



Netherlands Enterprise Agency

Monitoring of Long Term Agreements in the Netherlands

Teun Bolder

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Contact:

Christiaan Abeelen

RVO.NL

christiaan.abeelen@rvo.nl

0031-6-23091568

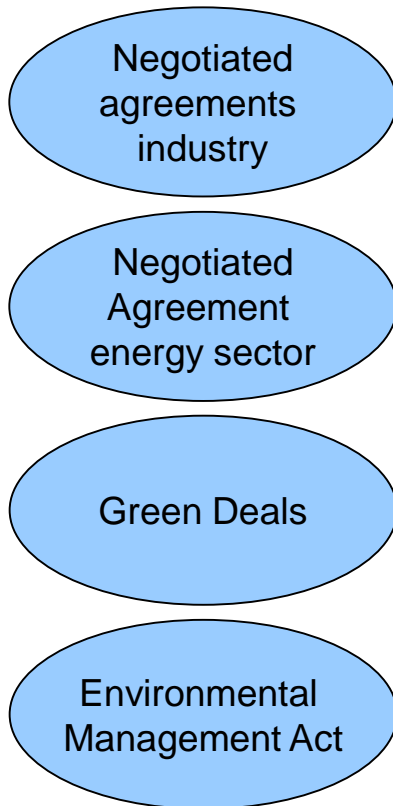


- Introduction
- 3 generations of LTA's
- Monitoring process
- Comparison of methods
- Results

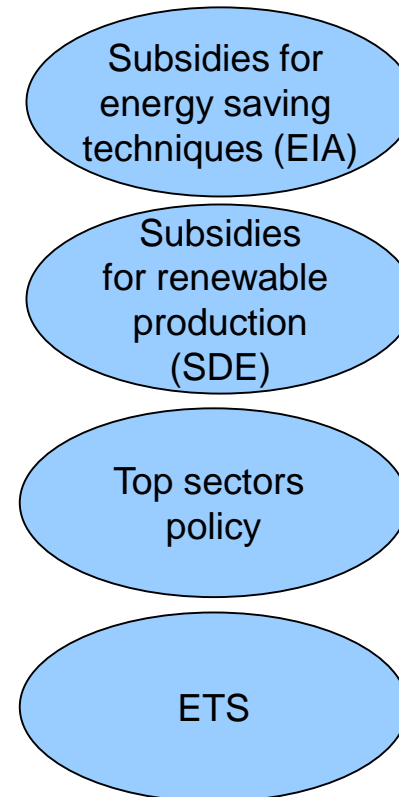
Industrial energy saving policy in the Netherlands



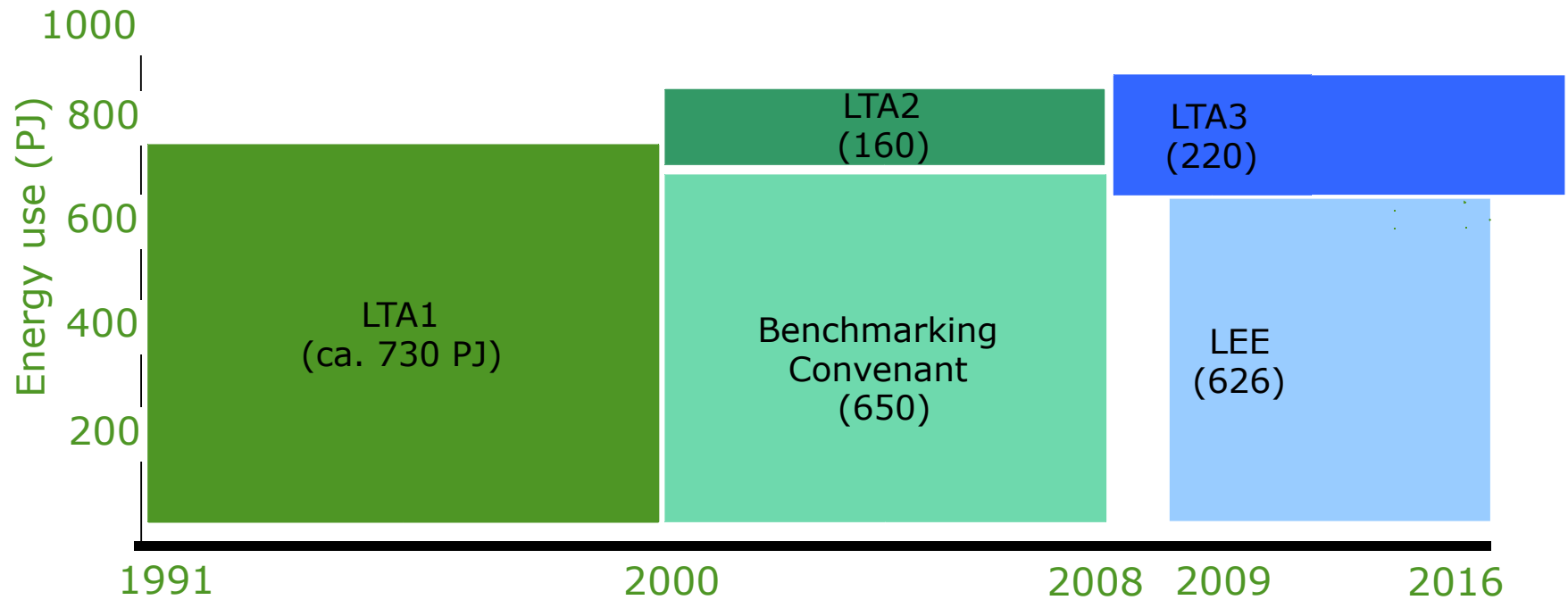
prescriptive



financial



The long history of the long term agreements



Decomposition



Layout of the agreements

LEE:

7 sectors

112 companies

Total Energy use 626 PJ

Chemical/refineries/metal=91%

Largely ETS-companies

MJA3:

32 sectors

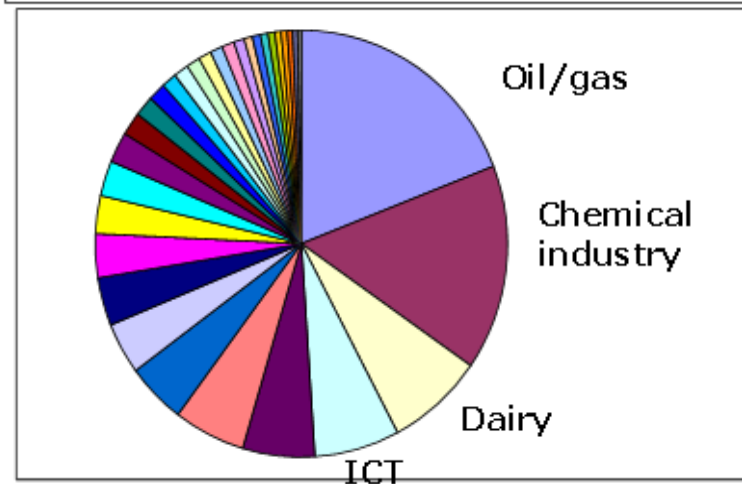
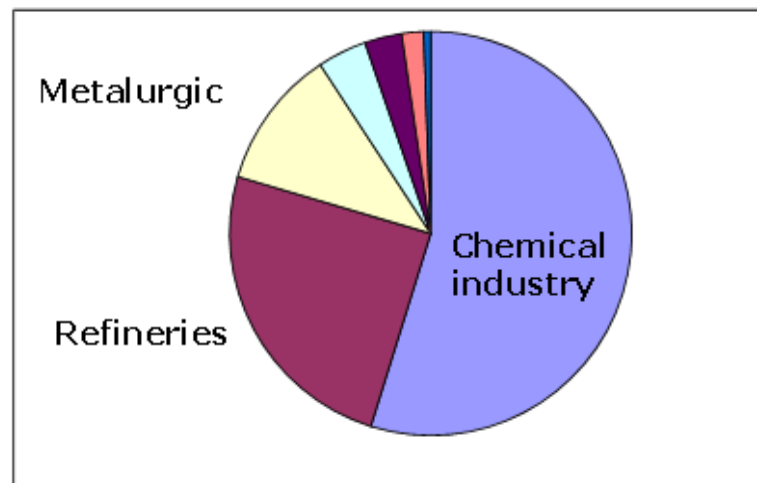
900 companies

