# Swedish Program for Energy Efficiency in Energy Intensive Industry (PFE)

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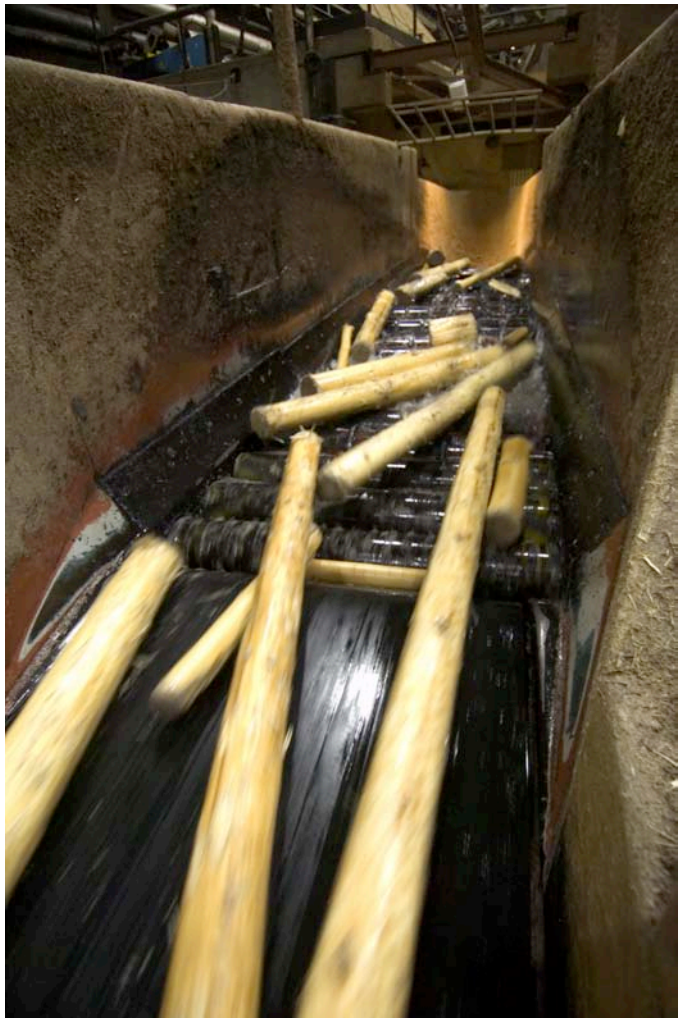
# PFE

- Aim is to increase the energy efficiency in energy intensive manufacturing industry
- Background: Adjustment to EU energy tax directive
- Incentive: Tax reduction 0,5 € / MWh => 0 € / MWh
- Commitments to a series of activities to increase energy efficiency
- Voluntary program

Energimyndigheten



# Which companies can participate?

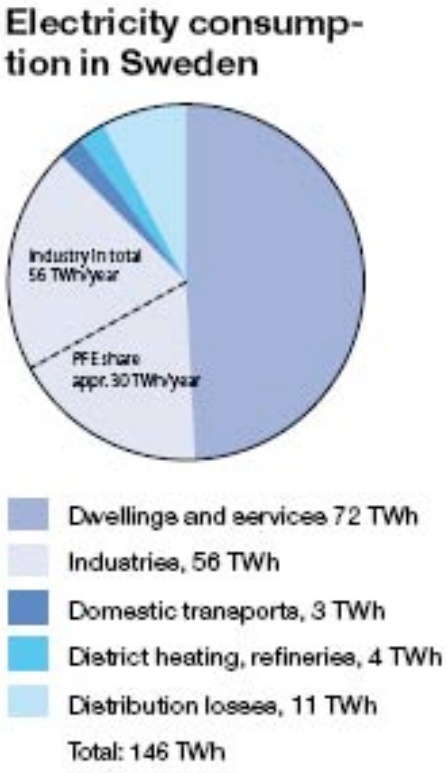
- ✓ Energy intensive manufacturing industry that…
- ✓ Use electricity in the manufacturing process and….
- ✓ Can be expected to fulfill the requirements in the program.

