

# Meeting the Challenge: “Energy Savings AND Zero Contamination.”



Capital Markets Day 2006

Luc Hendrickx, President Oil Free Air Division

*Atlas Copco*

## Meeting the Challenge:



Global warming

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## The Bad News....



## The Good News...



The  
"ERA OF DENIAL"  
is over

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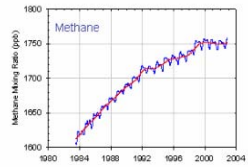
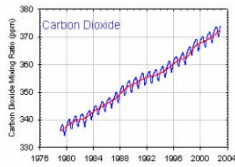
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## Global Trends in Greenhouse Gas Emissions



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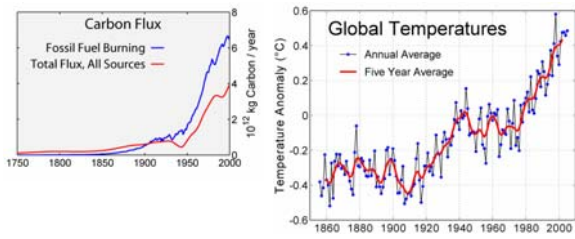
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## Evolution of Fuel Use and Global Temperatures



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## Customer Value of Oil Free Air

- Unsurpassed Reliability
- **Process Integrity**
- **Energy Savings**
- Ease of Installation
- Value Enhancing Aftermarket



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## Unsurpassed Reliability



More than 50.000 machines sold  
Billions of running hours



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## Customer Value of Oil Free Air

- Unsurpassed Reliability
- **Process Integrity**



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## Meeting the Challenge:



Zero Contamination



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For some industries and applications oil-free air is vital



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Contamination-free



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### Customer Value of Oil Free Air

- Unsurpassed Reliability
- Proces Integrity
- **Energy Savings**




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## Meeting the Challenge:



Save energy to save CO<sub>2</sub>

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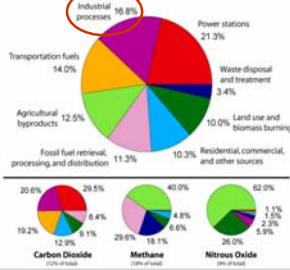
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## The Greenhouse Gas Emitters in EU

Annual Greenhouse Gas Emissions by Sector



- Industry emits 16.8% of all GHGs

- Above 10% or **80TWH** is for compressed air systems

- Official studies indicate an energy saving potential of **33%** over a 15Y period, in existing compressed air systems.

\* 33% savings would yield a 0,55% reduction or **11% of the Kyoto target !**

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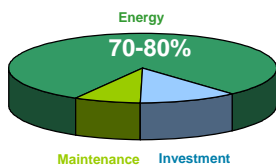
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## Life Cycle Cost



Energy typically accounts for 70- 80% of the compressor life cycle cost

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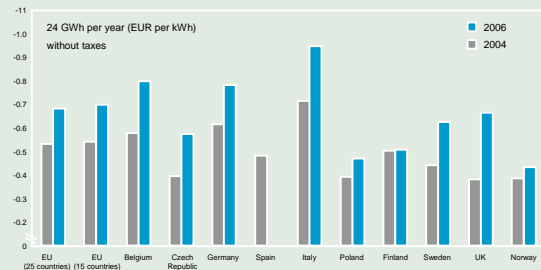
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## Market Electricity Prices

2004 versus 2006



▪ Cutting electricity consumption also makes strong economic sense




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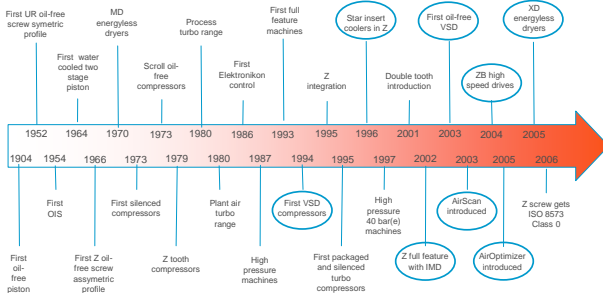
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## Innovation in Compressors



○ Energy saving product




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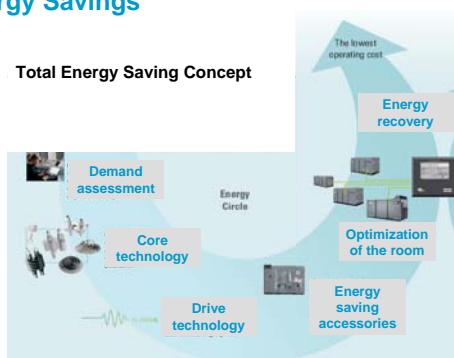
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## Energy Savings

