

## Long Term Agreements (LTA's) on energy-efficiency improvement in the Netherlands

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# SenterNovem

## Long-term experiences with LTA's and industry

- 1979-1985 Masters degree chemical engineering
- 1985-1989 Shell Pernis Refinery
- 1989-1994 Shell International Head Office the Hague
- 1994-2000 SenterNovem LTA programme manager for:
  - iron & steel / non-ferrous
  - paper & board
  - oil refineries / oil & gas production
- 2000-now International Sustainable Development, e.g. LTA2 (including product chain), LTA1 China

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# SenterNovem

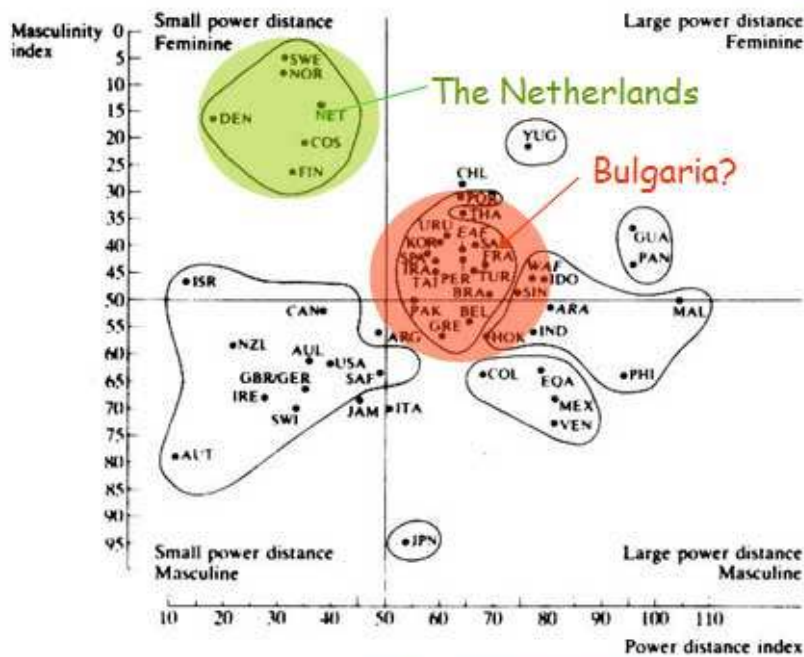
## Context and preconditions for voluntary approaches

- Environmental awareness is high in the Netherlands
- Tradition of co-operation for environmental problems
- Tradition of solving problems through negotiation
- Mutual trust between partners
- Partners: government, sector associations, companies and intermediaries
- Achieving policy goals by regulation only is expensive with respect to maintaining and controlling
- "Power Distance" between groups in society is rather low, so industry can negotiate with government on almost equal level

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## Masculinity / power distance



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## SenterNovem

### Starting of the LTA process in the Netherlands

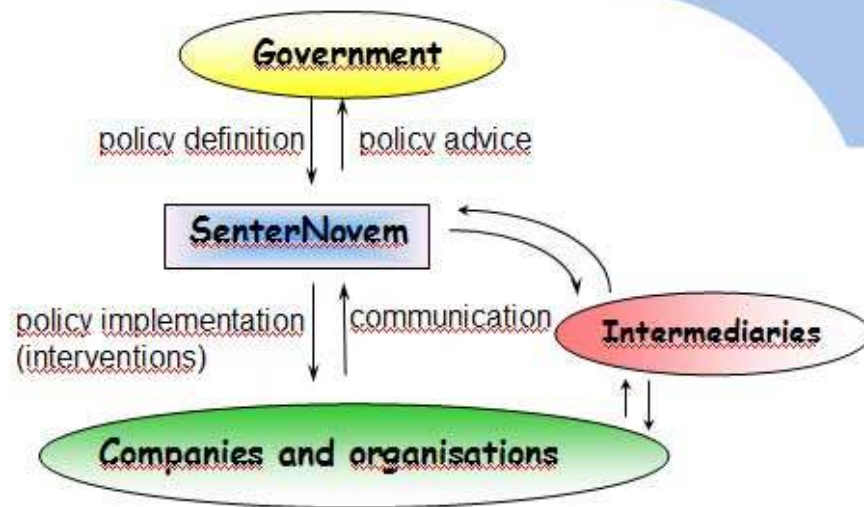
- LTA process started in 1990
- Legal environmental basis for LTA on energy-efficiency
- Targets related to National Environmental Policy Plan
  - 20% improvement of energy-efficiency for period 1990-2000
  - groups of end-users take responsibility
- Voluntary Agreements between government and (industrial) target groups
- LTA is contract under civil law that includes:
  - quantified targets for a fixed period
  - energy-efficiency improvement plan for each company
  - well structured monitoring process
  - intermediary organization (SenterNovem) to facilitate LTA