Total energy use 219 PJ

Industry, food, services

4 sectors =50%

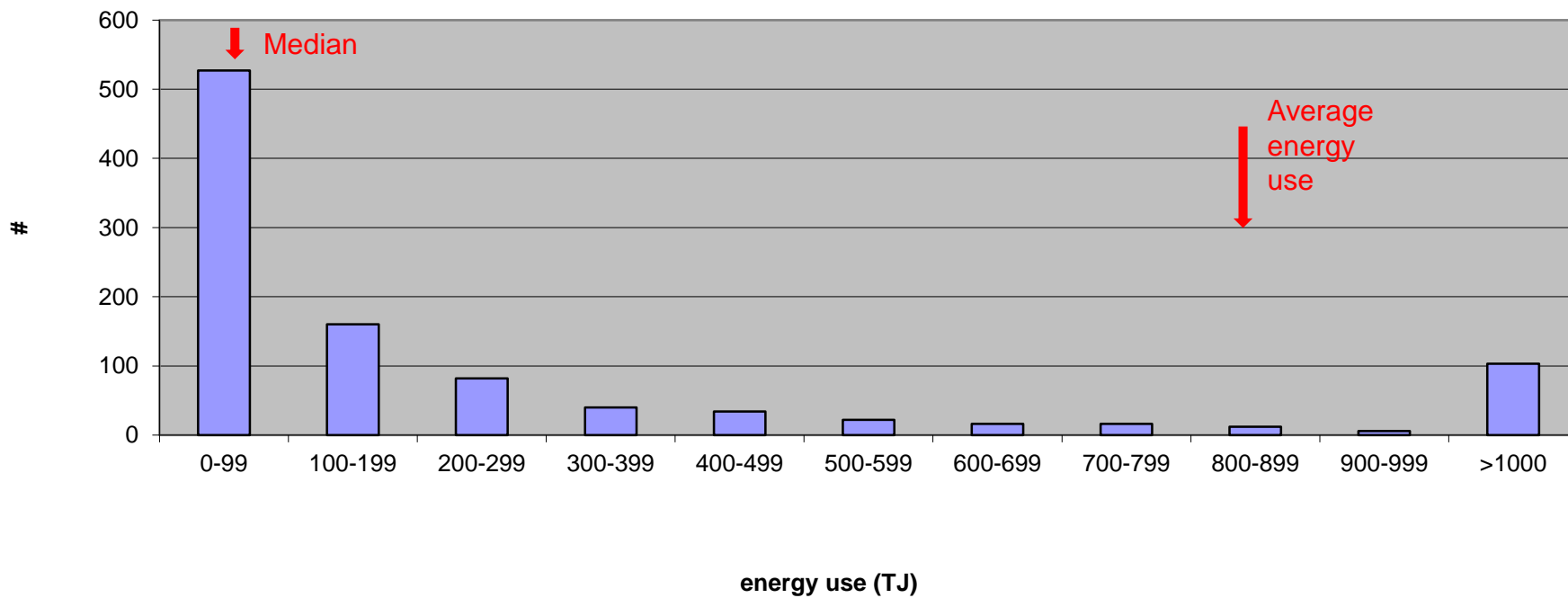
Largely non-ETS



Most firms are SME



energy use of participating companies



Yearly monitoring process



Time	Action
December	Companies receive information
January-march	Companies fill in data
1 April	Deadline
March / April	Check by consultants
April	Aggregation
May	Sector / company reports
June / July	Results brochure
August- December	Evaluation / preparation



- Internet/excel
- Monitoring advisors RVO.nl
- External consultants (± € 500 000 / year)
- ICT (± € 100 000 / year)
- Reports:
 - company reports (1000)
 - sector reports (40)
 - overall results brochure
 - other (internal) reports



- Energy use
- Production data
- Energy saving projects
- Energy management
- Other factors

3 Generations of LTA's & Monitoring principles



LTA 1:

- EEI measures development in energy-intensity:
energy per unit of useful output
- The EEI normalizes for volume-effect, and many other factors

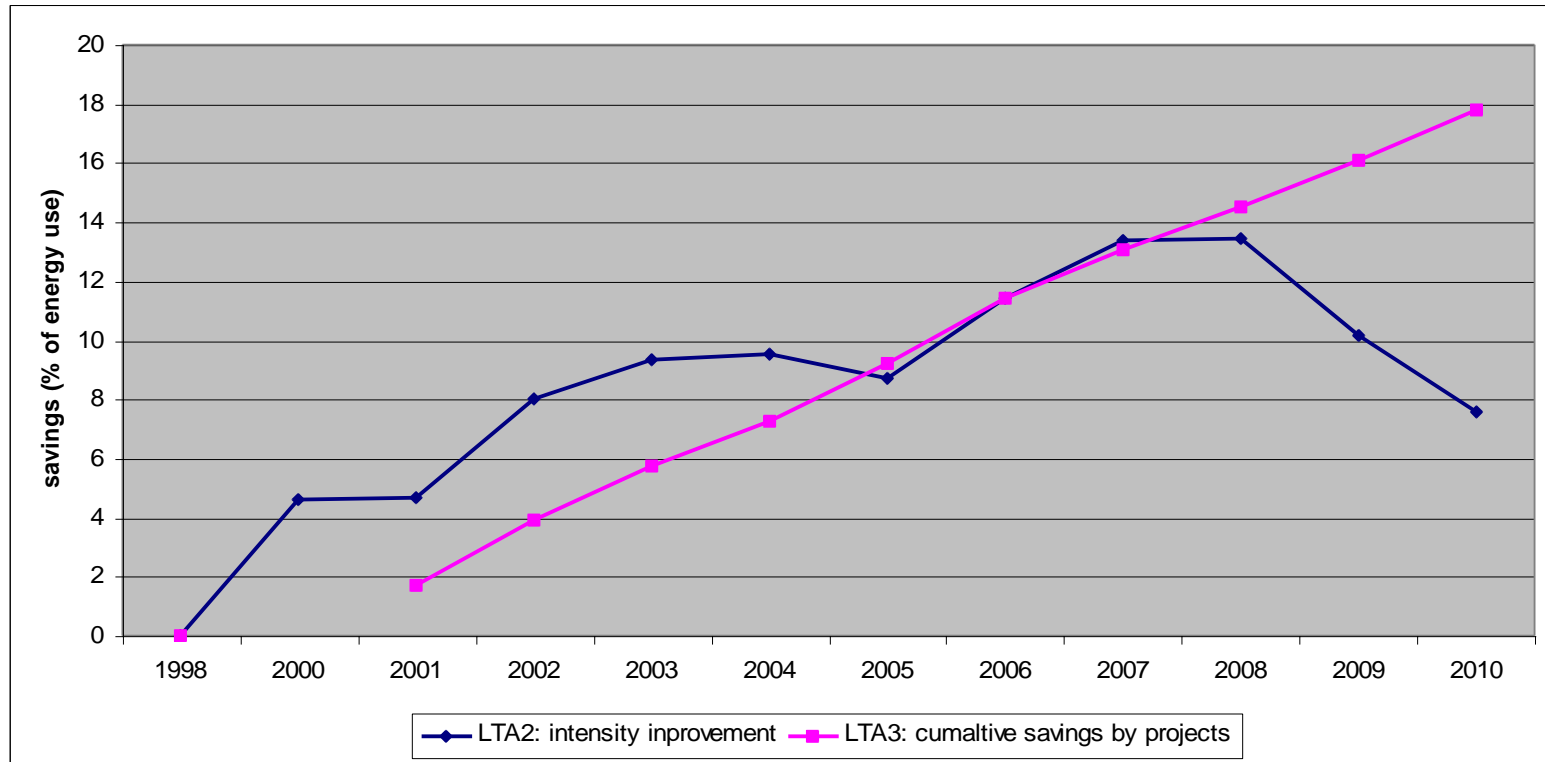
LTA 2:

