



*2015 EUSEW conference*  
*Best practices in Member States' implementation of*  
*the Energy Efficiency Directive Article 8 (Part 1)*

*Voluntary agreement in Wallonia*  
*(Branch Agreements)*

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- 18 years of professional experience in industries
- Energy Efficiency Expert for the Walloon Government for the Long Term Agreement “accord de branche” Energy and greenhouse gas
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- Trainer ISO 50001 for Vincotte Academy



# Voluntary agreement in Wallonia



1. **Branch agreements in Wallonia**
2. Main steps
3. Results



Wallonie



# Branch agreements in Wallonia

- From 2003, the Walloon energy policy in industry has primarily focused on the signing of **voluntary agreements**, known as **sectoral agreements** between regional authorities and industrial sectors.
- Each the industrial sectors agreed to improve their **energy efficiency** and their efficiency with regards **greenhouse gas emissions** (mainly CO<sub>2</sub>)
- In late 2012 (end of the first agreement)
  - ✓ 172 companies and 205 operating locations
  - ✓ 16 agreements in 13 industrial federations
  - ✓ over 75 % of the energy consumption of Walloon industry



# 13 Industrial Federation in 2012

Federation	Sectors	Number of participating companies at the end of 2012	Number of operating sites at the end of 2012
AGORIA	Metal and electrical manufacture	10	11
AGORIA	Foundries	7	7
AGORIA	Technology industry	17	22
AGORIA	Non-ferrous	6	6
CARMEUSE	Lime	3	3
COBELPA	Paper pulp and packaging	4	5
ESSENSCIA	Chemistry	28	31
FBB - FEDICER	Bricks and ceramics	5	10
FEBELCEM	Cement works	3	6
FEDIEX	Quarries	9	19
FEDUSTRIA	Textile, wood and furnishing	7	7
FETRA - FEBELGRA	Printing and graphic industries	7	7
FEVIA	Food	49	49
FIV	Glass	8	10
GSV	Steel industry (cold)	6	9
LHOIST	Lime	3	3
<b>Totals</b>		<b>172</b>	<b>205</b>



# The Walloon Efficiency Method

- The Energy Potential Scan method has been started in Holland in 1990 (Philips, DHV, Novem, ...)
- Applied and developed for the Belgian government (Wallonia) since 1997.
- A relative reduction commitment energy consumption and CO<sub>2</sub> emissions taking into account :
  - ✓ Product mix and fuel mix
  - ✓ Higher quality, better environment, ...
  - ✓ Climate
  - ✓ Economic conditions



# The Walloon Efficiency Method

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The Energy management method fit with international standards:

- ✓ DIRECTIVE 2012/27/EU (ANNEX VI: Minimum criteria for energy audits including those carried out as part of energy management systems)
- ✓ ISO 50001:2011 – Energy Management System
- ✓ EN16247 Energy audits - Part 3: Processes





# Objectives for Companies

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- Companies agree **on their objectives** and not on achieving improvements that were identified by the audit
- Progress made during the sectoral agreement is followed up by the **annual calculation** of an energy efficiency indicator (AEE) and a greenhouse gas emissions indicator (ACO<sub>2</sub>)





## The regional public authorities agreed

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- Not to impose any regional additional regulatory measures or new taxes regarding energy or greenhouse gas emissions covered by the sectoral agreement.
- Financial benefits: reducing electrical and gas invoices



# Voluntary agreement in Wallonia

1. Branch agreements in Wallonia
2. **Main steps**
  - a) **Branch Agreements**
  - b) Energy Audit
3. Results





# Actors of Branch Agreements

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Energy Team in each company

Auditors approved by the public authorities, guaranteeing their independence with regards energy equipment and suppliers

Steering committee comprised of an equal number of representatives from the public authorities and the sector which review and approve the sectoral agreement and sectoral energy efficiency action plan.

