

Policy instruments and industrial responses - experiences from Sweden

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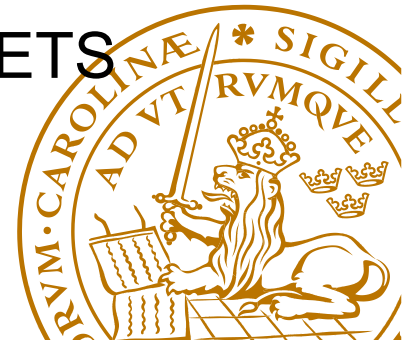
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Background

- Industry accounts for 1/3 of Swedish energy use
- Only 1/3 is fossil fuels
- Rapidly increasing energy prices 2000-2006: (Oil +70%, Electricity +100%)
- Explanation for high electricity prices:
 - High coal prices, electricity market reform, EU ETS



Existing policy instruments for Swedish industry

- Economic instruments
 - Carbon and energy tax
 - EU ETS
 - Investment grants
 - Electricity certificates
- Environmental legislation
- Voluntary agreements



The impact of policy instruments

- The regulative and economic part
 - What is required of the company? How will the instrument change the economy of certain measures?
- The informative part
 - In what way will the company be better aware of its possibilities to reduce energy use?



Economic policy instruments

- Carbon tax (21 Euros/tonne)
- Electricity tax (0.55 Euros/MWh)
- EU ETS
- Local investment subsidies
- Green certificate system – supports among others industrial CHP



Experiences

- The effect of taxation on EE difficult to evaluate
- Results from a recent survey indicate that companies have implemented measures in response to the EU ETS
- The green certificate system has led to a 0.5 TWh/y higher industrial CHP (+10%)



Approximation of the cost effect on industry's economy

- Annual company cost of economic policy instruments: **745-1060 million Euros**
 - Most important is the indirect effect on electricity prices of the EU ETS
- Annual company incomes from economic policy instruments: **140-170 million Euros**
 - Surplus emission allowances and green certificates
- Non policy cost increases 2000-2006: **1350-1430 million Euros**



Environmental regulation and energy efficiency

- Environmental code
- Energy efficiency mentioned as a key aspect
- Best available technology should be used unless it is not unreasonable



Two processes

- Permitting procedure – certain measures (such as energy efficiency) could be required
- Supervision - the supervising authority should ensure compliance with the objectives of the code (which include energy conservation)



Current experience

- The possibility to require energy efficiency measures in environmental permits has recently been tested
- Much of the discussion regards how to decide which measures are "not unreasonable"
- Several regional authorities have started projects to work with energy efficiency improvements within the supervision procedure



The potential impact of environmental regulation

- Energy efficiency measures can be required that have longer pay back times than is normally used
- The supervision procedure can lead to higher awareness of energy efficiency within industry
- Slow process –the regulator depends on information from the regulated company
- Compared to economic instruments environmental regulation could have less negative economic impact on companies



Voluntary agreements for energy intensive companies (PFE)

- Introduced in 2005 in response to minimum taxes on electricity within EU
- The system only targets electricity use
- Voluntary agreements leading to tax exemption – but requires from the company that:
 - It introduces an Energy Management Systems
 - It takes action to reduce electricity consumption
 - Measures corresponding to what would have been expected without tax exemption should be carried out



Early experiences

- Companies using 85% of the electricity in the group targeted with the PFE are active
- Tax exemption **and** increases in electricity prices have triggered participation
- 1 TWh/yr or 3-4% could be saved during the 5 year period



What could increase the importance of the VA?

- Expansion to fuel use and more companies
- Requirements for measures that goes further beyond BAU
- The latter would probably require higher taxation levels to increase incentives for participation



Conclusions I

- High energy prices and new policy instruments have revived an interest in energy efficiency within Swedish industry
- Getting the prices right is essential for efficient environmental policy.
- The implementation of stronger economic instruments are hampered by international competition
- Therefore there might be a need for other “second-best” instruments



Conclusions II

- Both VA and the environmental legislation are rather complicated instruments but could reduce the need for taxation
- Energy audits required both in VAs and environmental legislation can have measurable effect on energy efficiency
- The potential effect depends on the details
- Today the requirements are higher according to the environmental code.
- Higher requirements within the VA system will probably require higher avoidable taxes



**Principal illustration of the cost for a company of a tax (A+B) or regulation (B)
when these instruments give the same incentive for emission reduction**