Total Energy Saving Concept




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## Technologies

Several compression and treatment technologies under one roof



Oil-free scroll compressors  
1-15 kW



Oil-free tooth compressors  
15-45 kW



Oil-free screw compressors  
55-900 kW



Oil-injected screw compressors  
5-500 kW



Turbo compressors  
500-3500 kW



Matching air treatment equipment  
Dryers, filters, drains, separators, etc



ES –energy savers  
Optimization, monitoring, control

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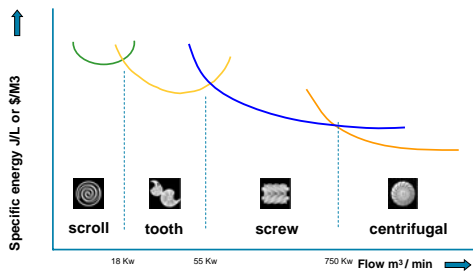
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## Energy Cost per m3 of Air at 7 Bar

Atlas Copco has all the technologies available



An appropriate selection can save a lot of energy

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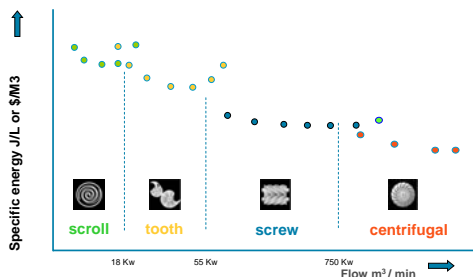
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## Energy Cost per m3 of Air at 7 Bar



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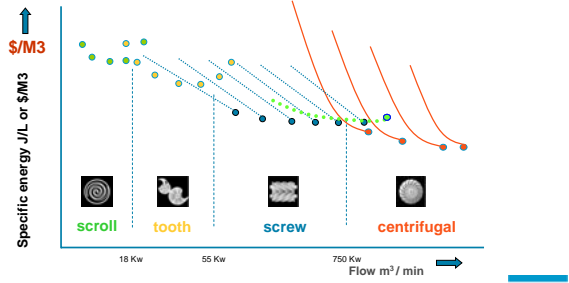
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### Energy Cost per m3 of Air at 7 Bar



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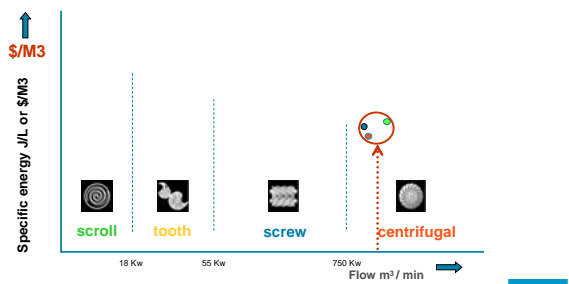
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### Energy Cost per m3 of Air at 7 Bar



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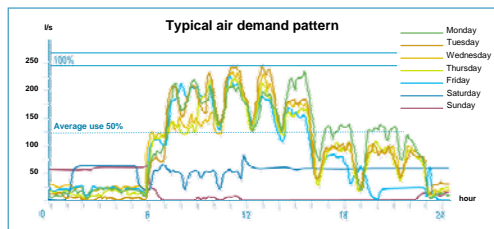
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### Energy Savings



Measurement and simulation tools are available to calculate precise energy savings in a real environment

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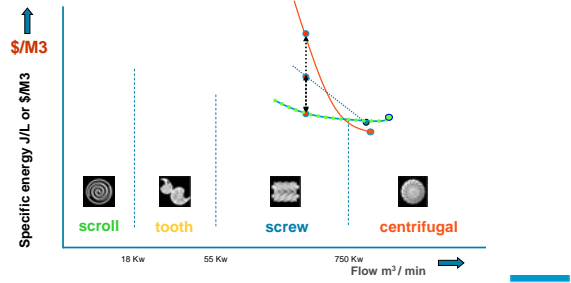
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## Energy Cost per m3 of Air at 7 Bar