Energy Efficiency Expert responsible for defining the methodological aspects of the agreements' implementation and calculating the performance indicators



# Main steps of Branch Agreements

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1. A **declaration of intent** is signed by all companies in the sector wanting to take part in the agreement
2. **Energy audits** are carried out at each of the industrial sites
  - ✓ Based on the areas for improvement identified by the audits, each of the companies **defines an objective** for improving their energy efficiency and reducing greenhouse gas emissions
3. The professional **federation** consolidates the individual company objectives and **determines the sectoral objectives**
4. The sectoral agreement is drafted and submitted to a **public inquiry**

# Main steps of Branch Agreements

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6. The sectoral agreement is then **signed** by the companies, the professional federation and the regional government. It states
  - ✓ objectives of the sector
  - ✓ duration of the agreement
  - ✓ arrangements for monitoring the agreement
  - ✓ penalties to be applied in the event that the stated objectives are not met.
7. Every company **reports** to its federation **annually** on the progress made. The federation produces a consolidated progress report.



# Voluntary agreement in Wallonia

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2. **Main steps**
  - a) Branch Agreements
  - b) **Energy Audit**
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# Guidelines



Wallonie

Service public de Wallonie  
Direction de la Promotion de l'Energie durable  
Département de l'Energie et du Bâtiment durable

*Pirotech - Mission d'expert technique  
Soutien à la préparation et à la mise en œuvre des accords de branche*

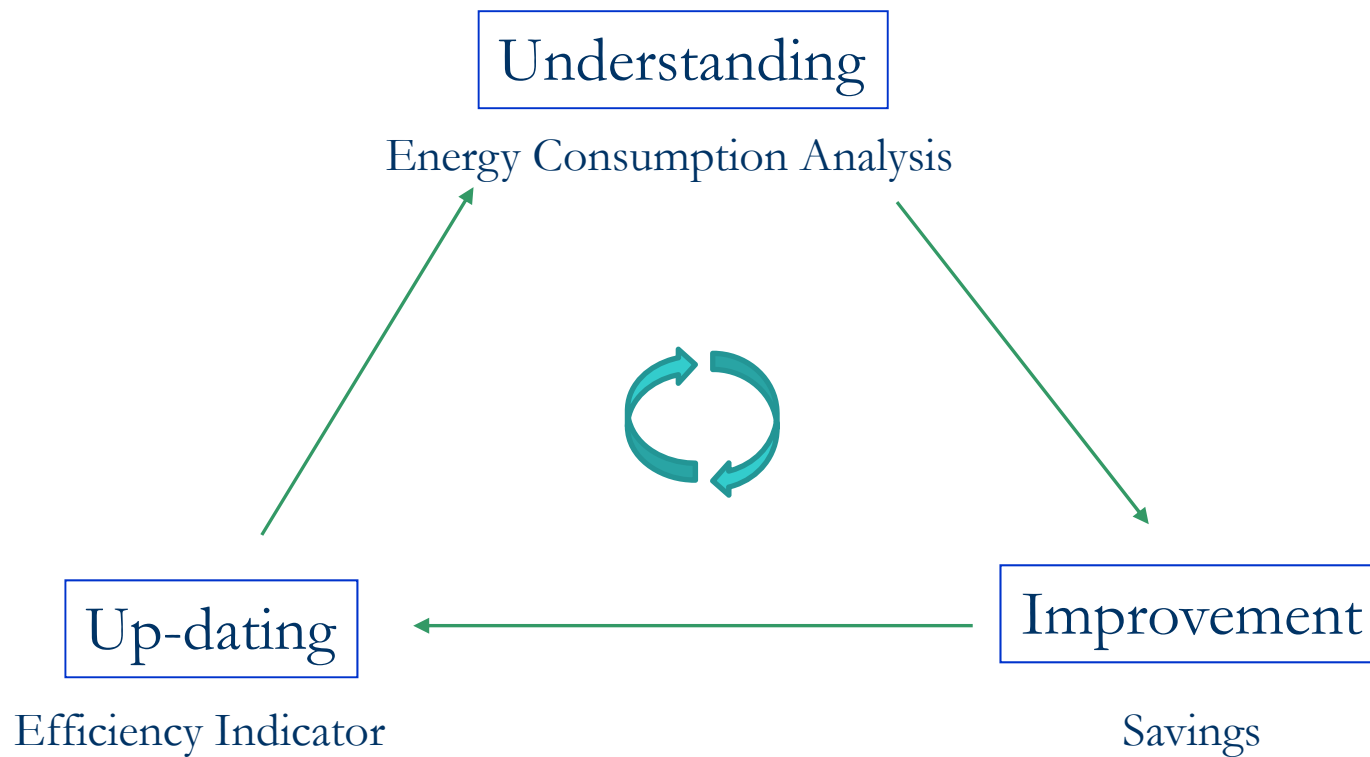
METHODOLOGIE  
DES ACCORDS DE BRANCHE DE DEUXIEME GENERATION  
DE L'INDUSTRIE WALLONNE

