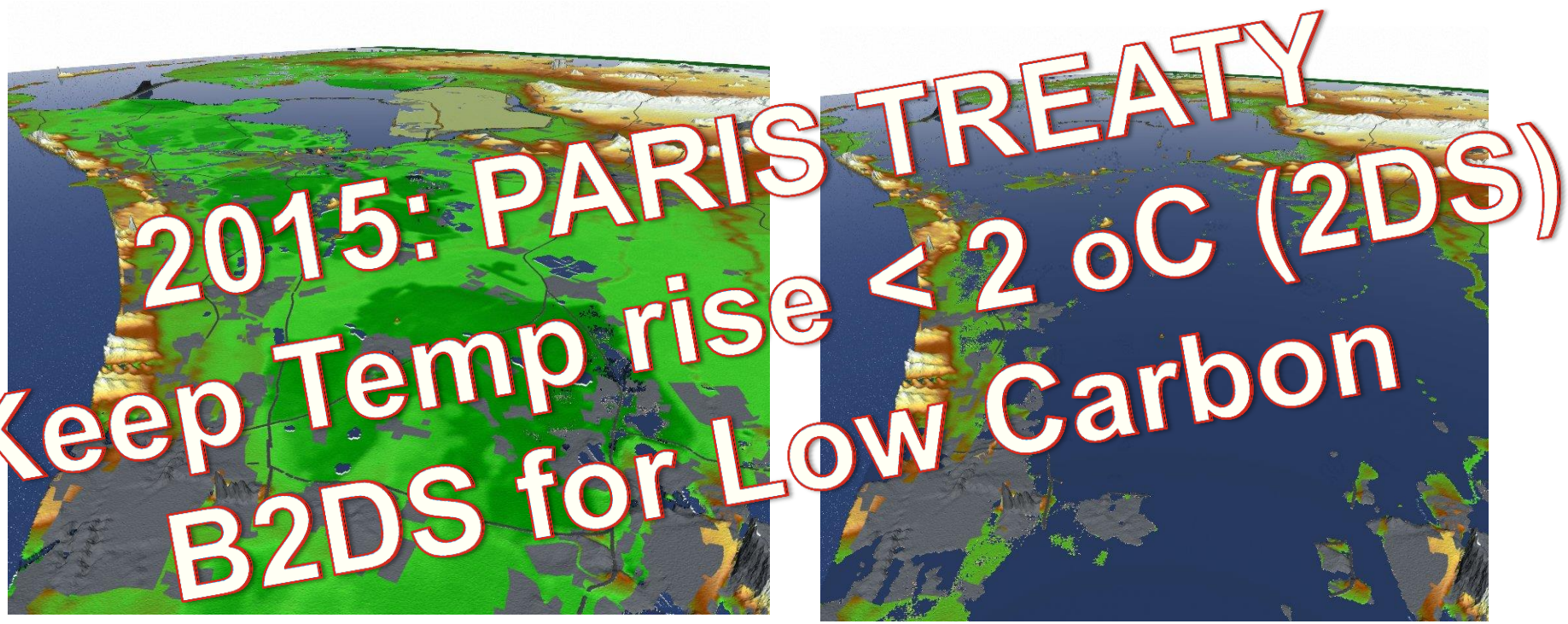
Shaded areas is electricity use within the sector



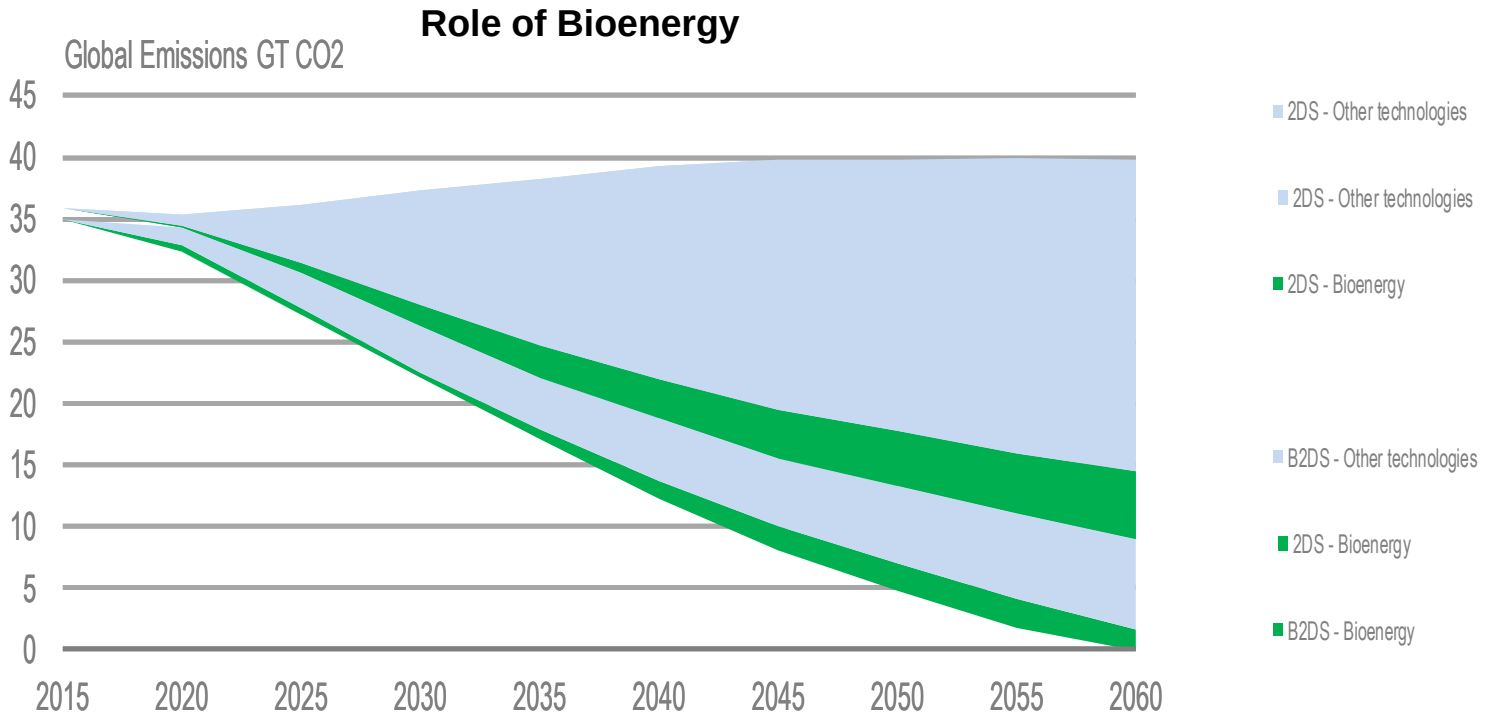
Renewable energy production in NL



Netherlands now and in the year ???
Because of Climate Change??



Bioenergy an essential component of IEA Low Carbon Scenarios

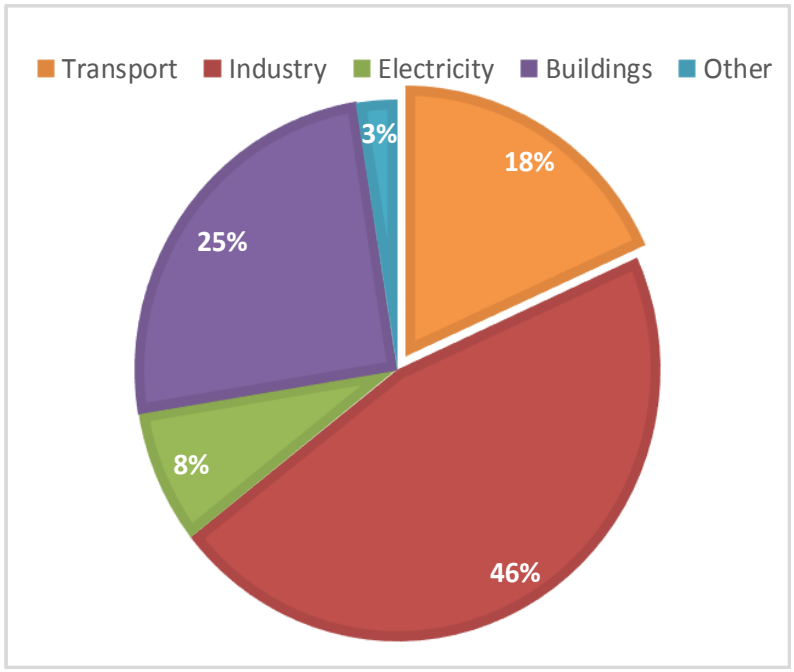


Bioenergy to provide some 17% of cumulative carbon savings to 2060 in the 2DS and around 22% of additional cumulative reductions in the B2DS, including an important contribution from BECCS