- Three indices:
 - Energy Efficiency (energy intensity)
 - Supply chain efficiency
 - Renewable energy
- One index based on energy-intensity
- Two indices based on implemented projects

LTA 3:

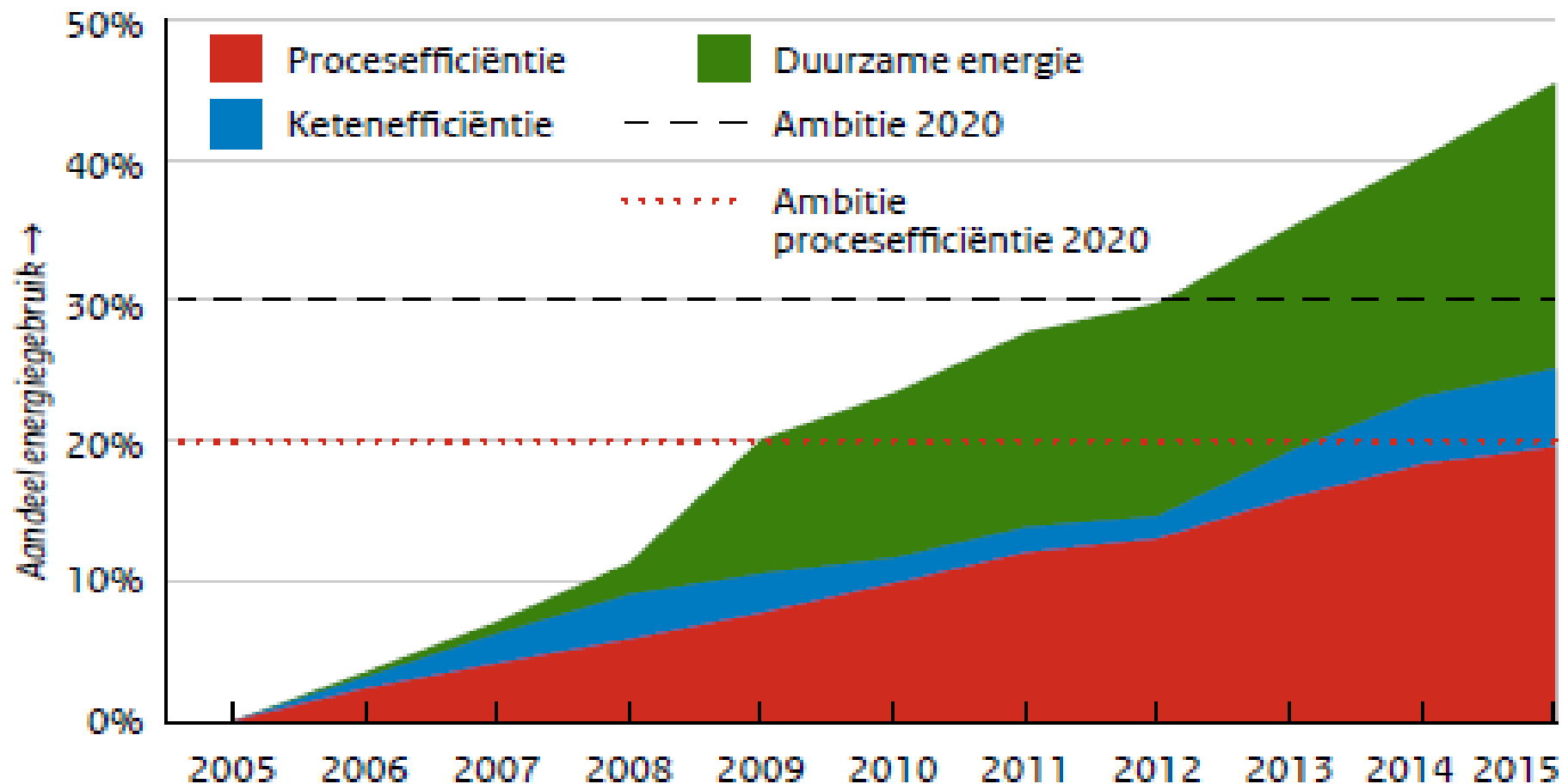
- All indices are based on implemented projects

Comparison old and new method





Figuur 1.3 - Resultaten MJA3-convenant 2005-2015





- Participating companies implement many energy saving projects
- These projects lead to savings of 1.3 (LEE) to 1.9% per year (LTA)
- Monitoring of projects is time consuming and expensive
- Results give a good representation of efforts

More information:

www.rvo.nl/lta (Dutch): information on LTA

www.bess-project.info/ (multiple languages): information of benchmarking project for SME

www.ltauptake.eu/ (multiple languages): toolkit for implementation of voluntary agreements

Publications:

“Energy Efficiency Measures: The Next Generation”. ECEEE Summer Study Paper 1-065-12. 11-14 September 2012, Arnhem.

“From top-down to bottom-up: two ways to monitor energy-efficiency in Dutch voluntary agreements”. ECEEE Summer Study Paper 7-070-13. 3–8 June 2013. Toulon/Hyères, France

“Implementation of energy efficiency projects by Dutch industry”. Energy Policy 63 (2013) 408–418.”

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christiaan.abeelen@rvo.nl
www.RVO.nl