Rév1 - Mars 2015

Rév. 0 - Décembre 2012 « ICEDD3j\_ADB2\_NoteMethodo\_VERSION\_FINALE\_dec2012\_20121218\_JMD »  
Rév. 1 - Mars 2015 « Pi\_ADB2\_NoteMethodo\_20150305 »



# Main steps of an energy audit







# Energy Audits

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1. Detailed breakdown of **energy flows** across all the activities of each industrial site
  - ✓ goods production (process)
  - ✓ services (building maintenance)
  - ✓ production or conversion of energy (utilities)
  - ✓ internal transport

# Energy Audits

## 1. Energy Consumption Analysis

<b>CONSUMPTION TABLE (ECA) - REFERENCE 2005</b>	<b>PURCHASED</b>		<b>UTILITIES</b>	
	Electricity (kWh/an)	Natural Gas (kWhs/an)	Steam (T/an)	Chilled Water (kWht/an)
<b>PROCESS</b>				
<b>B1</b>				
Process 1	200.000			
Process 2	250.000			
Cooling Room	100.000			
<b>BUILDING</b>				
<b>ADM</b>				
Lighting + PC	100.000			
HVAC	5.000.000		1.000	2.000.000
<b>R&amp;D</b>				
Cooling Room	50.000			
Lighting + PC	50.000			
HVAC	5.000.000		100	200.000
<b>UTILITIES</b>				
<b>POWER PLAN</b>				
Steam PP	100.000	20.000.000		
Chilled Water PP	1.500.000			
<b>TOTAL SITE</b>	<b>12.350.000</b>	<b>20.000.000</b>	<b>1.100</b>	<b>2.200.000</b>
<b>TOTAL INVOICES</b>	<b>12.350.000</b>	<b>20.000.000</b>		

# Activity Indicators

## Production and building's Values

	VALUE	UNITY
<b>OUTPUT</b>		
<b>B1</b>		
Process 1	40,000,000	doses
Process 2	10,000,000	doses
Cooling Room	100	m <sup>2</sup>
<b>BUIDING</b>	kWhp/	kWhp/
<b>ADM</b>		
Lighting + PC	2,000	m <sup>2</sup>
HVAC	2,000	m <sup>2</sup>
<b>B1</b>		
Lighting + PC	10,000	m <sup>2</sup>
HVAC	2,000	m <sup>2</sup>
<b>R&amp;D</b>		
Cooling Room	50	m <sup>2</sup>
Lighting + PC	1,000	m <sup>2</sup>
HVAC	1,000	m <sup>2</sup>
<b>UTILITIES</b>		



# Energy Audits

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2. Identify a range of **improvement measures**
  - ✓ assessment of the measure's feasibility
  - ✓ assessment of its cost-effectiveness (based on the calculation of a payback period of less than or equal to 5 years)

# Efficiency Indicators

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3. Progress made during the sectoral agreement is measured by the annual calculation of an **energy efficiency indicator** (AEE) which is the ratio between
- ✓ the site's total consumption for the year in question (expressed in primary energy units)
  - ✓ the reference energy consumption  
*energy consumption that would have occurred under the hypothesis that the energy efficiency was that of the reference year*

A **greenhouse gas emissions indicator** (ACO<sub>2</sub>) relating to the reduction of CO<sub>2</sub> emissions is created in the same way