Bioenergy serves many energy uses in IEA 2DS scenario

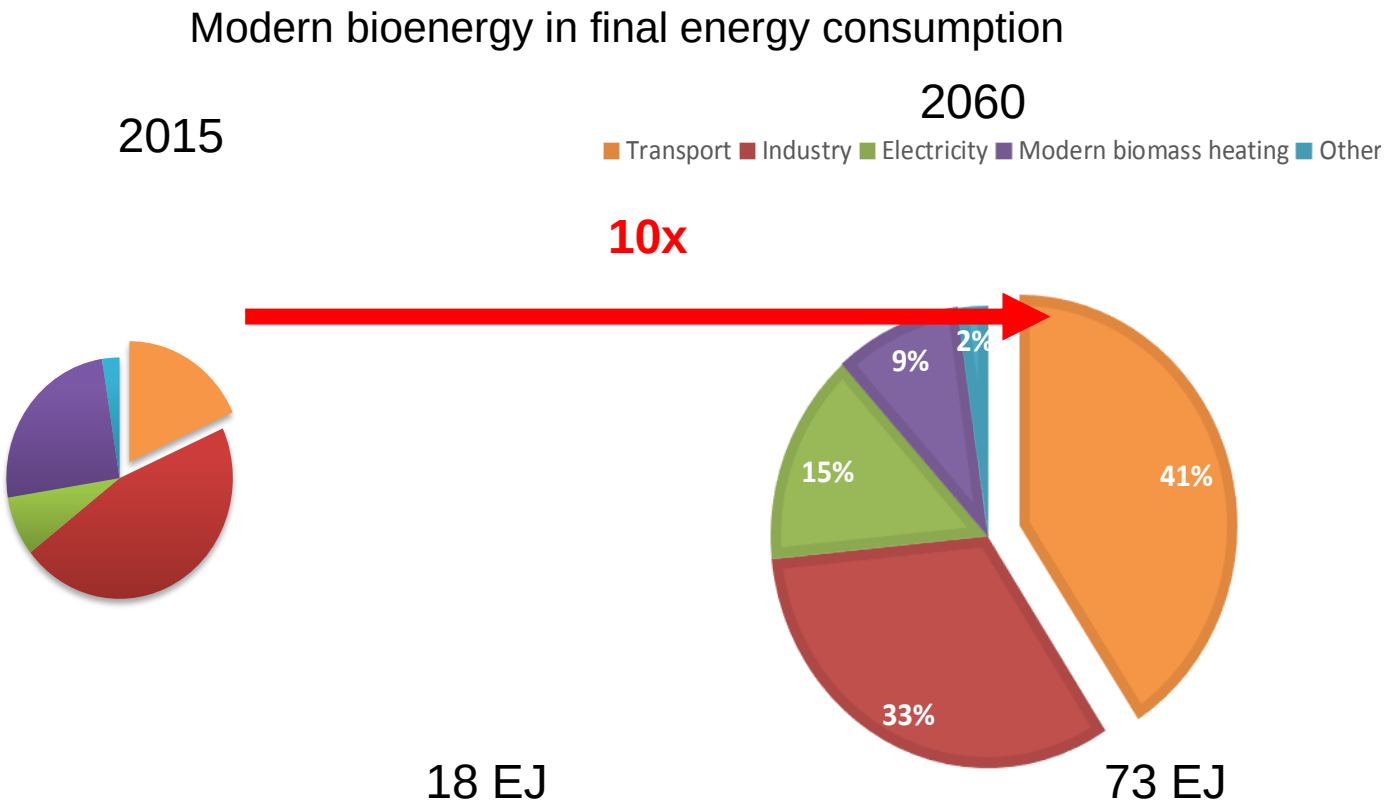
Modern bioenergy in final energy consumption