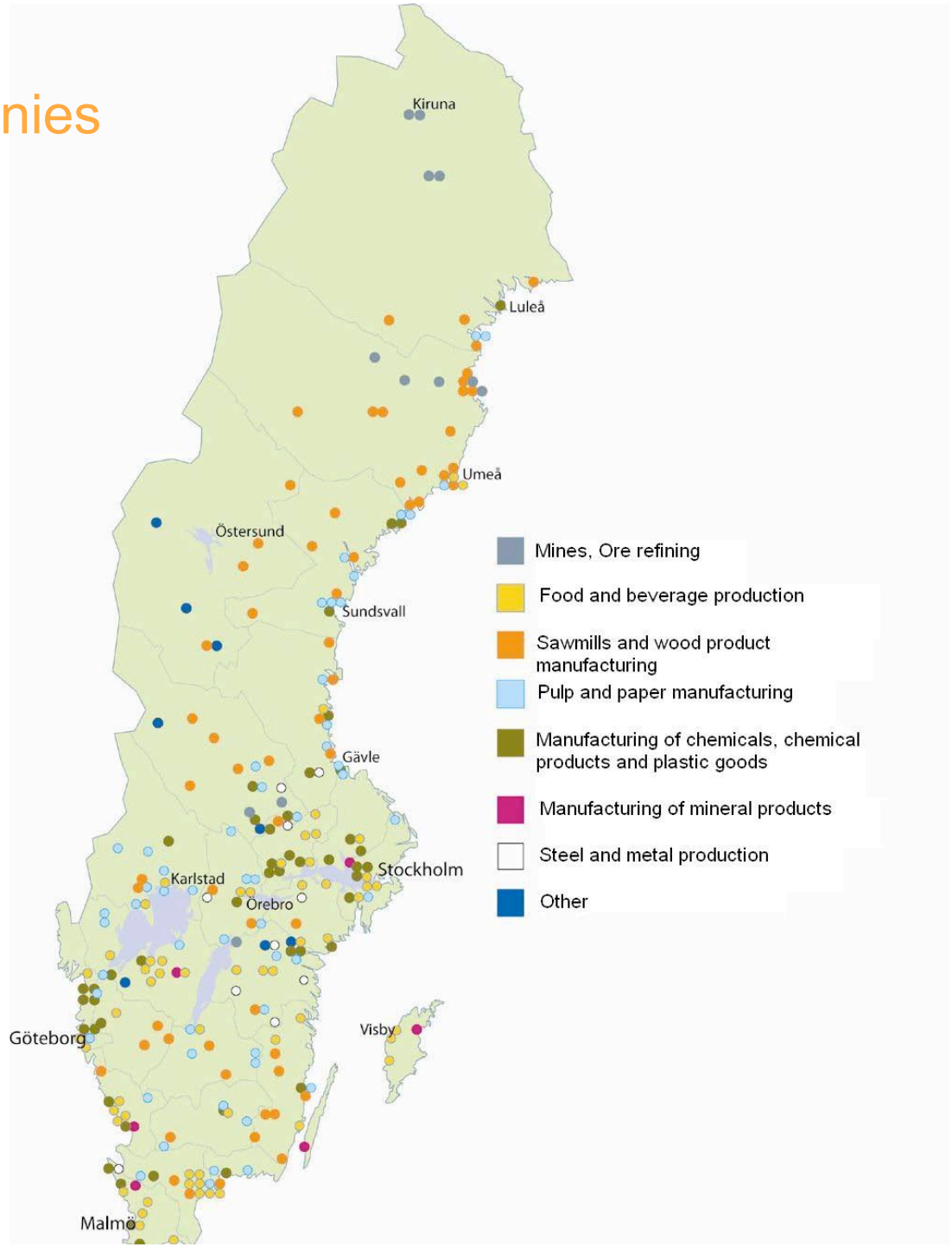
Criteria for being *energy intensive*:

- Sum of energy, CO2 and sulphor taxes ≥ 0,5 % of the added value
- Purchase of energy products and electricity ≥ 3 % of the production value