# Efficiency Indicators

*Known by invoices*

**REAL CONSUMPTIONS** <sub>(2014)</sub>

$$\text{AEE}_{(2014/2005)} = 1 - \frac{\text{REAL CONSUMPTIONS}_{(2014)}}{\text{THEORETICAL CONSUMPTIONS}_{(2014/2005)}}$$

*Known by productions  
and the energy audit*

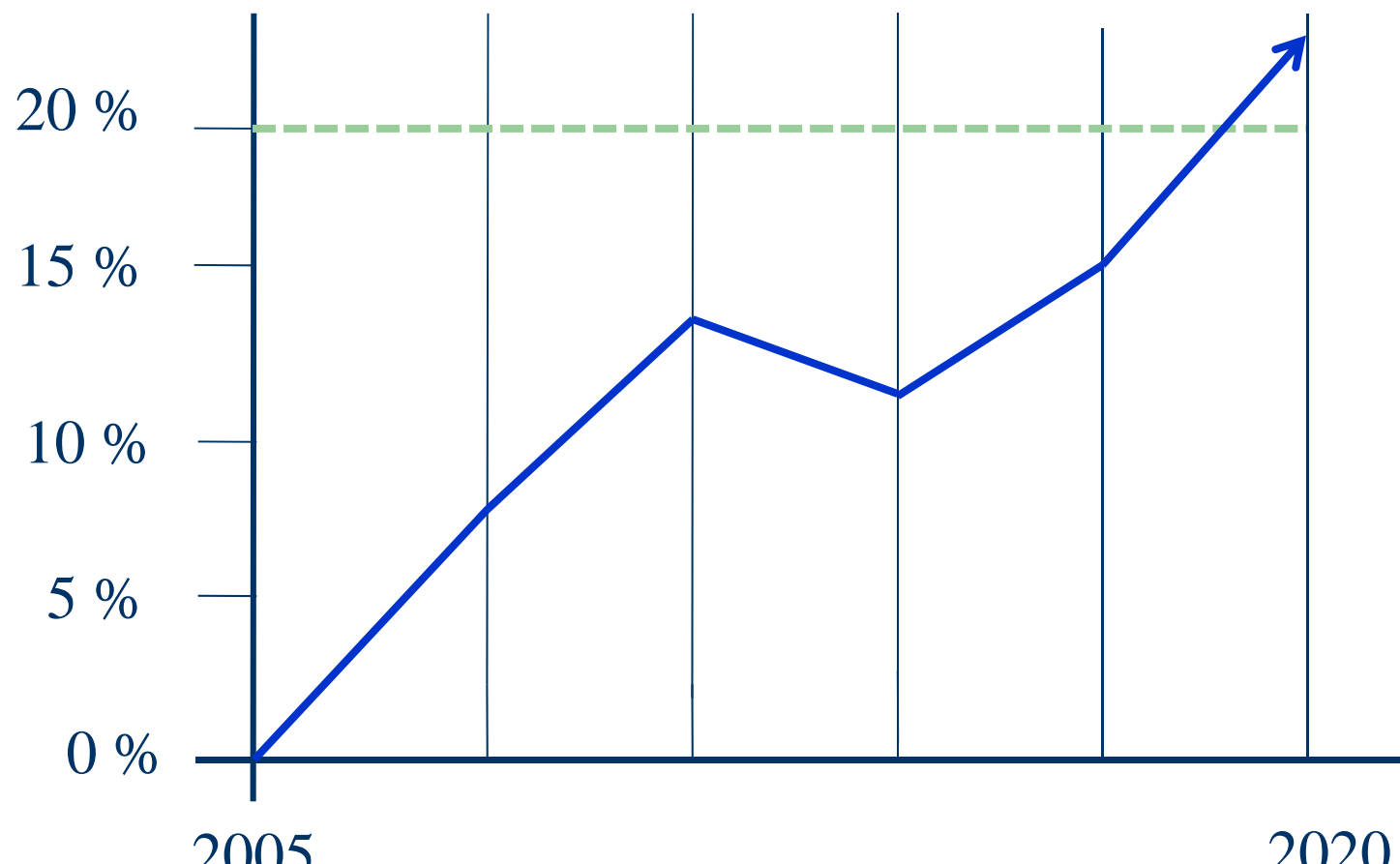


# Inspection and monitoring

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- **Indicators** are **calculated annually** and compared to the objectives
- Every year, each sector submits an **annual progress report** to its steering committee, which must review and approve it.
- **Data** needed to calculate the efficiency indicators are **verified and certified** by an independent statutory auditor.