2015



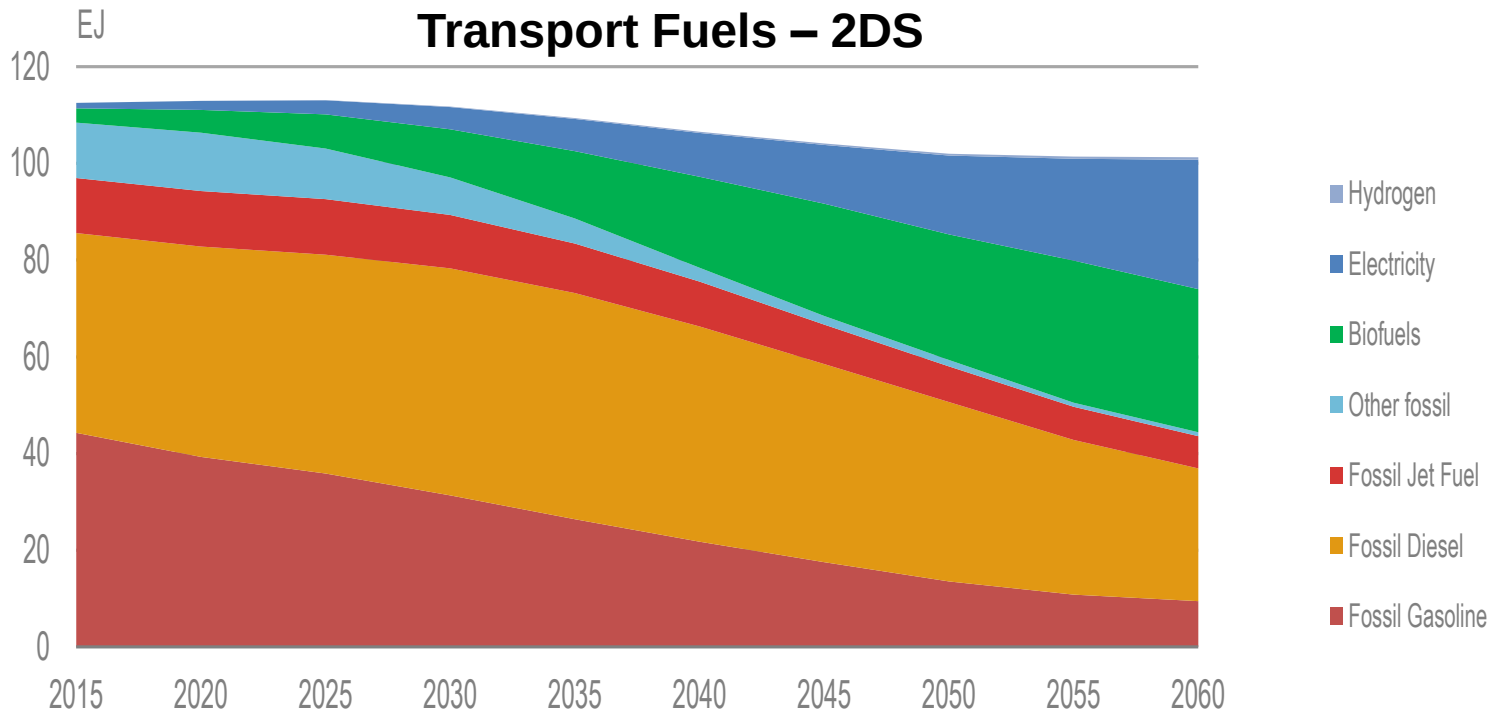
18 EJ

Bioenergy serves many energy uses in IEA 2DS scenario



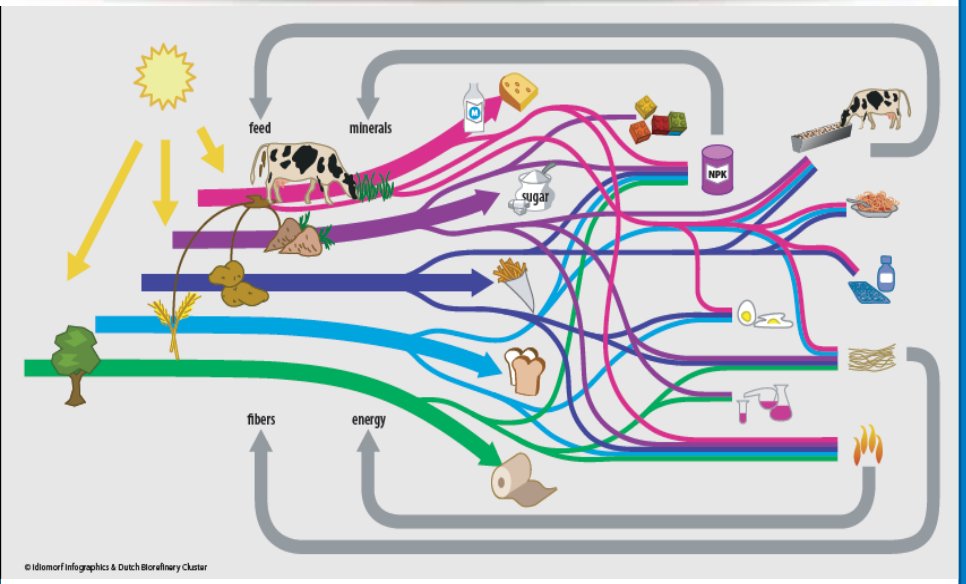
Total final energy consumption of sustainable bioenergy increases four times by 2060 in the 2DS. Use of sustainable biofuels for transport increases tenfold, with a large majority of advanced biofuels

Biofuels: an important option in a portfolio of transport solutions



While demand of transport services more than doubles , biofuels complement end-use efficiency and strong growth in electricity, providing almost 30% of transport final energy demand in 2060

Rijksdienst voor Ondernemend Nederland



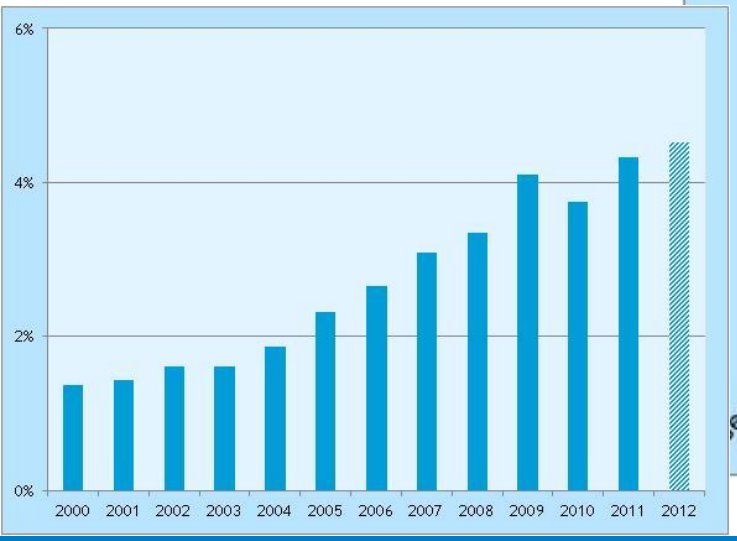
Netherlands Energy Agreement 2013 2020

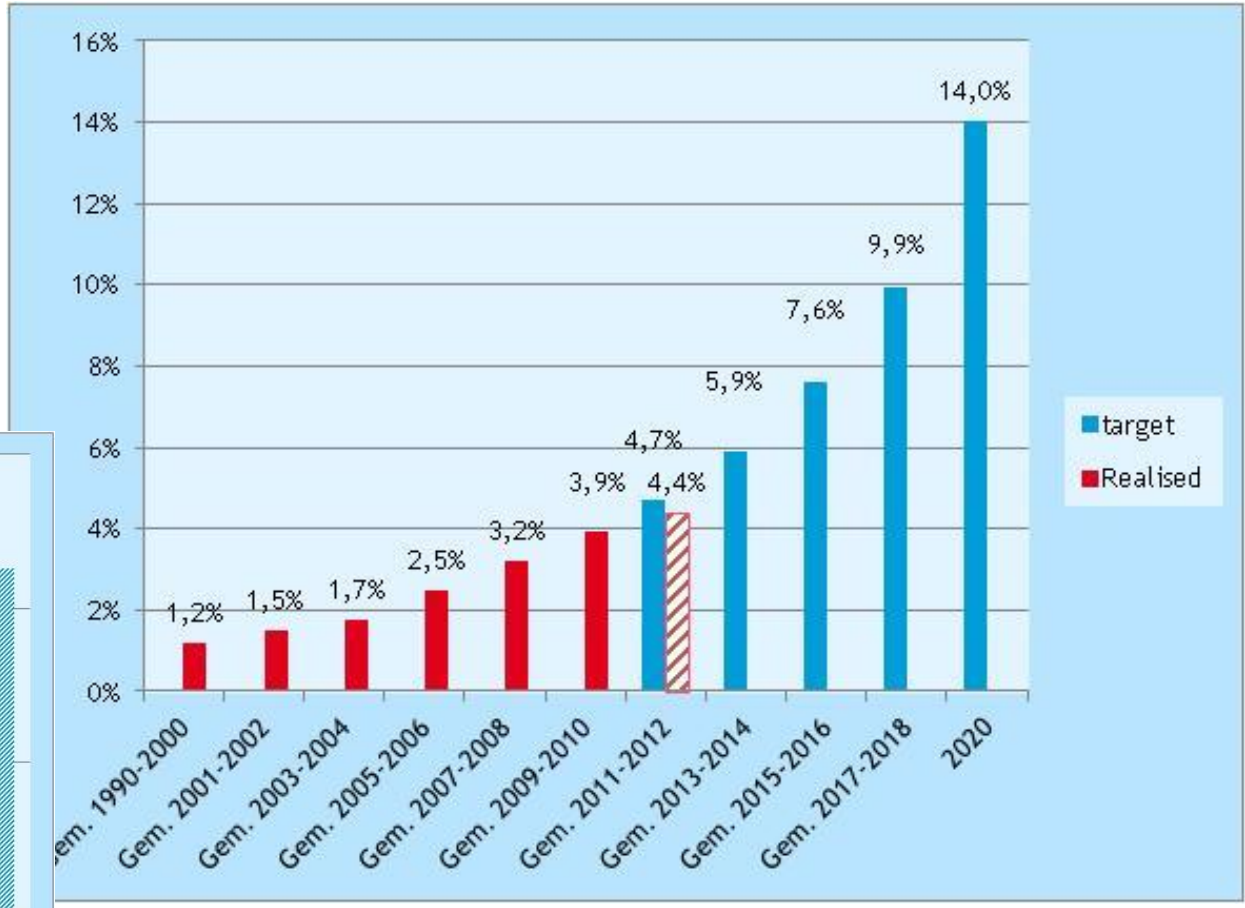
Agreement between parties:

- NGO
- Energy sector
- Industry
- Government

To realise 2020 targets

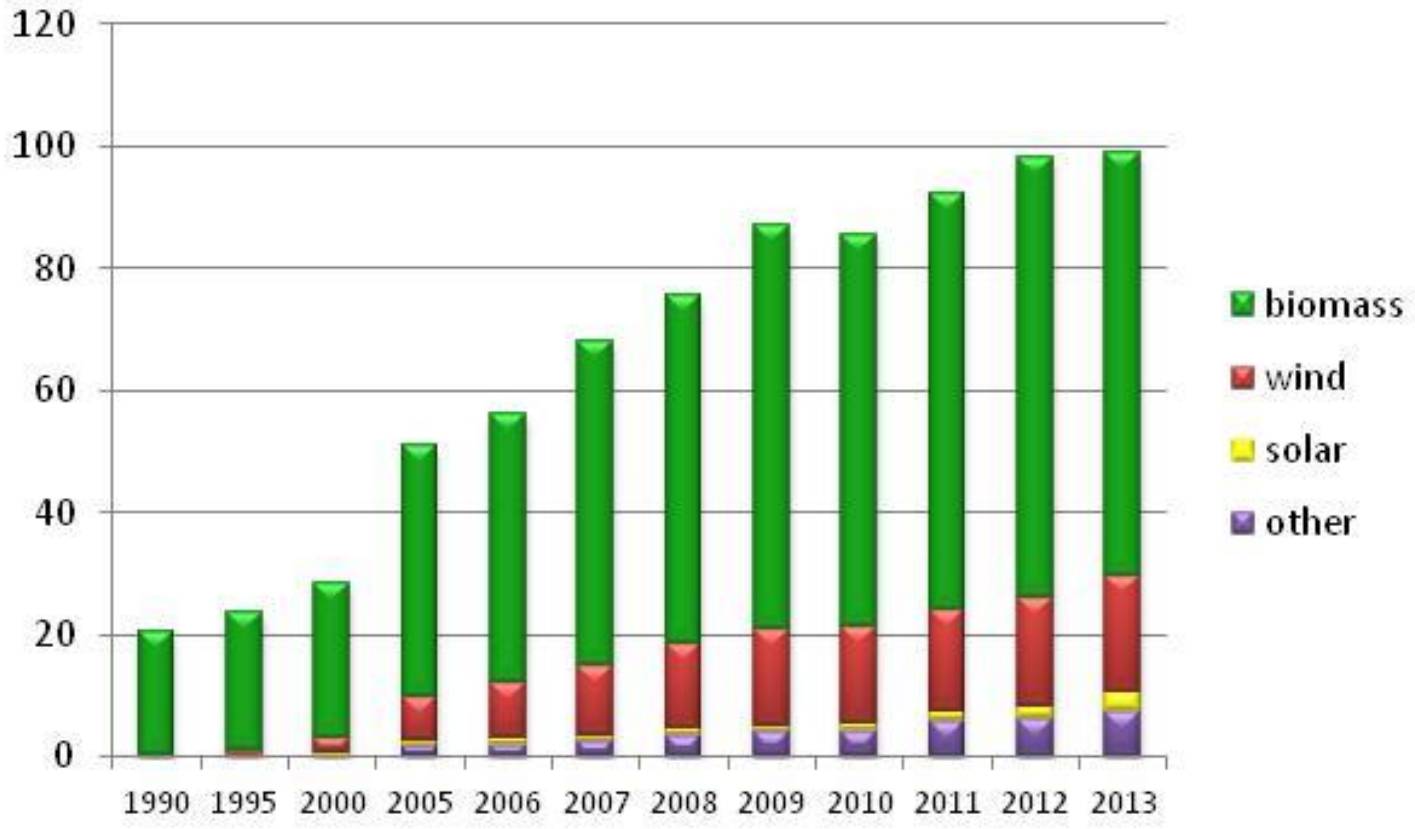
RE targets: RED: 2020: 14%





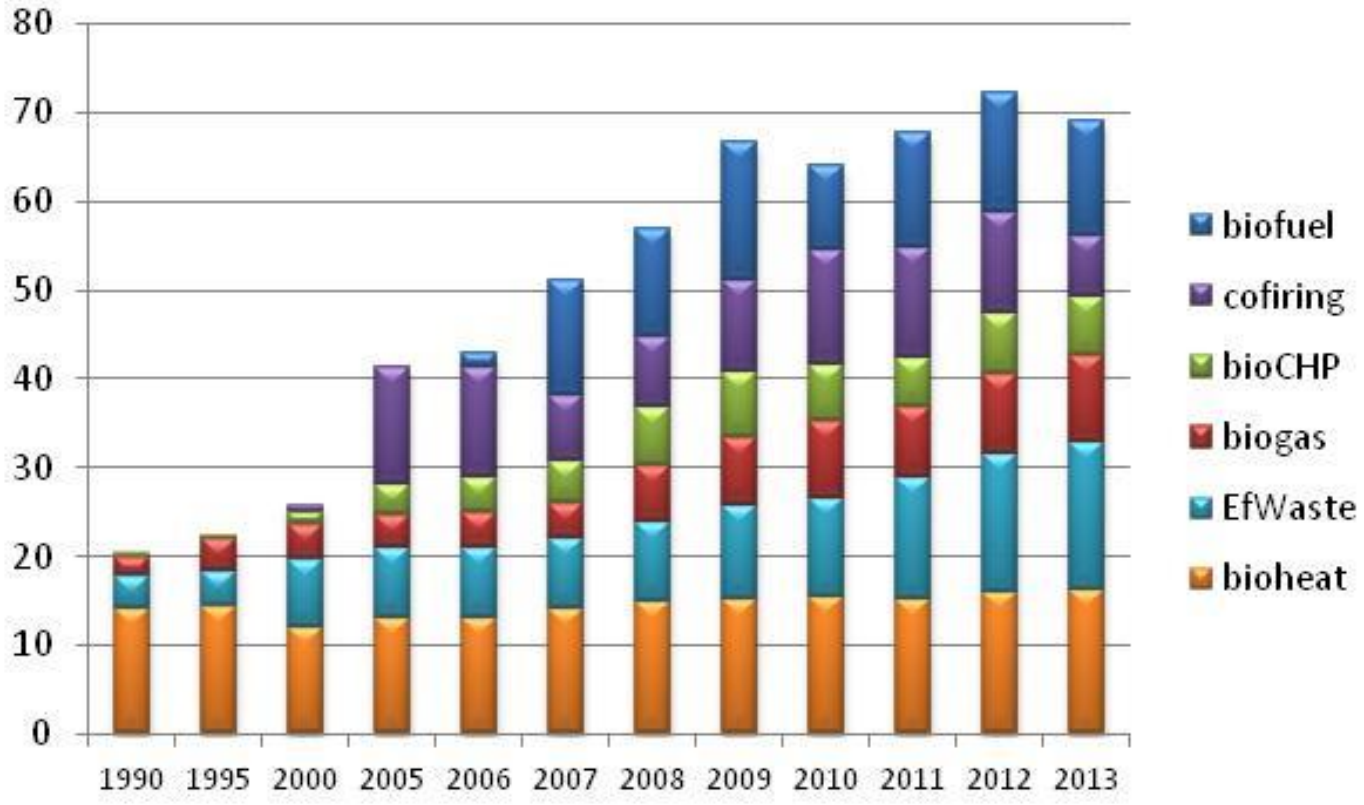
Results: About 70% realised with Bioenergy

- PJ



Bioenergy implementation Netherlands

- PJ



Netherlands Energy Agreement in 10 points

1. Energy Savings: 1.5%/year
2. Upscaling Renewable Energy to 14% in 2020 (wind, bio)
   - With a cap of 25 PJ on cofiring, BUT sustainable!
3. Decentral local renewable power/heat by communities
4. Smart Energy Transmission Network
5. ETS well functioning to stimulate CO2 reduction (- 80% in 2050)
6. Closing old coal fired power plants by 2016
7. Mobility and Transport (efficiency, electric, ..)
8. Employment (create 15.000 jobs by 2020
9. Energy Innovation for world first class cleantech solutions
10. Financing by banks