Energimyndigheten

- 117 participating companies
- 250 plants
- 30 TWh electricity/year




Energimyndigheten

# PFE: A five year program

**Program start**

**2 years**
Report to the
Swedish Energy Agency

**5 years**
Final report to the
Swedish Energy Agency

- Implement and certify EMS
- Energy audit and analysis
- Find measures
- Implement routines for procurement & planning

- Apply EMS
- Realize reported measures
- Apply routines
- Effects of routines

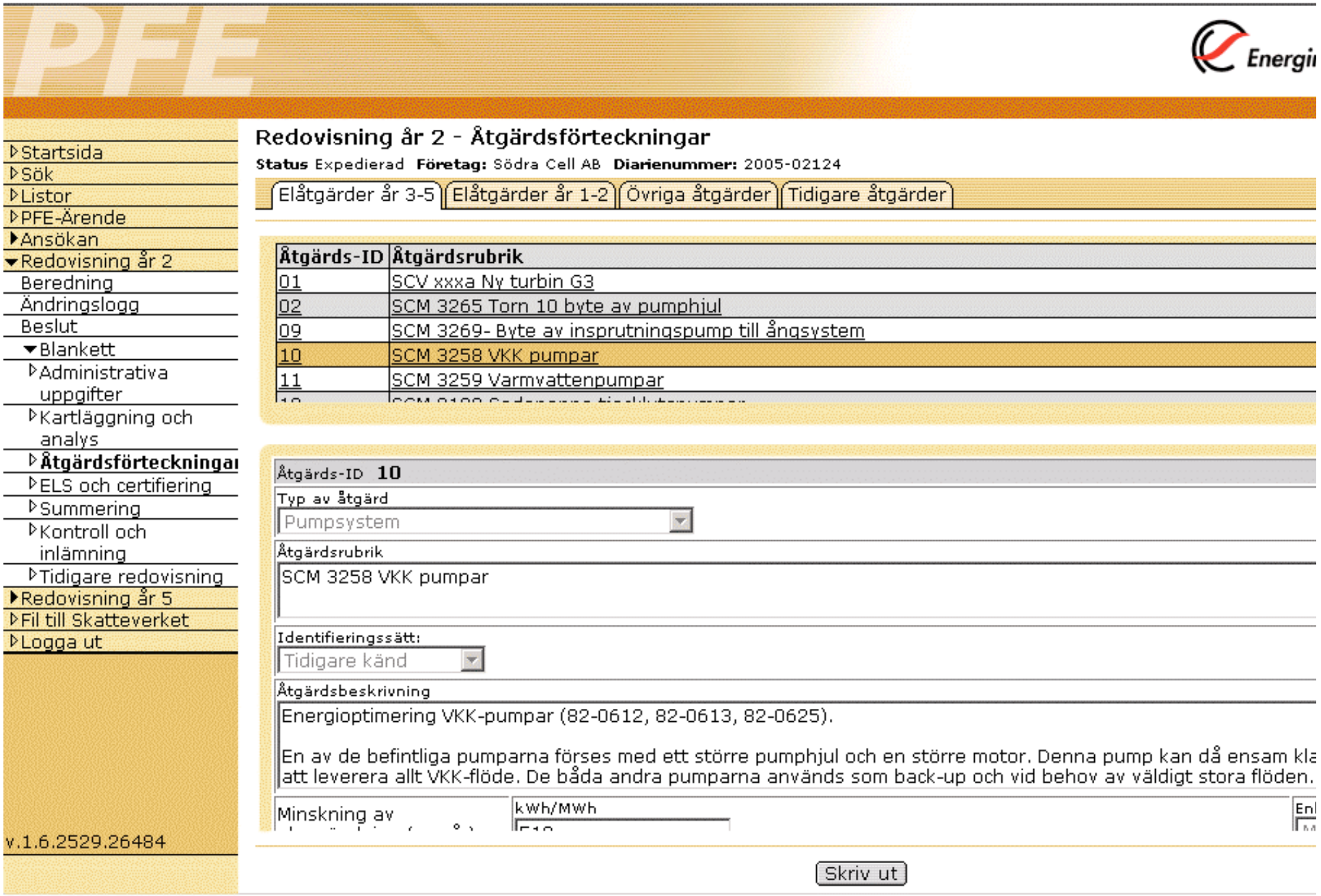
Energimyndigheten

# Routines for purchasing

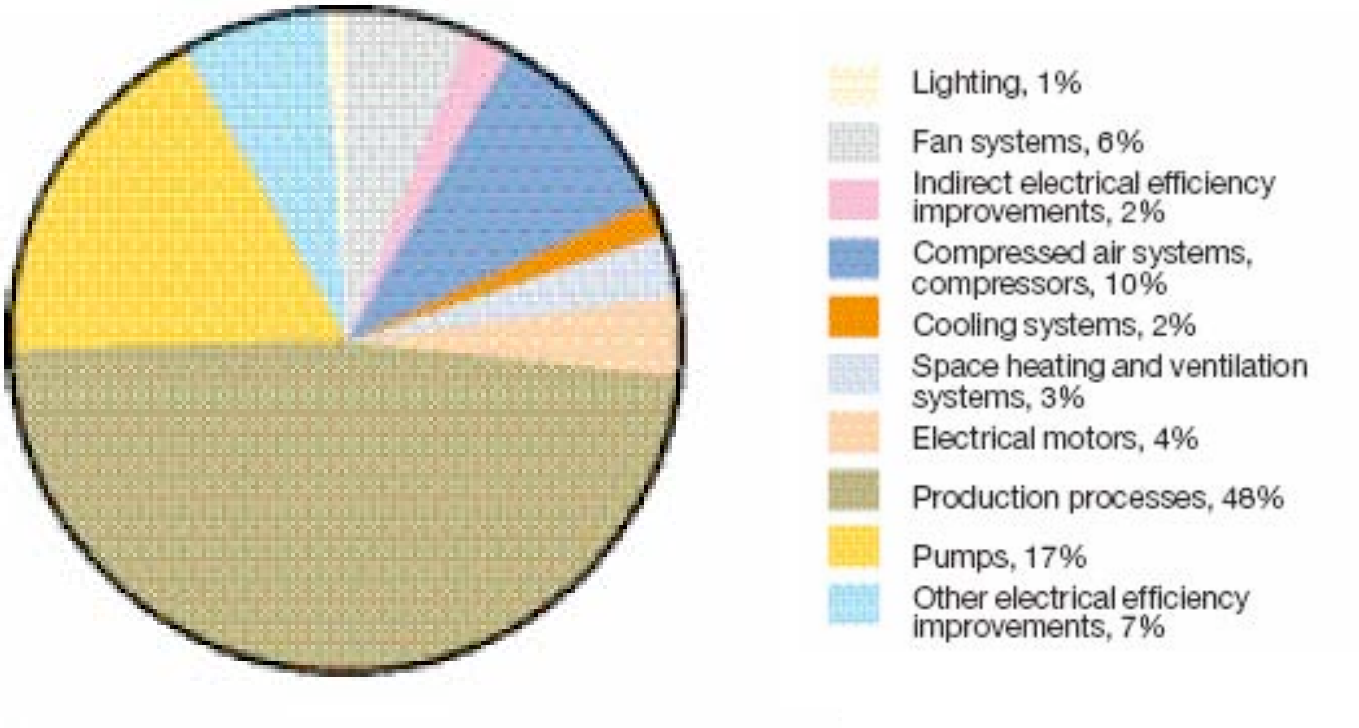
Equipment > 30 MWh electricity/year, the company can choose between:

1. equipment of highest energy class or
2. equipment based on calculation of Life Cycle Cost (LCC)