Spare sheets

Monitoring methods



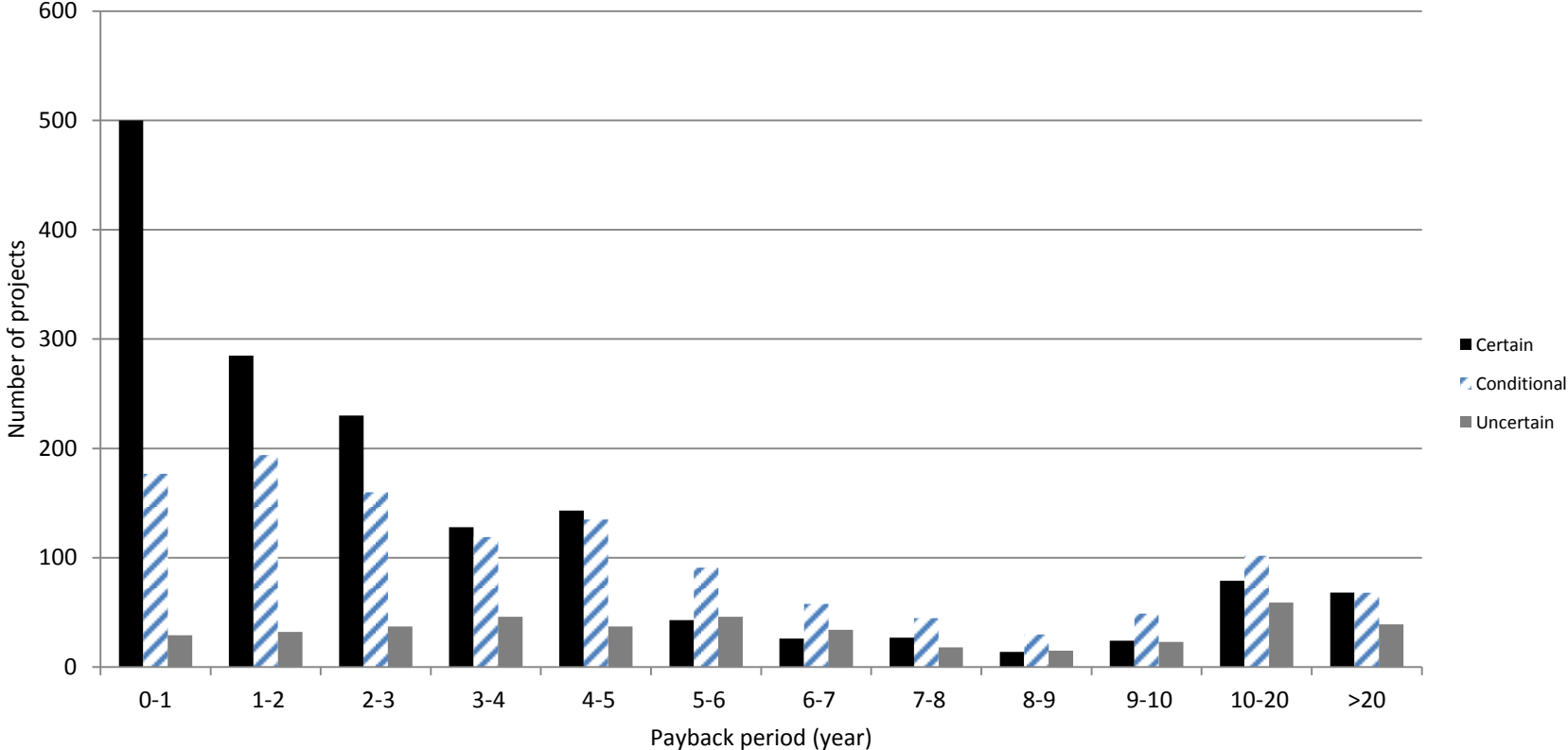
LTA 1 & 2:

Energy efficiency = Energy intensity
formula: Energy / Product [J/ton]

LTA3/LEE:

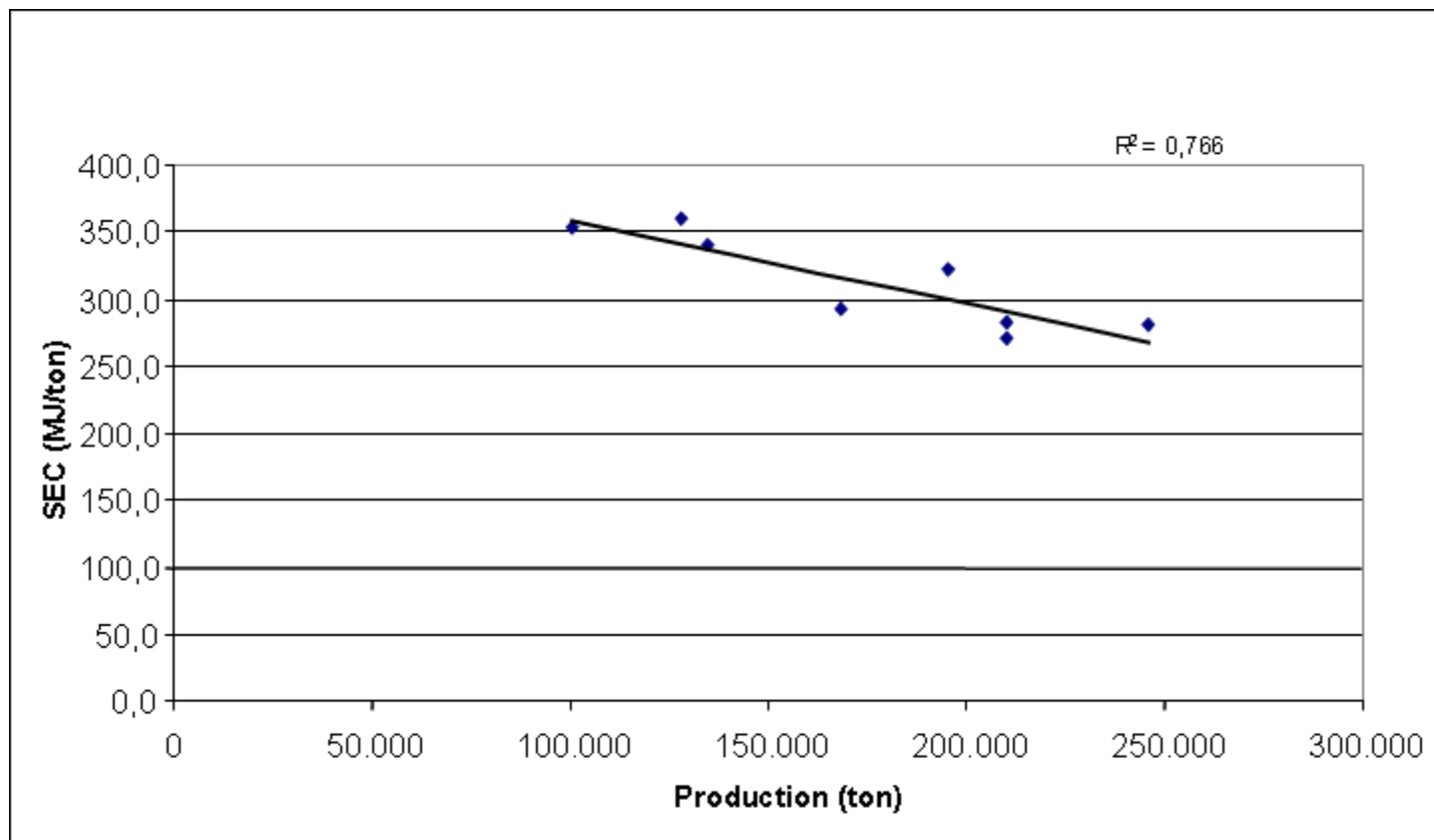
Energy efficiency = Energy saving by Projects
formula = Energy saved / Energy used [%]