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## Starting of the LTA process - participants



- Government : Ministry for Economic Affairs
- Industry: Associations representing 32 industrial sectors
- SenterNovem: Netherlands Agency for Innovation and Sustainability

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## Starting of the LTA process - negotiation steps

- SenterNovem approaches individual industry sectors 
- Letter of intent signed 
- Inventory of viable energy-efficiency improvement measures 
- Long-Term Agreement signed 
- Energy-efficiency Improvement Plan to be made for each company
- Annual monitoring 

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## **LTA in progress / LTA programme management**

### **Government commitments throughout LTA-period:**

- Subsidies
- Energy investment tax reduction
- Support and audit of LTA facilities
- Simplified procedure for environmental permits
- Consistency in and protection from new (energy) regulation in industry

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## **LTA in progress / LTA programme management**

### **Industry commitments for medium- / long-term periods:**

- Establishment of targets - doubling of autonomous energy efficiency improvement rate
- Development of Energy-efficiency Improvement Plan outlining actions to be taken to reach target
- Energy management system
- Annual supervision and reporting of monitoring data

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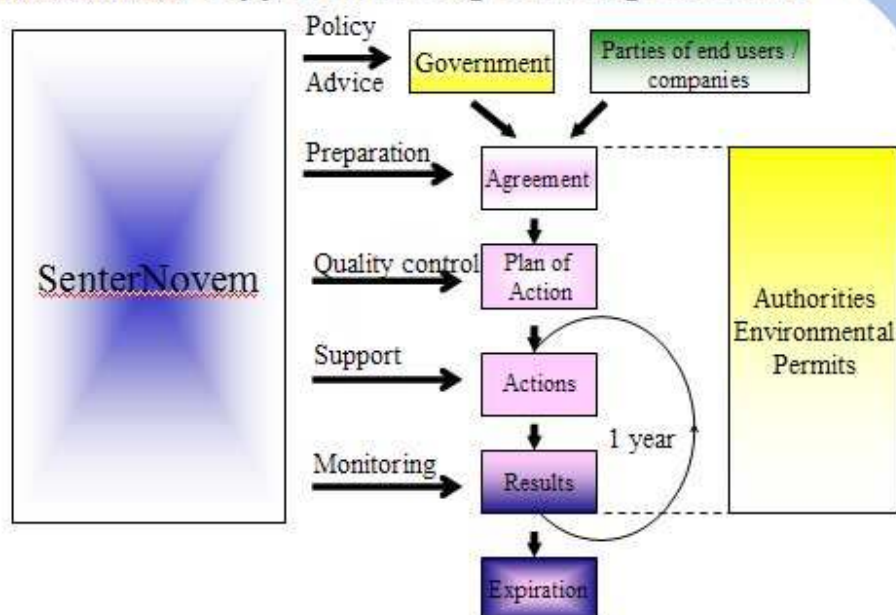
## LTA in progress / LTA programme management

### Enforcement:

- If company fails to provide an Energy-efficiency Improvement Plan and annual monitoring reports  
=> company will be excluded from LTA
- Entire sector Long-Term Agreement can be terminated if sector fails to reach targets
- If LTA is terminated, companies must comply with strict environmental permits

## LTA in progress / LTA programme management

### *SenterNovem Support for Long-Term Agreements*







## LTA in progress / LTA programme management

### Importance of Independent Agency

- To mediate between government and covenant partners
- To define and standardize methods
- To assure good quality of plans and reports
- To “tune” subsidies to the LTA process
- To collect data and assure confidentiality of sensitive data of individual companies - sector aggregation

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## LTA in progress / LTA programme management

### LTA Supervision and Monitoring

- basis: primary energy sources
- reference: physical output
- parameter: EEI (Energy-Efficiency Index)
- individual EEI's can be aggregated

$$\text{EEI} = \frac{\text{energy required for production in distinct year}}{\text{energy, as if this production had been made with the efficiency of the year of reference}}$$

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## LTA in progress / LTA programme management

### Example calculation of EEI

#### Reference year:

Production amount: 200 ton  
Energy consumption: 500 GJ  
SEC<sub>r</sub>: 2,5 GJ/ton  
(reference specific energy consumption)

#### Actual year:

Production amount: 250 ton  
Energy consumption: 600 GJ  
SEC<sub>a</sub>: 2,4 GJ/ton  
(actual specific energy consumption)

#### Energy-Efficiency index EEI:

$$EEI = \frac{600}{2,5 * 250} = \frac{600}{625} = 0,96 = > 96 \% (=SEC_a/SEC_r)$$

(or 4 % improvement)

## Case "Iron and Steel Industry"

Dutch NIJSI-sector comprises two companies:

- Hoogovens Staal -> Corus Staal (IJmuiden)  
annual turnover : 6 million tons of steel
- Nedstaal -> N. Staal and N. Draad (Alblasserdam)  
annual turnover : 0,2 million tons of steel

Products : sheet, rod and wire

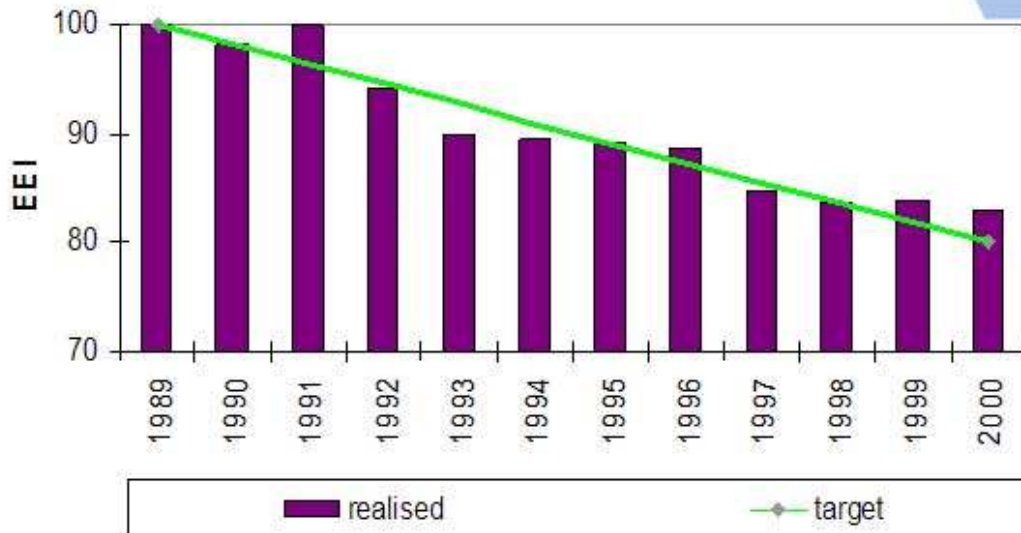
LTA sector target : 20 %

[includes 3 % reservation for new technology in time in period u/i 2000, e.g. integrated cast-rolling unit]



## Case “Iron and Steel Industry”

### LTA EEI-results of Dutch iron and steel industry



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## Case “Iron and Steel Industry”

### Long-Term Plan versus actual project savings (1989-1995)

ENERGY SAVING BY PROJECTS	ANNUAL ENERGY SAVING [%] in the first period 1989 u/i 1995							LTP
	Year 1990	Year 1991	Year 1992	Year 1993	Year 1994	Year 1995	Total 90-95	
Good housekeeping measures	0	2	2	61	42	99	36	10
Energy saving projects	15	98	69	16	11	31	36	50
Strategic investment projects	85	0	29	23	47	-30	28	40
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

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## Case “Iron and Steel Industry”

### Long-Term Plan versus actual project savings (1989-2000)

ENERGY SAVING BY PROJECTS	ANNUAL ENERGY SAVING [%] in the second period 1996 u/i 2000							
	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Period 1996-2000	Total 1990-2000	LTP
Good housekeeping measures	-11	73	-17	-220	-314	21	30	15
Energy saving projects	11	4	109	89	290	49	41	45
Strategic investment projects	100	23	8	31	-76	30	29	40
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>-100</b>	<b>-100</b>	<b>100</b>	<b>100</b>	<b>100</b>

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## Case “Iron and Steel Industry”

### Overall results of Dutch iron and steel industry

Energy consumption 1989 : 61,2 PJ

Energy consumption 2000 : 58,1 PJ

LTA result : 17% energy-efficiency improvement

or 11,4 PJ annual energy saving

(avoided CO<sub>2</sub>-emission in year 2000

in relation to 1989 : 854 kton)

In period 1989-2000 : energy saving of 79,8 PJ

(avoided CO<sub>2</sub>-emission by this LTA is 5,8 Mton)