VSD technology can save a lot of energy and huge money



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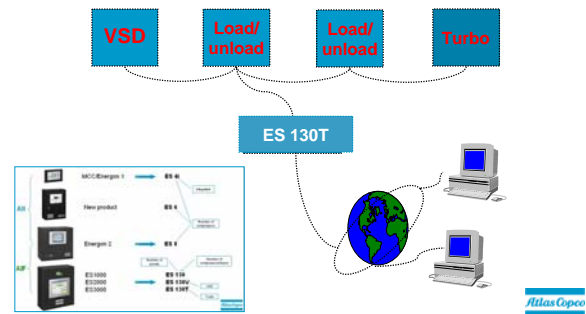
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## Energy Savings

Master Controller



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## Energy Savings

The Magic Formula



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## Energy Savings

### Hybrid Concept



Depending on demand assessment multiple technologies (hybrids) are often applied to give large energy savings and operational flexibility (full and part loads)

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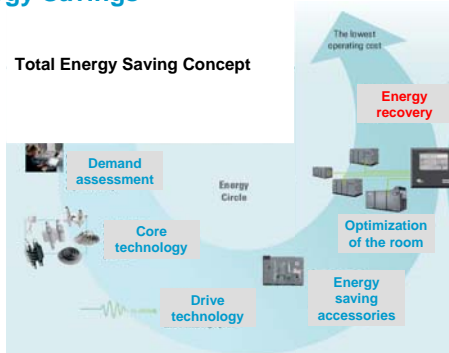
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## Energy Savings

### Total Energy Saving Concept



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## Energy Savings

### Energy Recovery Systems

Recovery of energy for:

- Hot water for process
- Hot water for space heating
- Hot air for space heating

Integrated Energy Recovery System



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### Customer Value of Oil Free Air

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- **Ease of Installation**



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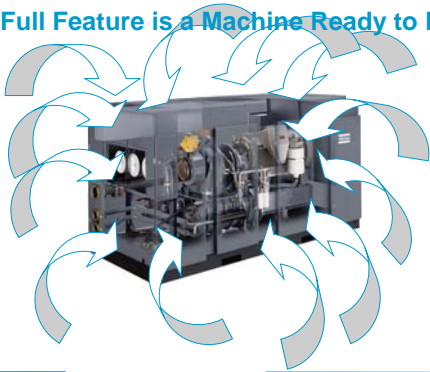
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### Ease of Installation

**A Full Feature is a Machine Ready to Run**



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### Customer Value of Oil Free Air

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- **Value Enhancing Aftermarket**



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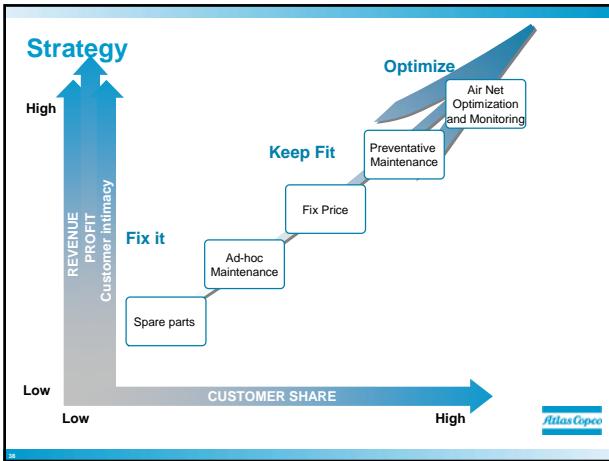
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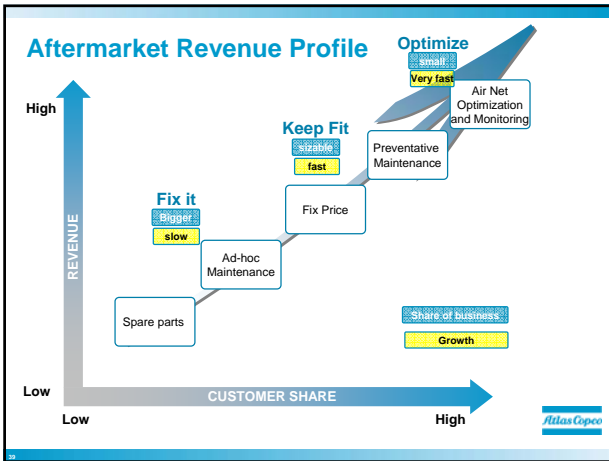
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**We are committed to your  
superior productivity through  
interaction and innovation.**

**Atlas Copco**

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