Results: Economy



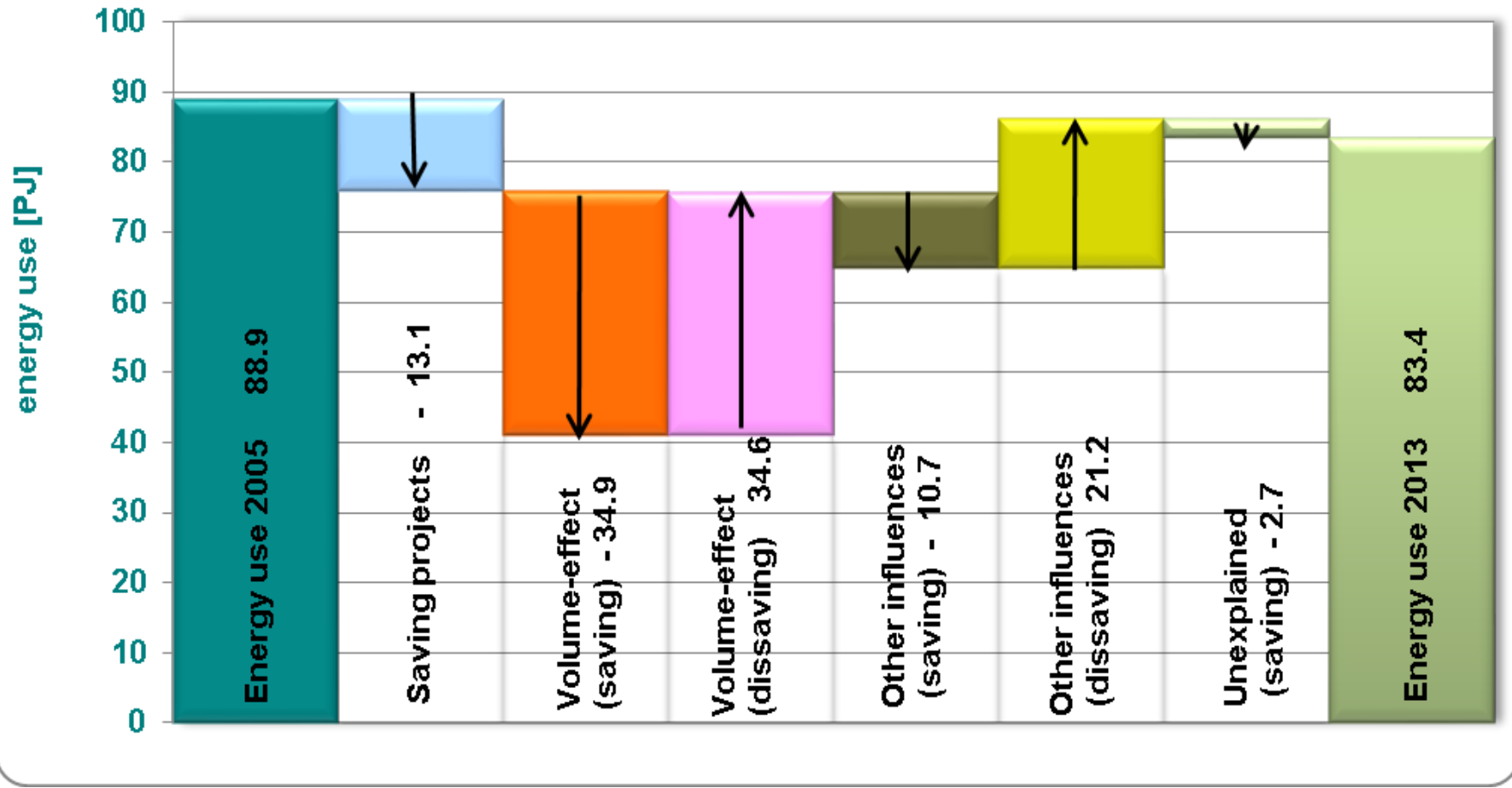


Relation between production and energy intensity



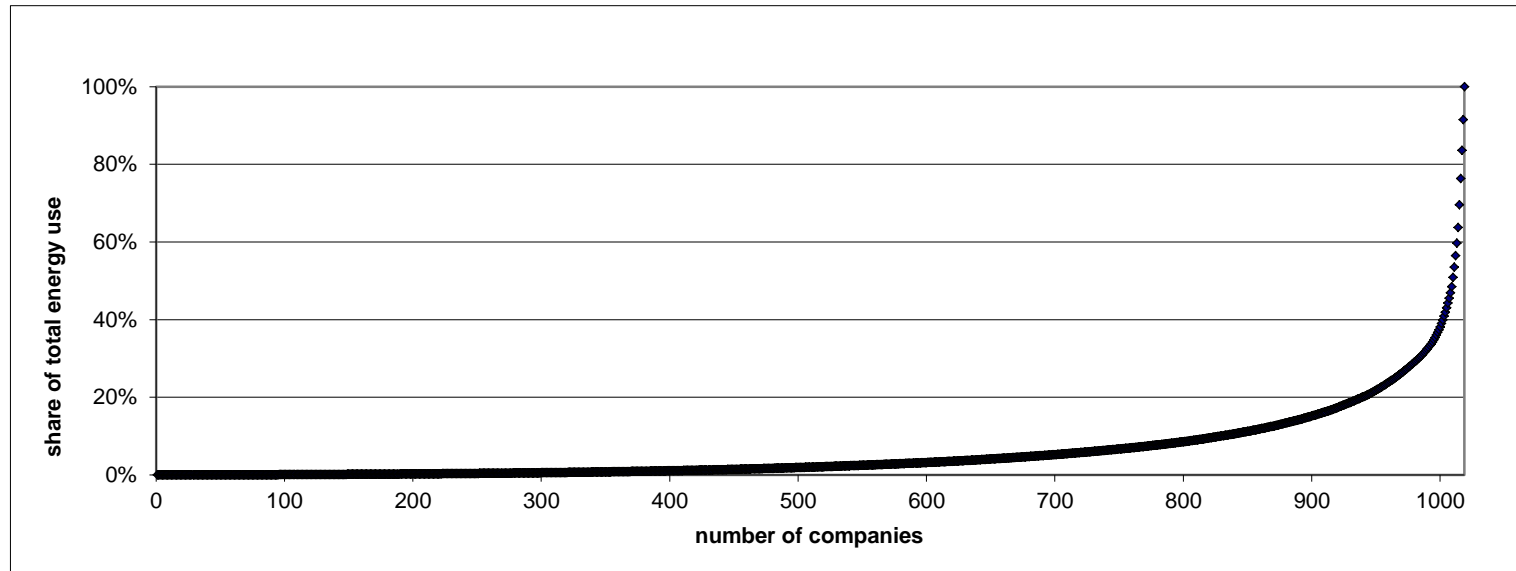


Decomposition of factors





Skewed distribution of energy use



10 firms use 50% of energy

800 firms use 10% of energy

Average: 823 TJ

Median: 92 TJ = 1400 households



Planning and implementation

Make an energy efficiency plan (EEP) every 4 years:

- Energy balance
- Energy management
- Energy saving projects (certain/conditional/uncertain)

Yearly monitoring report:

- Energy use
- Production
- Implemented energy saving projects



Implementation of projects

(process efficiency LTA3)

Certainty level	Number of projects			Savings (TJ)		
	Planned	Implemented	%	Planned	Implemented	%
Certain	5.022	4.020	80%	10.801	7.891	73%
Conditional	3.129	1.164	37%	6.307	1.825	29%
Uncertain	2.048	528	26%	4.931	537	11%
Additional to EEP	0	1.783	-	0	3.685	-
Delayed*	0	334	-	0	196	-
Total	10.199	7.829	77%	22.039	14.135	64%