# Results that exceed expectations







# Inspection and monitoring

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- The sectoral agreement and sectoral energy efficiency action plan are **public documents**
- The text of the agreements provides that the Walloon Government, Parliament, the Walloon Region Economic and Social Council (CESW) and the Walloon Council of the Environment for Sustainable Development (CWEDD) and the general public are regularly informed
- The European Union also receives the annual report

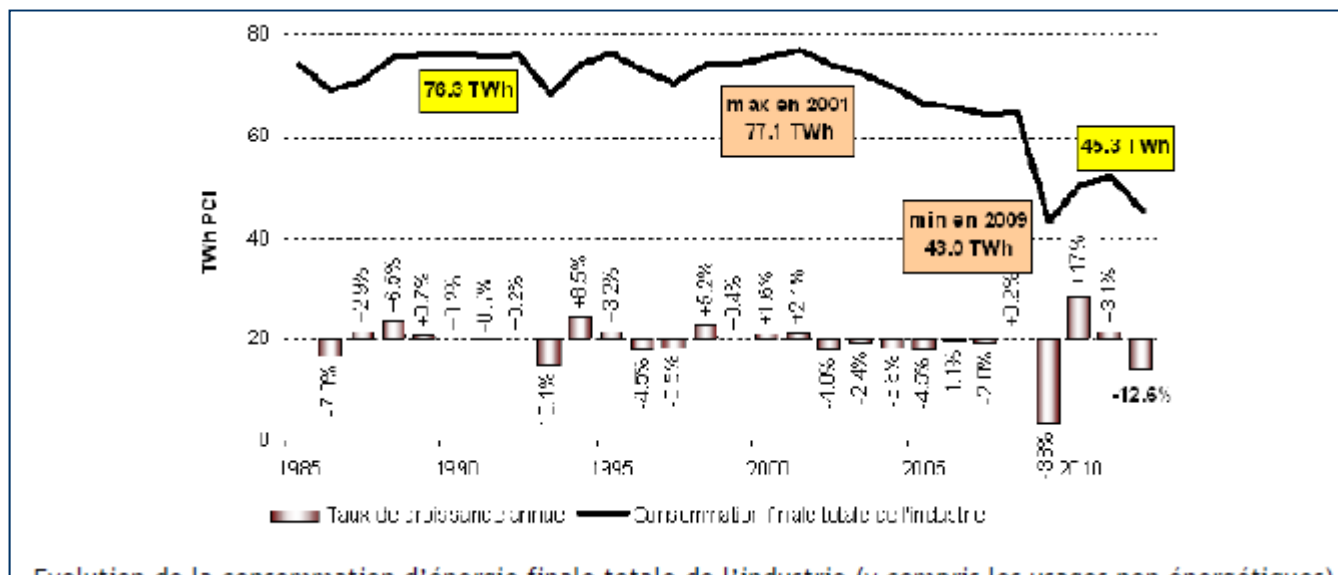
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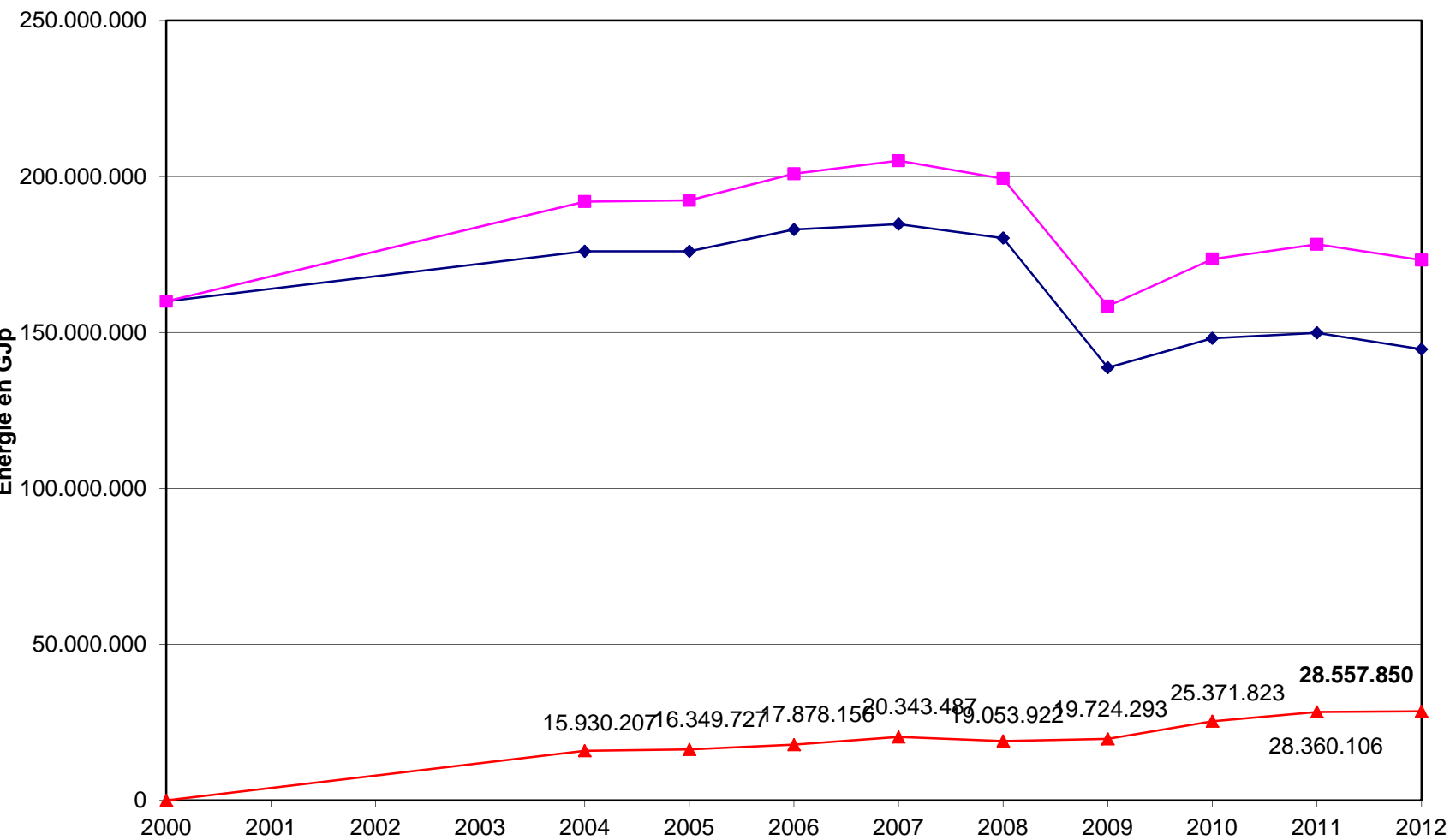