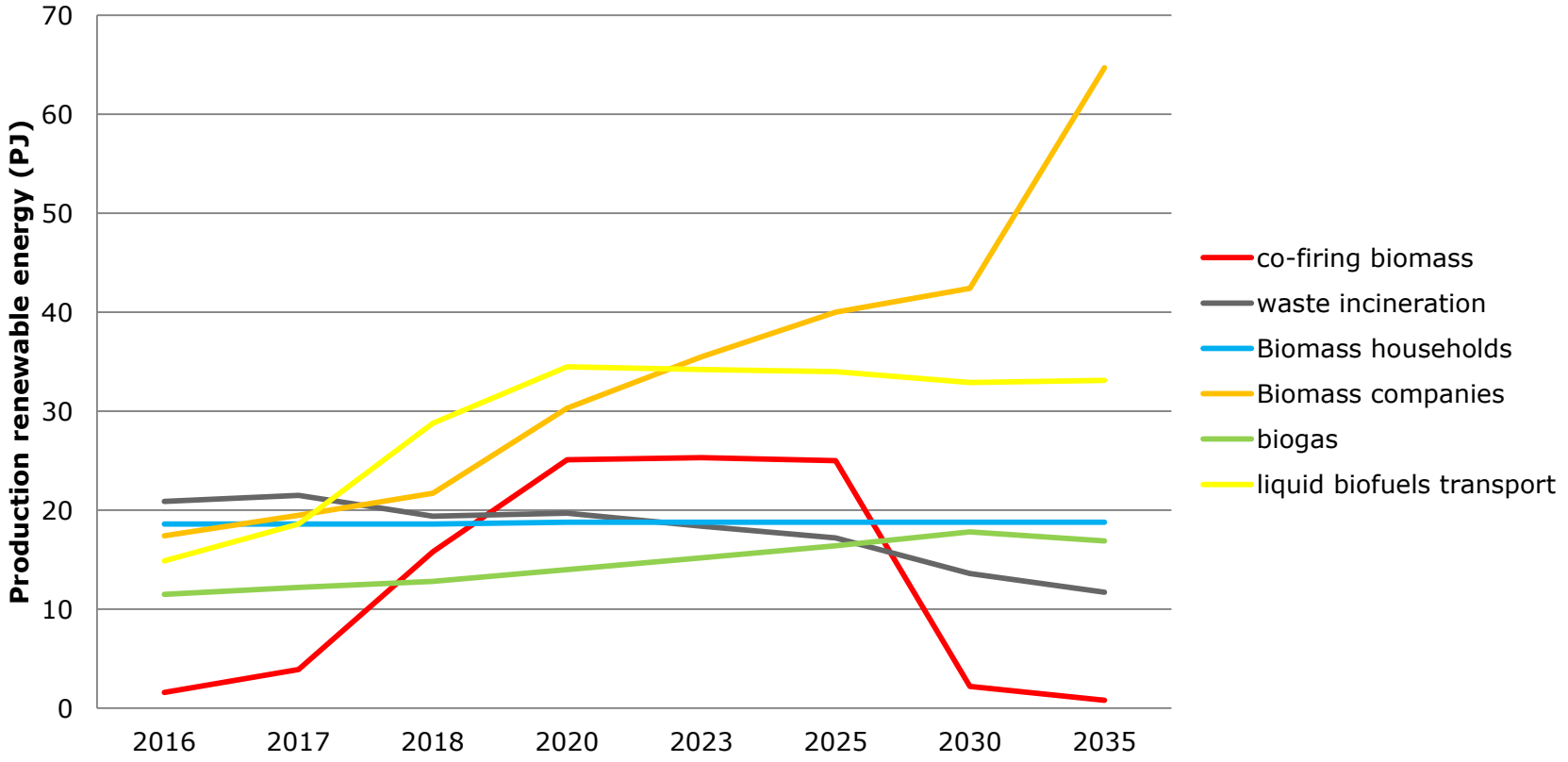
Indicative Contribution of R.E. opti

Source	2013	2020	2023
Wind on sea	3,1	27,0	60,0
Wind on land	20,6	54,0	63,0
Solar PV	0,9	11,6	12,4
Cofiring	6,1	25,0	25,0
Waste Incineration	13,3	11,7	12,0
Biomass CHP	3,5	13,6	18,0
Biomass Heat	19,0	31,6	34,1
Biofuels	18,0	35,6	34,6
Renewable Heat	6,1	36,3	46,3
TOTAL	105,5	261,6	335,4
Percentage R.E.	4,4%	14%	16%

For Biomass:
2013: 59,9
2020: 117,5
2023: 123,7

Doubling the amount of biomass in 4 years
FUTURE: ~~50% Bioenergy

Policy development bioenergy 2015 - 2035



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Biofuels contribute to Renewable Energy Obligation RED (COM 2009/28)

EU 2020 Targets

- **Renewable Energy Directive, RED, 2009/28/EC**
  - Minimum of 10% renewable energy in transport in 2020
  - Electric, biofuels, biogas
  - At least applicable to road transport, opt in for shipping/air
  - Double counting 2nd generation biofuels (waste/residues/cellulosic)

  http://eur-lex.europa.eu/legal-content/NL/TXT/?uri=celex:32009L0028

- **Fuel Quality Directive, 2009/30/EC**
  - Life Cycle Analysis, CO2-reduction of 6% compared to 2010
  - Looks at the whole chain of production and use of fuels
  - No double counting 2nd generation biofuels

Concerns about biofuels

- Competition with food (price spikes 2007/2008)
- Land use change (direct and indire
- Loss of biodiversity
- Loss of GHG sinks
- Other sustainability effects:
  - Locally: soil, water, air
  - Social (poverty, land rights)

iLUC directive, DIR 2015/1513/EC

- To avoid: Indirect Land Use Change
  - GHG reduction >60 % (if operation after 5 october 2015), otherwise >50%
    - Calculations: www.biograce.net
  - Stimulate advanced biofuels from wastes
  - Double counting for list of waste materials
    - Annex 9A and 9B

http://eur-lex.europa.eu/legal-content/NL/TXT/?uri=CELEX:32015L1513

Implementation in the Netherlands of iLUC directive on biofuels

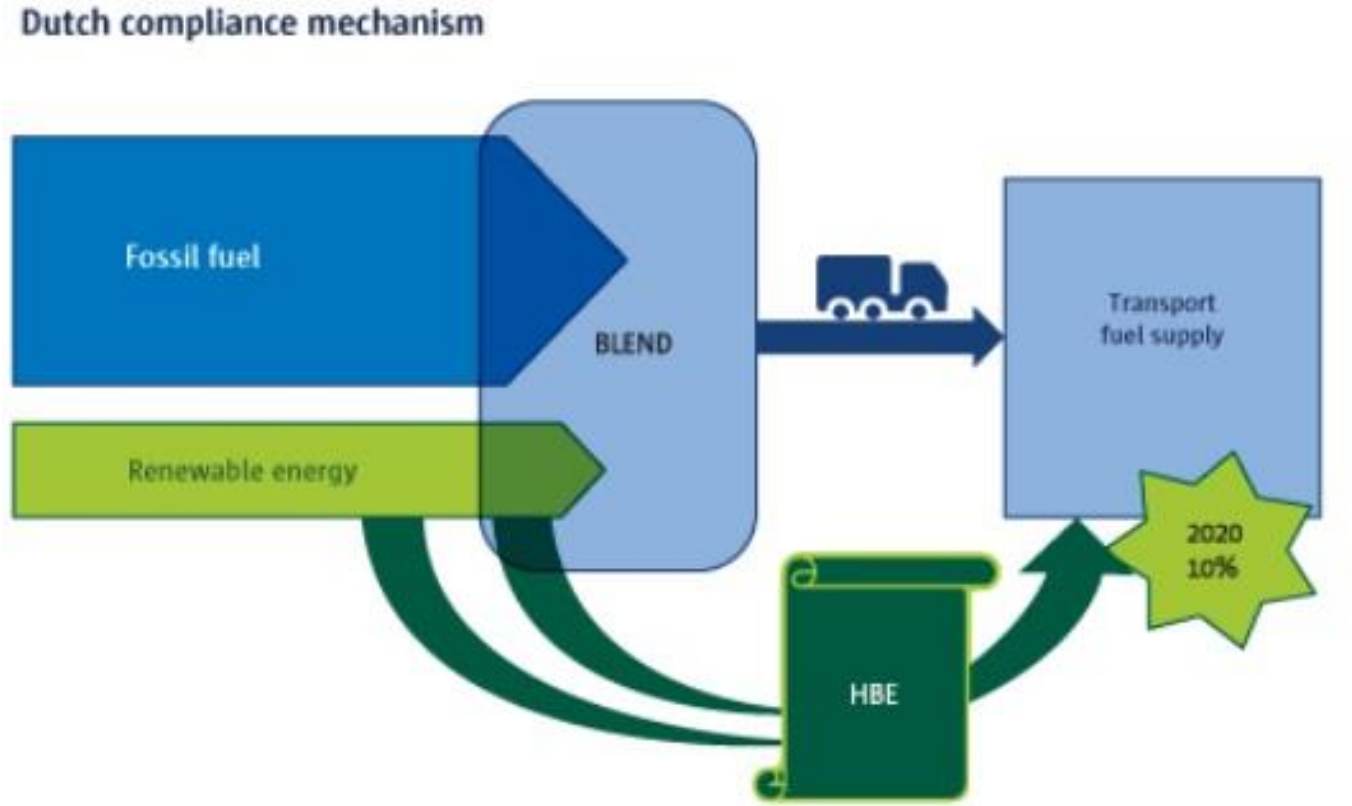
- Parliament approved 4 December 2017
  - After 2020 no use of pure palm and soy oil
  - After 2020 steer on CO2 reduction
  - Obligation for E10
  - Limits:

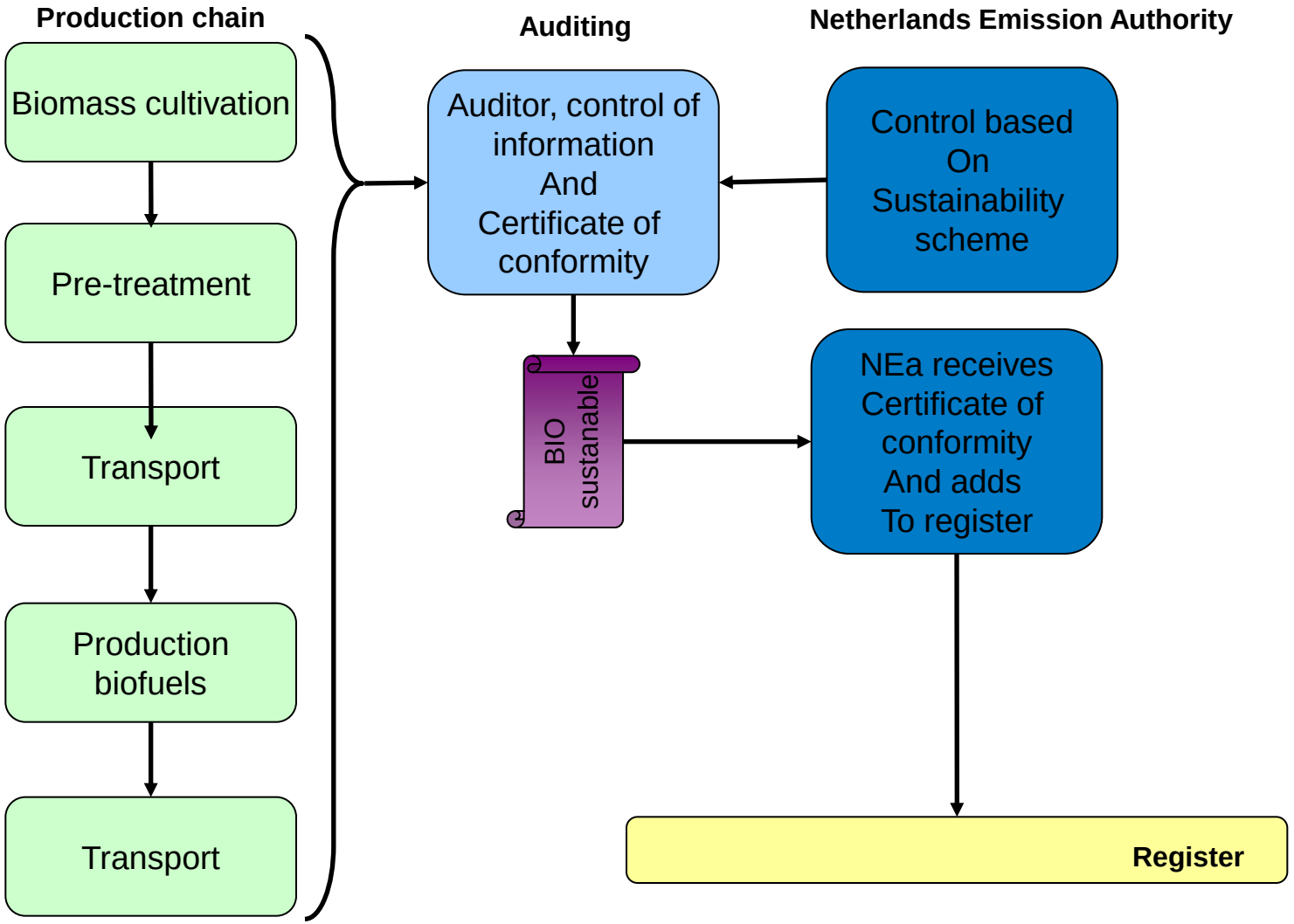
	2018	2019	2020
Conventional fuels	3%	4%	5%
Most advanced (9A)	0,6%	0,8%	1%
Annual obligation	8,5%	12,5%	16,4%

How to implement RED in EU MS

- Most MS have a supplier obligation including certificate trade
- Some have mandated targets to the suppliers
- Several countries included fiscal incentives (less tax etc.) but not in Netherlands
- There is support for R&D
- Some countries allow aviation and shipping to opt in (e.g in NL)

Biofuel compliance system in the Netherlands




Production chain
Auditing
Netherlands Emission Authority
Biomass cultivation
Pre-treatment
Transport
Production biofuels
Transport
Auditor, control of information And Certificate of conformity
Control based On Sustainability scheme
BIO sustanable
NEa receives Certificate of conformity And adds To register
Register

Biofuel volumes

- Tax codes:
  - undenatured alcohol: CN 22071000
  - Denatured ethanol: CN 22072000
    - Not drinkable; spiritus, blended with methanol/ petrol
  - Chemical compound: CN 38249097
- Trading with different countries,
  - Different tax regimes over time

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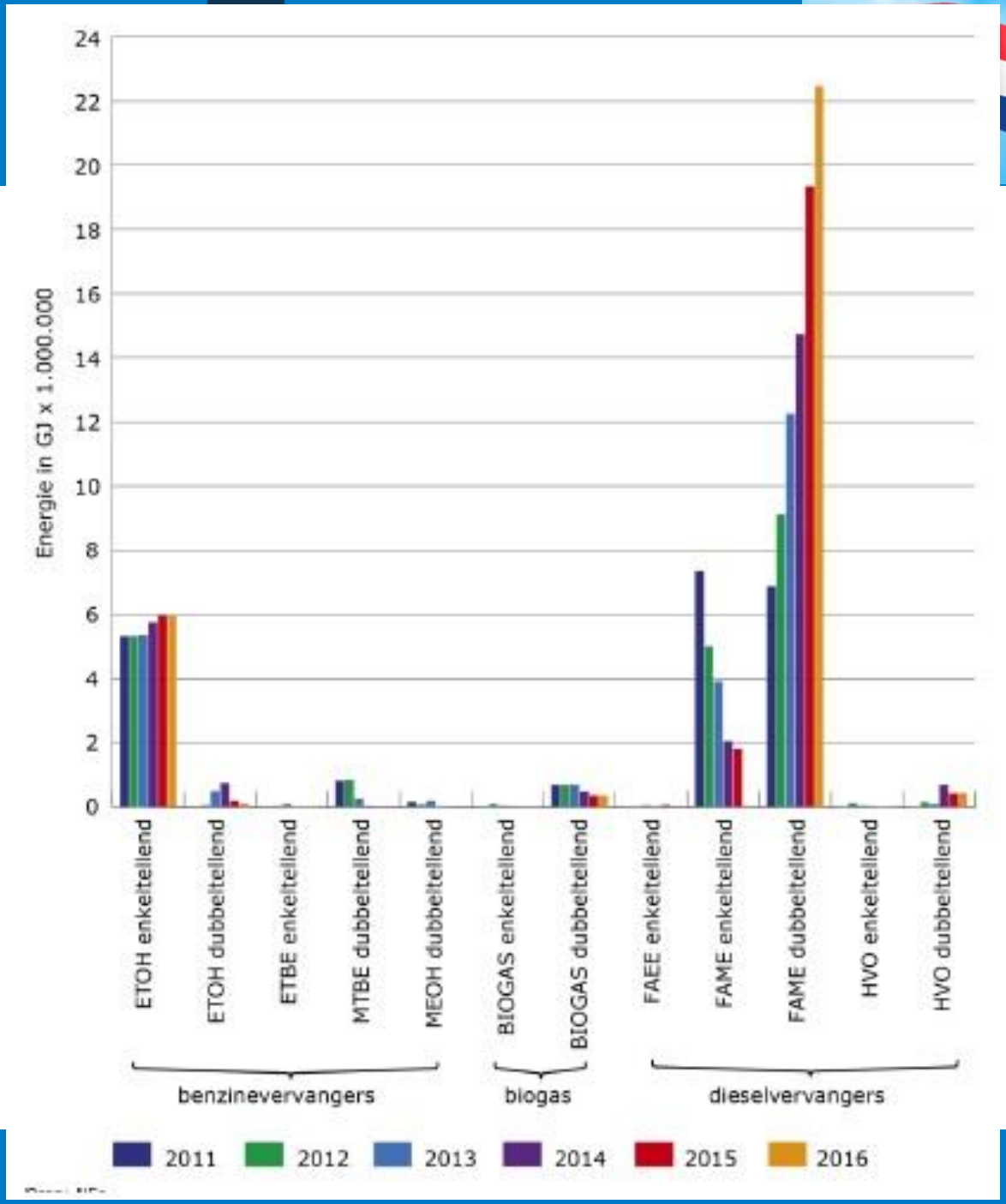
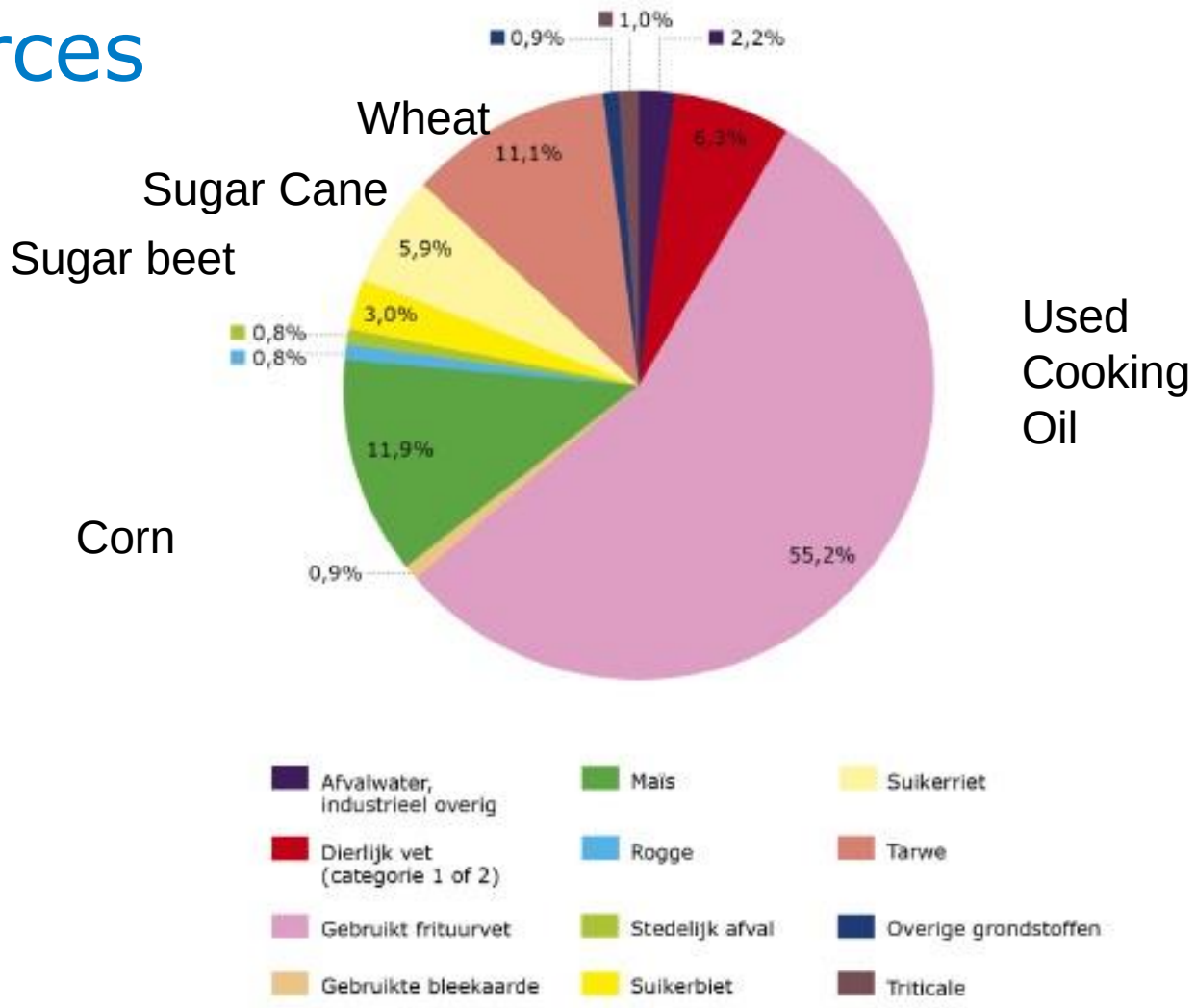
Biofuels contribute to Renewable Energy Obligation RED (COM 2009/28)