Energy use versus production

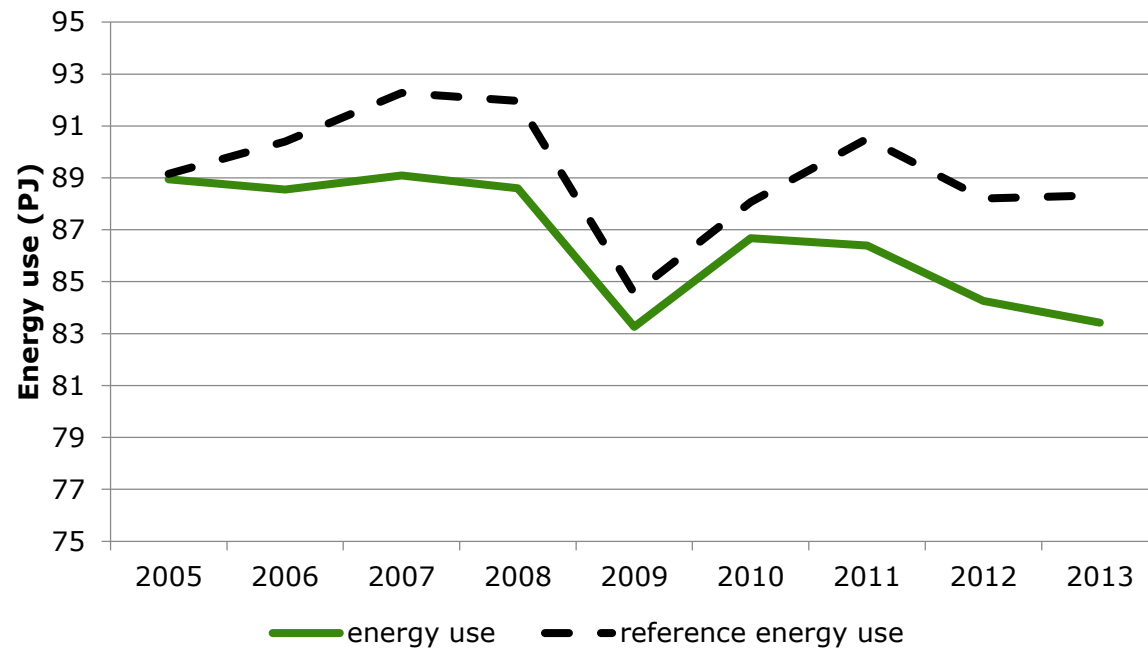
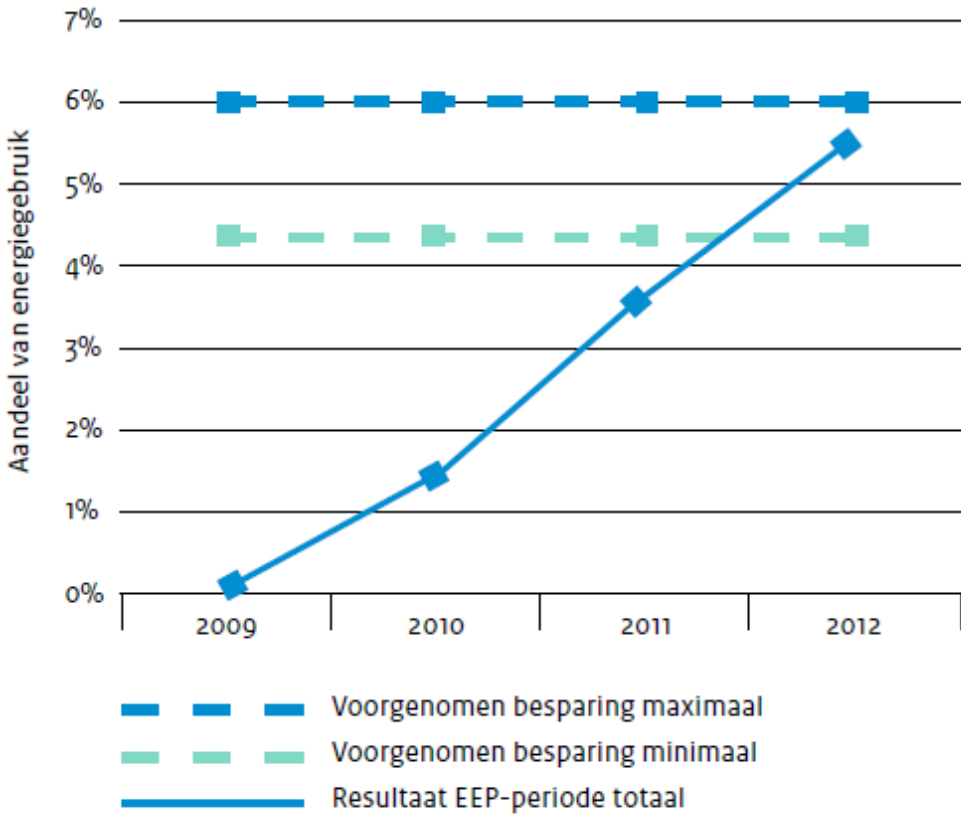


Fig. 3 Development of energy and reference energy use 2006-2013 for industrial LTA-companies (n=559).

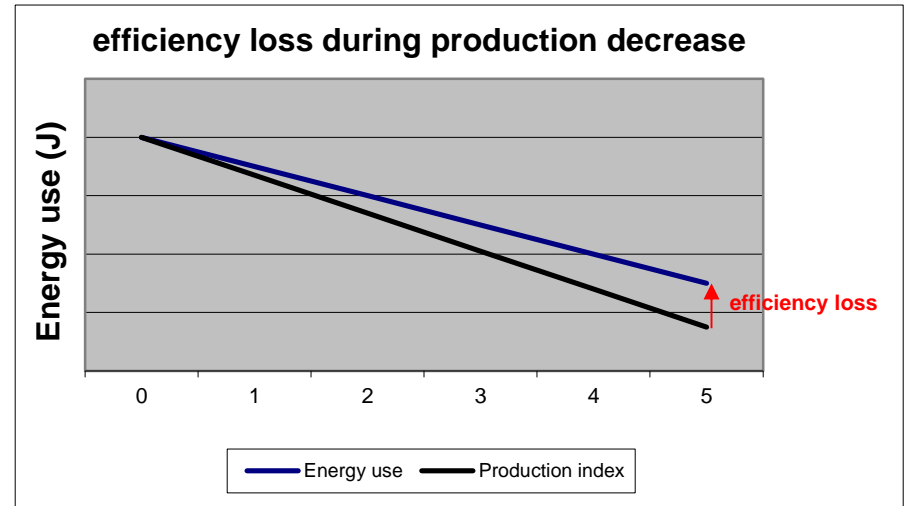
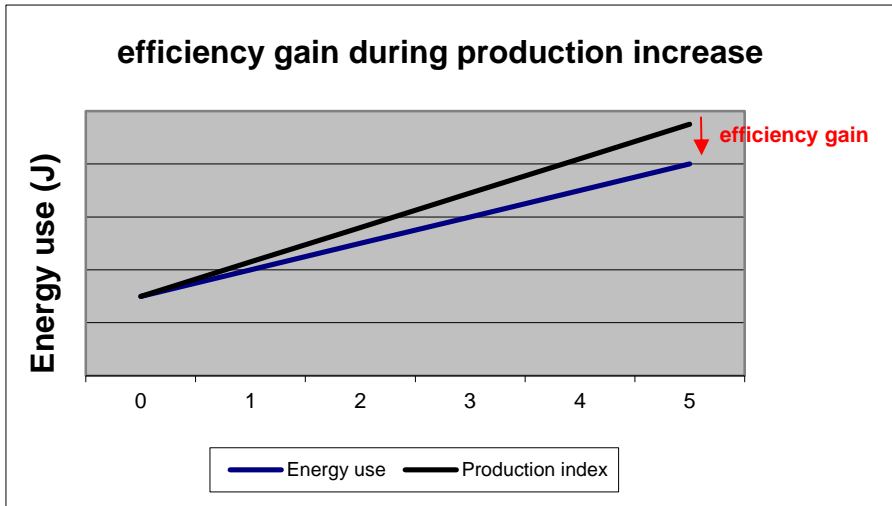