Energimyndigheten

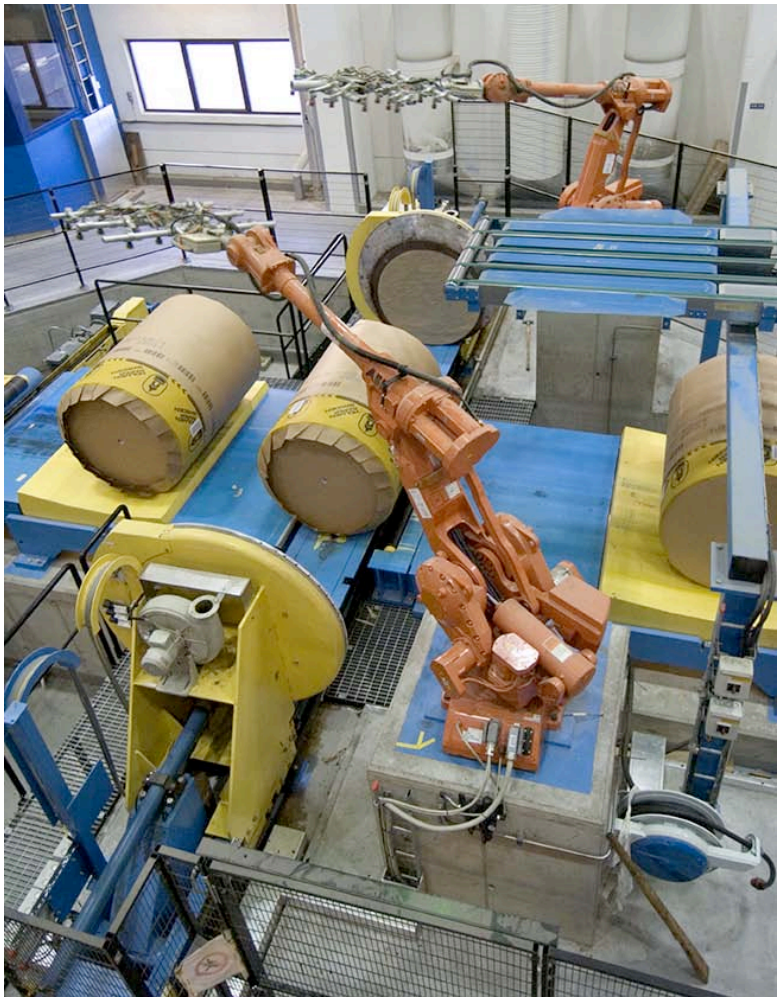

PFE
Energi
Startsida
Sök
Listor
PFE-Ärende
Ansökan
Redovisning år 2
Beredning
Ändringslogg
Beslut
Blankett
Administrativa uppgifter
Kartläggning och analys
Åtgärdsförteckningar
ELS och certifiering
Summering
Kontroll och inlämning
Tidigare redovisning
Redovisning år 5
Fil till Skatteverket
Logga ut
v.1.6.2529.26484
Redovisning år 2 - Åtgärdsförteckningar
Status Expedierad Företag: Södra Cell AB Diarienummer: 2005-02124
Elåtgärder år 3-5
Elåtgärder år 1-2
Övriga åtgärder
Tidigare åtgärder
Åtgärds-ID
Åtgärdsrubrik
01 SCV xxxa Ny turbin G3
02 SCM 3265 Torn 10 byte av pumphjul
09 SCM 3269- Byte av insprutningspump till ångsystem
10 SCM 3258 VKK pumpar
11 SCM 3259 Varmvattenpumpar
Åtgärds-ID 10
Typ av åtgärd
Pumpsystem
Åtgärdsrubrik
SCM 3258 VKK pumpar
Identifieringssätt:
Tidigare känd
Åtgärdsbeskrivning
Energioptimering VKK-pumpar (82-0612, 82-0613, 82-0625).
En av de befintliga pumparna förses med ett större pumphjul och en större motor. Denna pump kan då ensam kla
att leverera allt VKK-flöde. De båda andra pumparna används som back-up och vid behov av väldigt stora flöden.
Minskning av
kWh/MWh
Skriv ut
Energimyndigheten

# What kind of measures?



# Measures

- **Processes**
  - ✓ Demand control
  - ✓ Optimization
- **Motors, pumps, fans**
  - ✓ Inverters
  - ✓ Energy efficient equipment
- **Compressors, vacuum systems**
  - ✓ Leak seeking and sealing
  - ✓ Waste Heat Recovery
- **Ventilation**
  - ✓ waste heat recovery
  - ✓ demand control
- **Lighting**
  - ✓ energy efficient appliances
  - ✓ demand control