# Energy Industry in Wallonia

- In 2012 (end of the first agreement)
  - ✓ Industry is about 35% of the energy consumption of Wallonia
  - ✓ Branch Agreement is about 75% of the energy consumption of Walloon industry



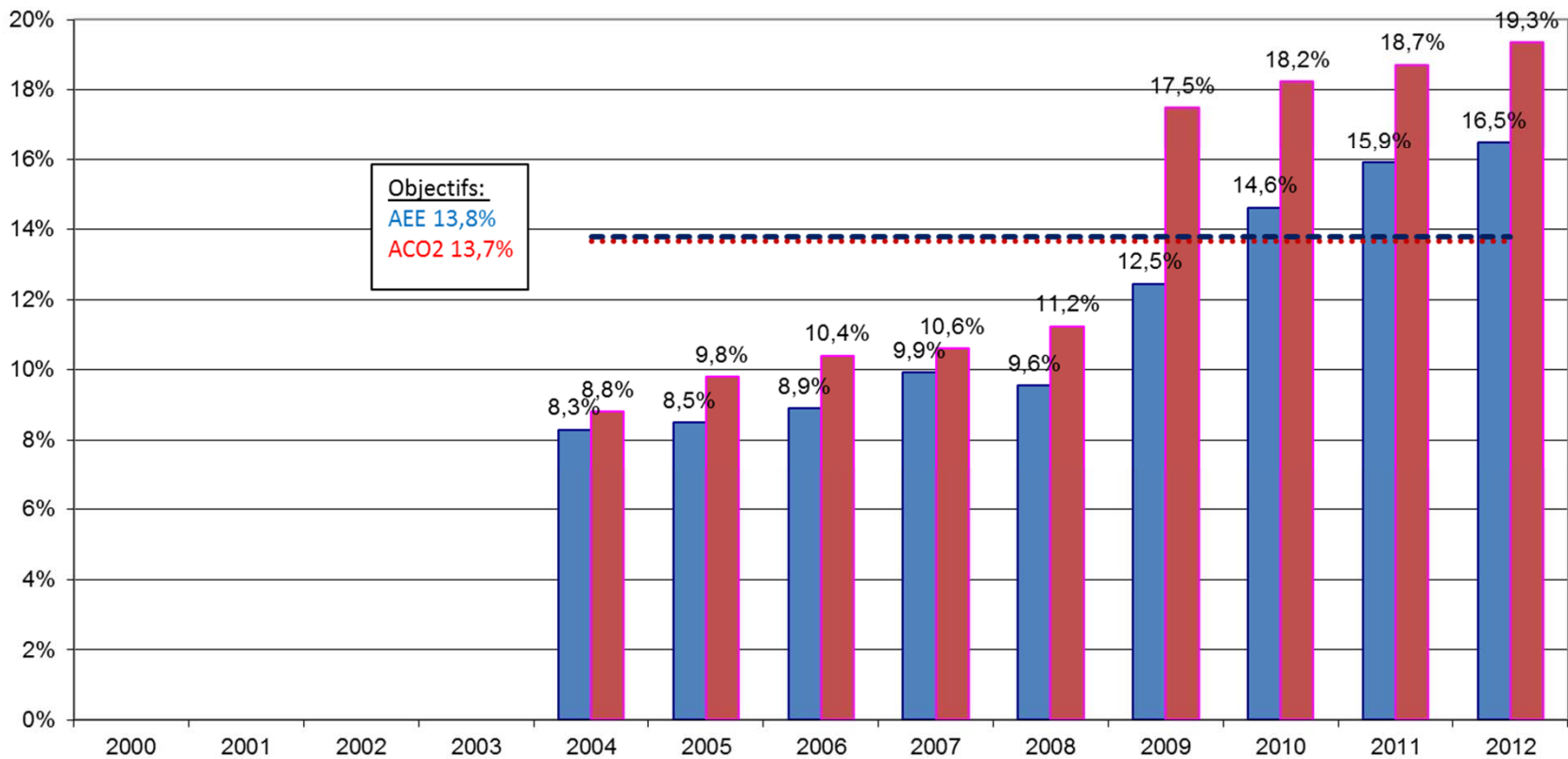
# Results of Walloon Industry



# Results of Walloon Industry



## Walloon energy policy in Industry Energy and CO2 Efficiency



# Results of Walloon Industry

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Energy savings and CO<sub>2</sub> not emitted into the atmosphere each year:

➤ = *7900 GWhp not consumed in 2012*

*253 000 families*

➤ = *2 288 037 Tons of CO<sub>2</sub> not emitted en 2012*

*18 billions km by car = 450 000 around the earth*

➤ = *production of electricity from renewable energy in 2012 in Wallonia*



# Conclusions

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The public authorities are assured of:

- **objectively measured effort** in terms of reducing the energy consumption and CO<sub>2</sub> emissions of industry
- systematic monitoring of progress through the use of **objective indicators**

Second agreements (2005 – 2020)

- 155 companies, 14 industrial federations
- AEE and ACO2
- Extended to renewable energy sources on industrial sites
- Extended to Life Cycle Analysis
- Sectorial Roadmap 2050