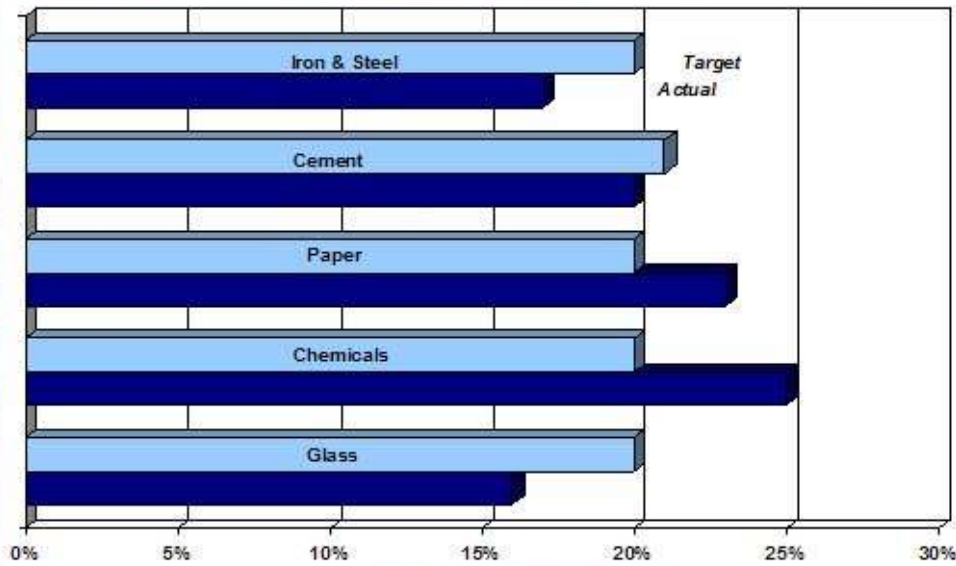
***Cost saving by this LTA covering only two companies exceeds 100 M€ each year!***

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## Dutch LTA 1989-2000 results / individual sector targets

### Energy efficiency improvement 1989-2000 (%)

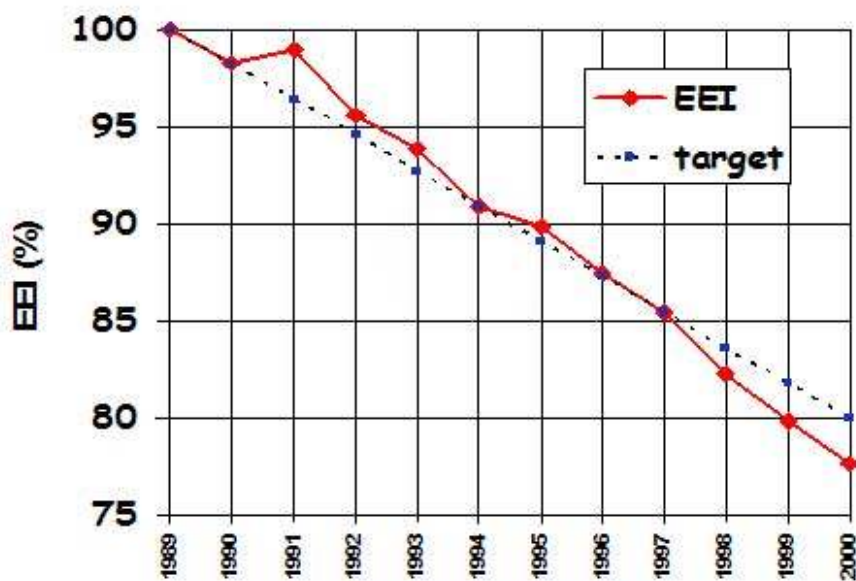


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## Dutch LTA 1989-2000 results / overall results for industry

### Energy-efficiency improvement 1989-2000 exceeds 20%



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## Dutch LTA 1989-2000 results / LTA is a successful approach

### Highlights of Dutch LTA results:

- 32 LTA's with industry sectors
- 10 LTA's with services sectors
- About 1.000 industrial companies participate (from 30.000 in total)
- 90% coverage in industry (on energy basis)
- Target for 2000: 20% improvement of energy-efficiency
- Actually achieved in 2000: 22.3 % (target exceeded)
- Recommendation of Dutch covenant approaches in EC Green Paper on energy-efficiency (2005)

## Conclusions / recommendations for Bulgaria

### CONCLUSIONS:

- Dutch actual LTA results better than anticipated at the start
- Creation of more win-win situations via dialogue and discussion of annual EEI-results in Energy Consultive Groups
- Reduction of production costs by combination of product efficiency improvement and energy saving
- LTA is proven economic approach for target setting and achieving ambitious environmental targets

## Conclusions / recommendations for Bulgaria

### RECOMMENDATIONS:

- ⇒ Create acceptance by involving all relevant stakeholders  
(Effectiveness = Quality \* Acceptance)
- ⇒ Facilitating role of independent intermediate / verification agency
- ⇒ Importance of management commitment for motivation of employees and implementation of measures and projects
- ⇒ Additional benefits of concise handbook on energy monitoring procedures (transparency, uniformity, verifiability)
- ⇒ Obey KISS-principle: Keep It Super Simple

## Discussion / LTA questions related to Bulgarian context

- **Your reasons for considering voluntary approaches:**
  - efficiency (e.g. less need for regulation or enforcement, etc.)
  - effectiveness (e.g. industry can achieve ambitious goals, etc.)
  - adaptiveness (e.g. LTA more flexible than regulation, etc.)
  - cost reduction (e.g. optimal use of resources, etc.)

### Other questions?

*Thank you very much for your attention and interest*