Results in the Netherlands

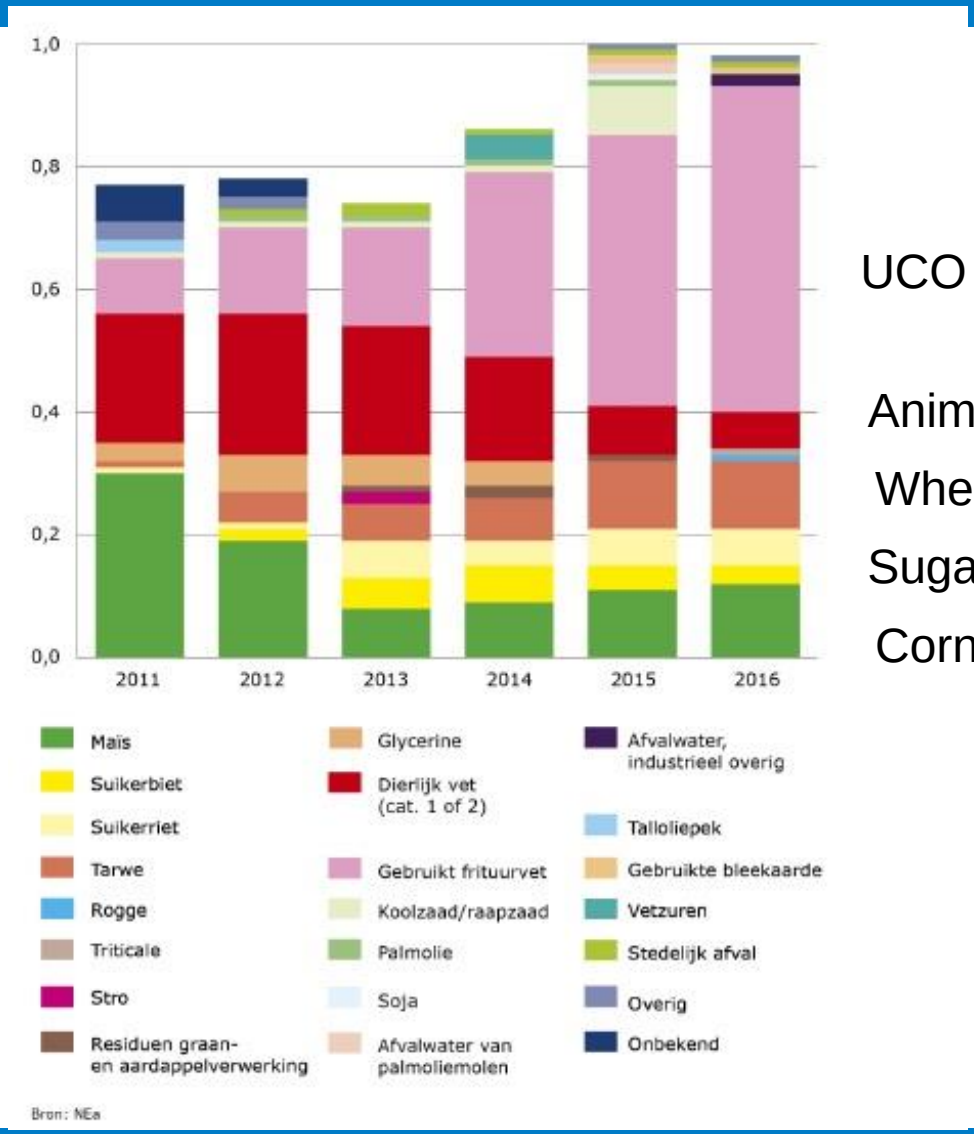
Biofuel consumption in the Netherlands



Resources 2016



Trends in resources



UCO

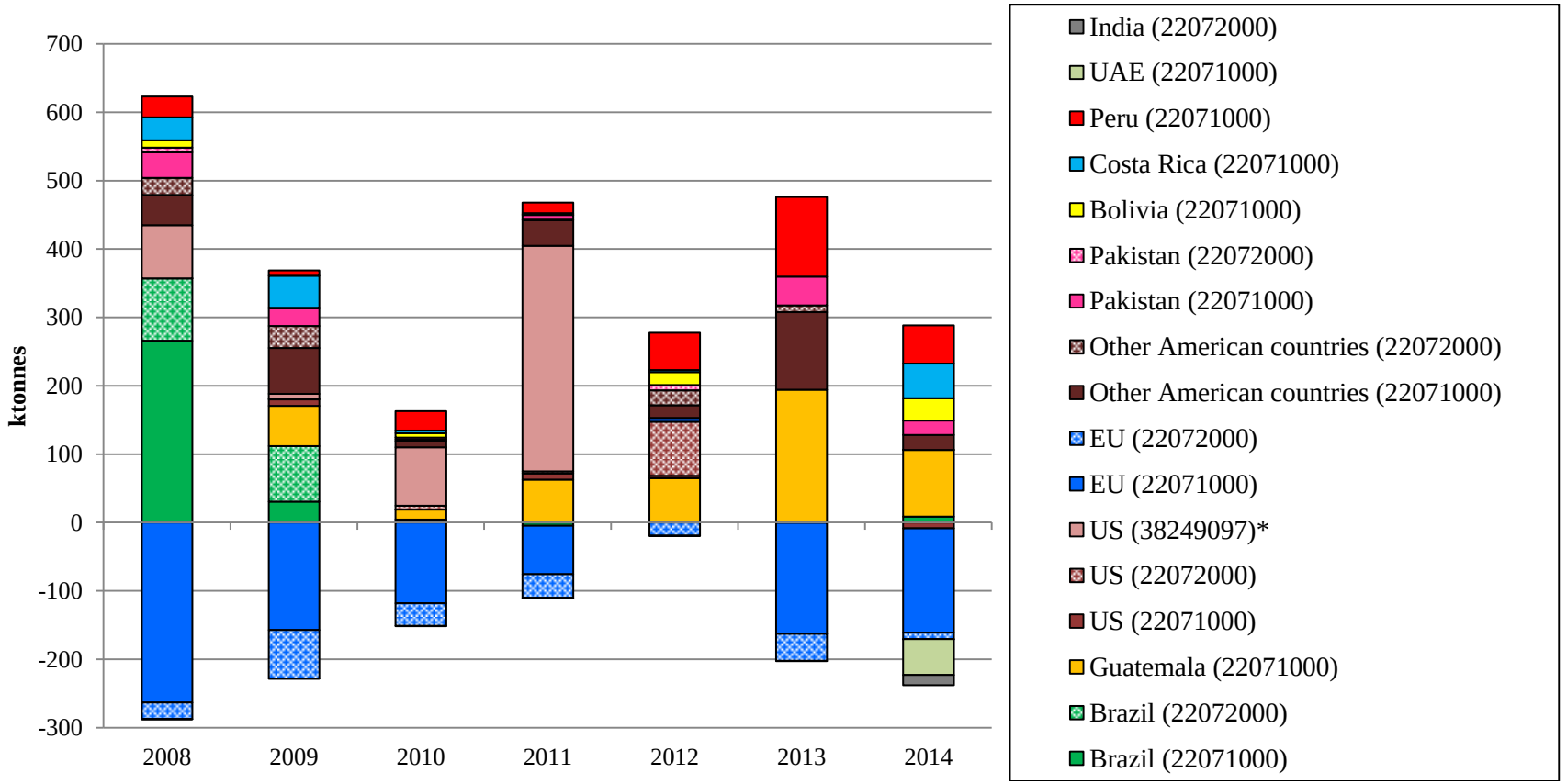
Animal Fats

Wheat

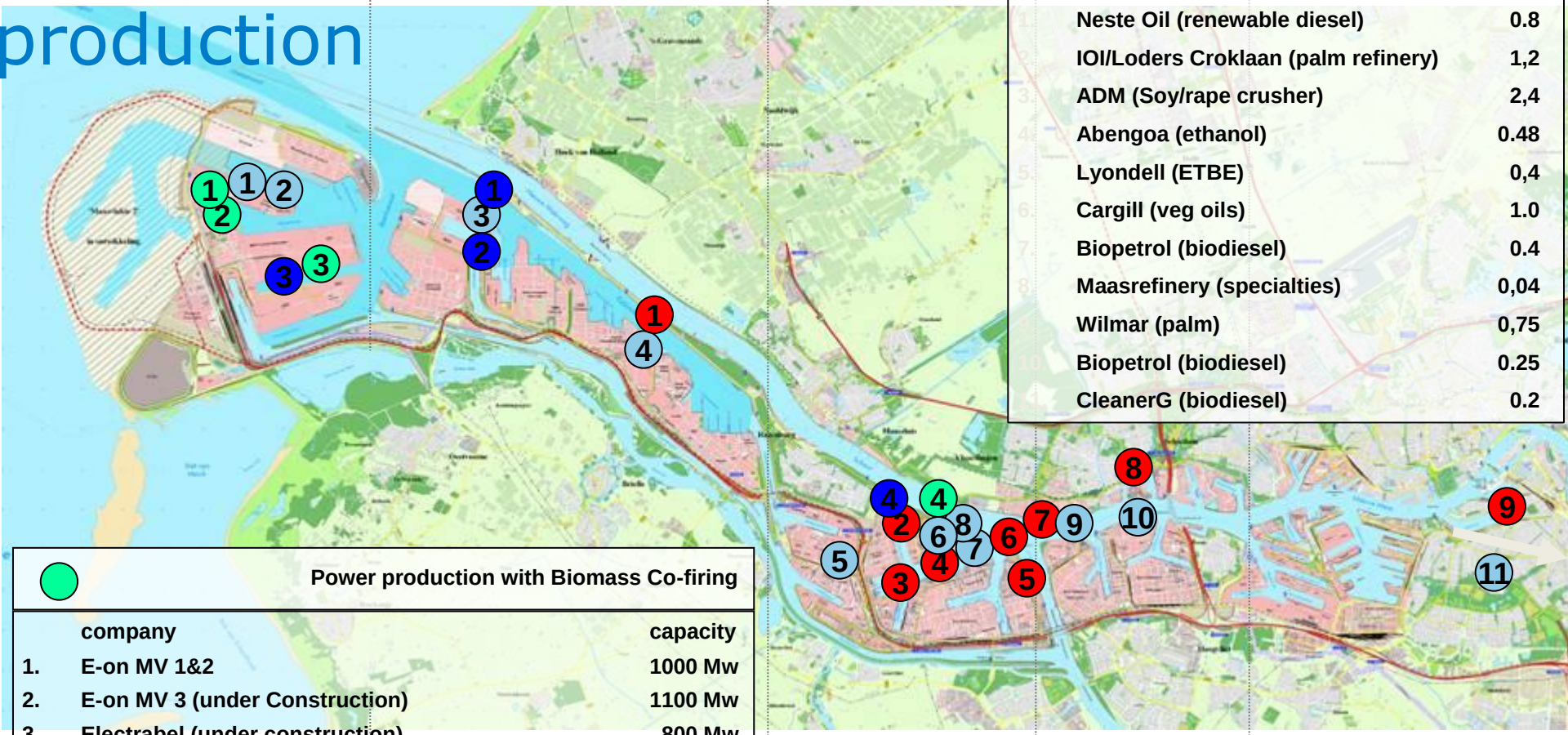
Sugar beet/cane

Corn

Ethanol trade to/from different countries



BioPort Rotterdam: production



Bio-production plants
nameplate capacity in mln tonnes

	company	capacity
1	Neste Oil (renewable diesel)	0.8
2	IOI/Loders Croklaan (palm refinery)	1,2
3	ADM (Soy/rape crusher)	2,4
4	Abengoa (ethanol)	0.48
5	Lyondell (ETBE)	0,4
6	Cargill (veg oils)	1.0
7	Biopetrol (biodiesel)	0.4
8	Maasrefinery (specialties)	0,04
9	Wilmar (palm)	0,75
10	Biopetrol (biodiesel)	0.25
11	CleanerG (biodiesel)	0.2

Power production with Biomass Co-firing

	company	capacity
1.	E-on MV 1&2	1000 Mw
2.	E-on MV 3 (under Construction)	1100 Mw
3.	Electrabel (under construction)	800 Mw
4.	AVR-BEC (biomass only)	22 Mw

BioPort expansion Maasvlakte 2

1. **CO_2 Cluster**
   Storage, liquifaction and shipping of CO_2.
2. **Next generation biodiesel**
   Oils and fats - based biochemicals en fuels production facilities.
3. **Multi-user jetty and storage**
   Sharing of infrastructure maximises efficiency in using it.
4. **Ethanol based chemicals**
   Dry biomass based production of next generation ethanol and chemicals.
5. **Handling and storage of dry biomass**
   Multi user storage and handling of all sorts of dry biomass.

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Conclusion

Conclusion

- Biofuels part of Renewable Energy and part of Biobased Economy
- Local production and trade integrated in the free market
- Sustainability guaranteed by certificates