Results





Relation production and efficiency



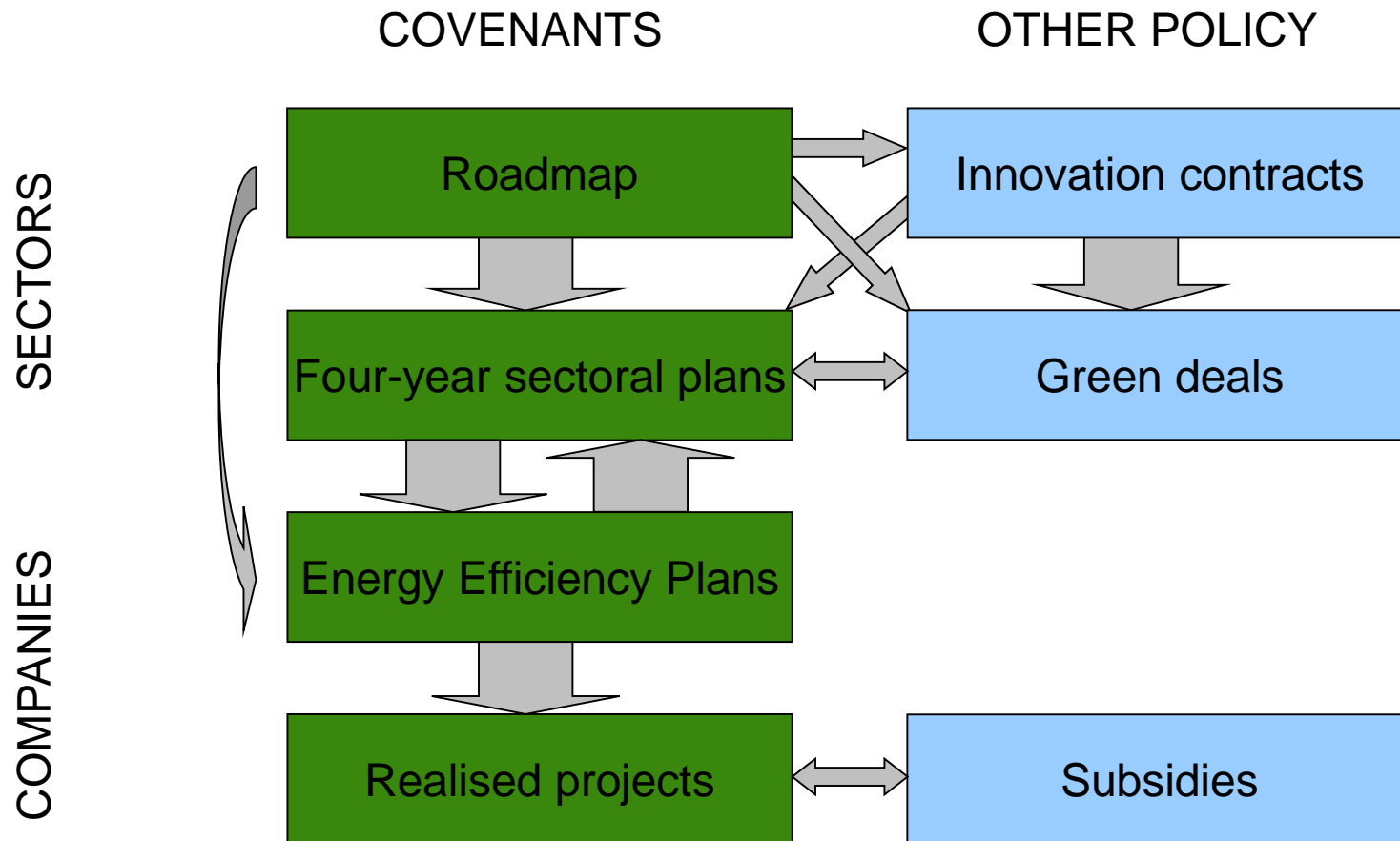


Energy saving projects

Category	Subcategory
Process efficiency	Energy management and good housekeeping
	Adjustment in processes
	Utilities and buildings
	Strategic measures
Chain efficiency	Production chain (distribution, saving on materials)
	Product chain (savings during product use)
Renewable energy	Own production
	Purchase of renewable energy



Relation between the instruments





Rijksdienst voor Ondernemend
Nederland

MJA1 MJA2 MJA3
• 1992 • 2000 • 2008

MEE
• 2009



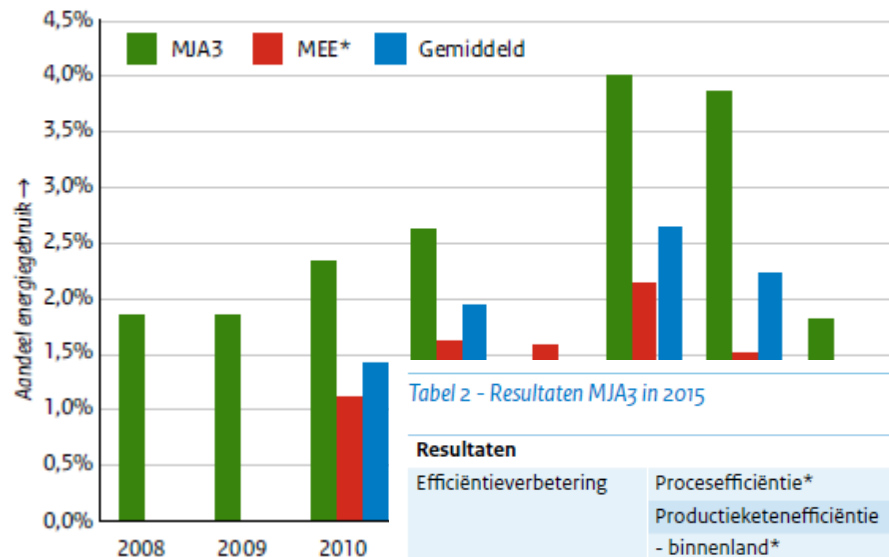
Resultatenbrochure convenanten

Meerjarenafspraken energie-efficiëntie

In opdracht van de ministeries van Economische Zaken, Binnenlandse Zaken en Koninkrijksrelaties, Infrastructuur en Milieu

>> Duurzaam, Agrarisch, Innovatief en Internationaal Ondernemen

Figuur 1.1 - Jaarlijkse verbetering in landelijk resultaat in % van het eigen energiegebruik



Tabel 2 - Resultaten MJA3 in 2015

Resultaten		t.o.v. 2014 (PJ)	t.o.v. 2014 (%)	t.o.v. 2005 (PJ)	t.o.v. 2005 (%)
Efficiëntieverbetering	Procesefficiëntie*	3,9	1,6%	46,5	19,5%
	Productieketenefficiëntie	-0,1	0,0%	8,9	3,1%
	- binnenland*	0,5	0,3%	8,3	2,9%
	- buitenland	-0,5	-0,3%	0,6	0,2%
	Productketenefficiëntie	1,7	0,7%	6,0	2,5%
	- binnenland	0,5	0,2%	2,6	1,1%
- buitenland	1,2	0,5%	3,5	1,4%	
Inzet duurzame energie	Opwekking duurzame energie	0,0	0,0%	1,8	1,2%
	Inkoop duurzame energie	8,1	4,4%	46,9	19,2%
Convenantresultaat		13,6	6,7%	110,1	45,5%
Landelijk resultaat		4,3	1,8%	54,8	22,4%

* Voor het bepalen van de besparing binnen Nederland (landelijk resultaat) tellen volgens de convenantafspraken naast de maatregelen uit procesefficiëntie alleen de ketenbesparingen uit de productieketen in het binnenland mee (zie bijlage II). Totalen kunnen door afronding verschillen.