Energimyndigheten

# Results so far…

- 900 measures
- 1 TWh/year

Corresponds to:
- Total use of electricity for 40 000 Swedish houses
- Total Swedish wind power production (900 GWh)

- Investments 106 million euro
- Savings 53 million euro
- Average pay off 2 years
- Tax reduction 16 million euro


Energimyndigheten

# 1 TWh by 900 measures – wouldn't the companies have carried out these measures anyway?

- 50 % of the measures have been found through "PFE energy audits"
- 35 % of the measures were known before PFE but had not been carried out
- 15 % of the measures have been identified otherwise

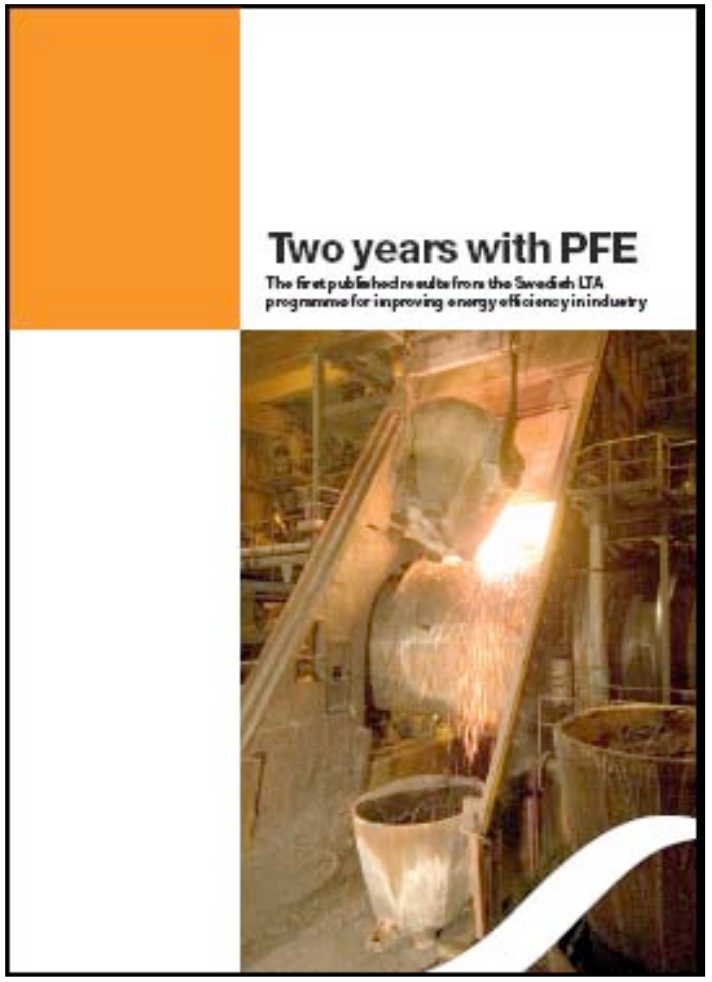
General problem within the industry, energy efficiency is not prioritized. It is usually set aside for other issues such as production, quality, personnel- and financial resources, working environment etc.

# Experiences/results…

- Energy audits have identified many, earlier unknown, profitable measures,
- Equipment suppliers testify of an increased demand for energy efficient equipment from their costumers and an increased focus on LCC,
- All companies participating in PFE have implemented and certified an EMS but only one company not participating in PFE,
- EMS have involved all employees and created a structure for the energy work. Several companies have educated all employees in energy issues,
- PFE specifies demands and has clear deadlines. Important to ensure that energy efficiency is not put aside for other strategic or more acute issues,
- The companies have been positive to the structures of the program, and to having deadlines,
- Many companies have employed energy coordinators or PFE coordinators,
- Investment budgets have been set apart for energy efficiency measures,
- PFE have brought energy issues to a management level,
- New networks created, regional and per trade,
- PFE requires administration at the companies,
- Incentives and commitments have to be “in balance”.

# Thank you for your attention!

Camilla Ottosson




Energimyndigheten