Tabel 1 - Resultaten MEE in 2015

Resultaten

Procesefficiëntie*

Productieketenefficiëntie

- binnenland*

- buitenland

Productketenefficiëntie

- binnenland

- buitenland

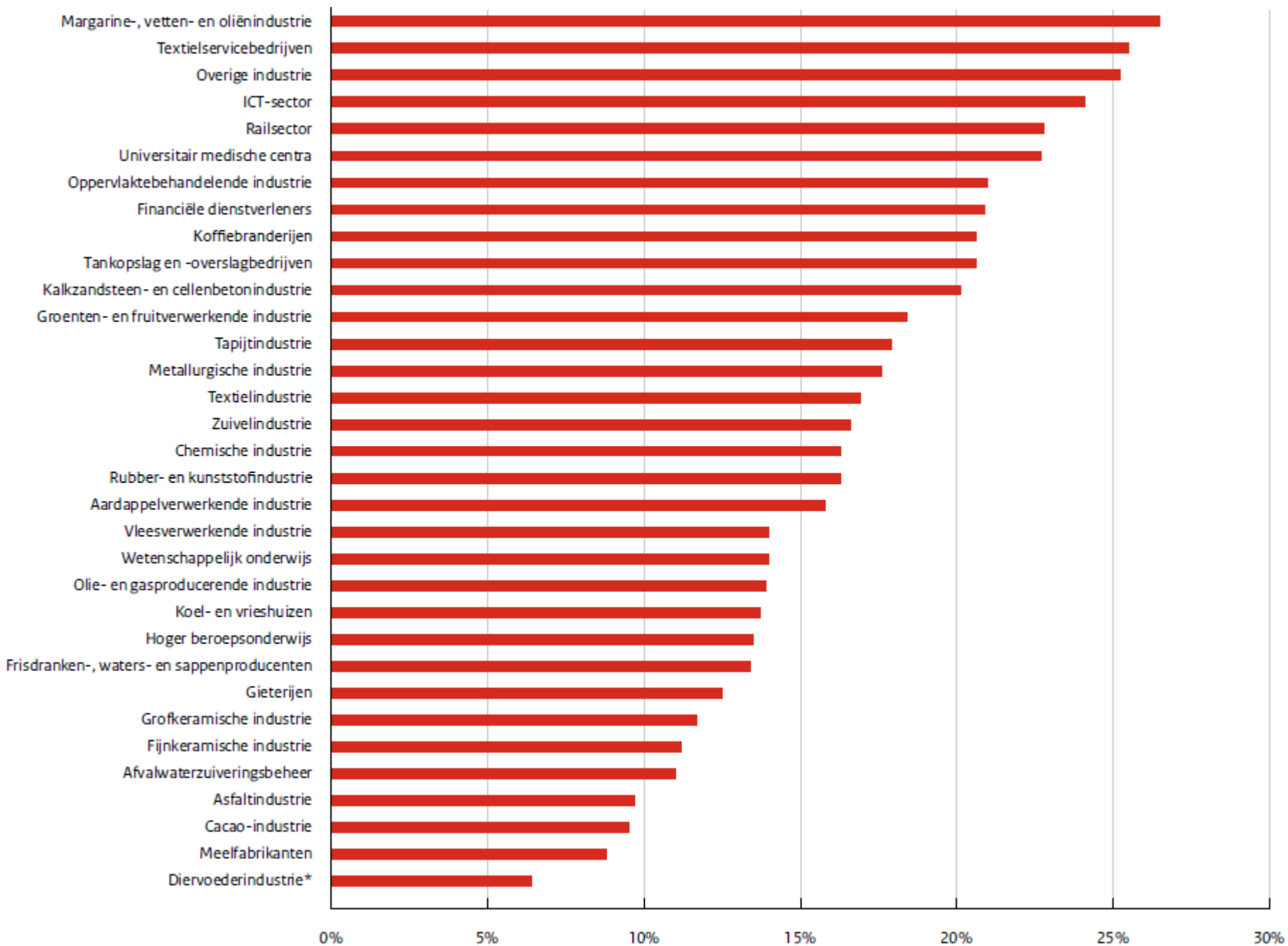
Convenantresultaat

Landelijk resultaat

	5,9	1,1%	18,1	3,1%
	2,1	0,4%	6,1	1,0%
	3,9	0,7%	12,0	2,1%
	11,4	2,0%	72,0	11,9%
Landelijk resultaat	5,7	1,0%	53,4	8,7%

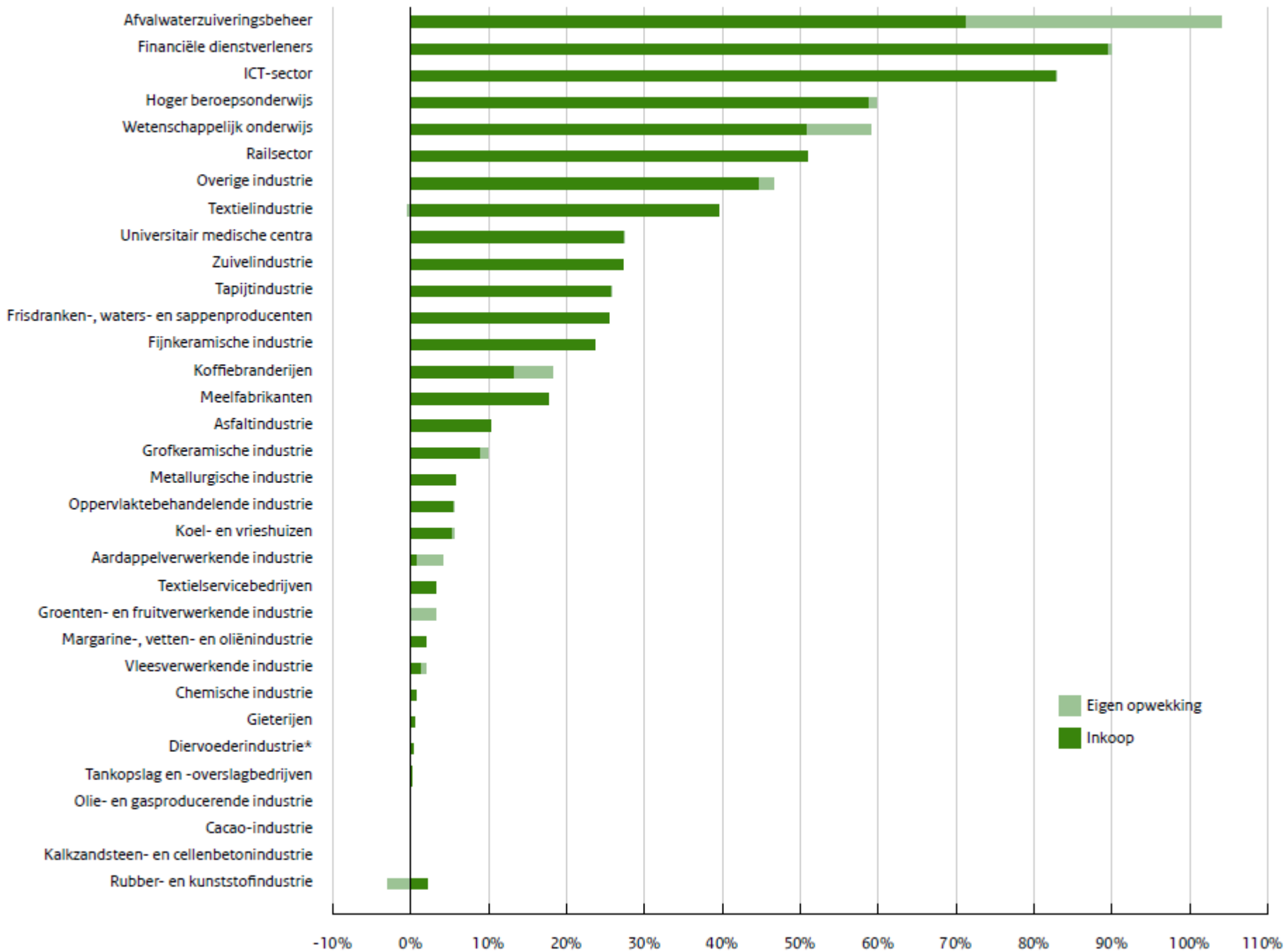
* Voor het bepalen van de besparing in Nederland (landelijk resultaat) tellen volgens de convenantafspraken naast de maatregelen uit procesefficiëntie alleen de ketenbesparingen uit de productieketen in het binnenland mee (zie bijlage II).

Figuur 3.5 - Besparing door procesefficiëntie MJA3-sectoren sinds 2005, gerelateerd aan het eigen energiegebruik



* De sector diervoederindustrie is toegetreden in 2017

Figuur 3.9 - Aandeel duurzame energie per MJA3-sector in 2015 ten opzichte van 2005, gerelateerd aan het eigen energiegebruik



* De sector diervoederindustrie is toegetroden in 2017