NON-PEER-REVIEWED PAPER

The Swedish Environmental Code – one legislation, several ways of enforcement

Martina Berg
Energimyndigheten
Box 310, Kungsgatan 43
SE-631 04 Eskilstuna
Sweden
martina.berg@energimyndigheten.se

Keywords

legislation, environmental policies, enforcement

Abstract

The Swedish Environmental Code is a holistic environmental legislation based on the implications of sustainable development. Energy efficiency and use of renewable energy is pointed out as one of the general rules of consideration, which gives it a central role in the legislation but this has not been fully discovered yet.

In Sweden several tools are used in order to alter energy use in industry. Among the tools you find, apart from taxes, also programmes, information and networking. Legislation should be the foundation, where basic demands are made. Other tools, like information and networking should be used for making businesses reach even further than the basic demands. The exact level of energy performance is not determined in legislation. The Environmental Code is meant to be flexible like that. This is both the strength and the weakness of the legislation.

The Environmental Code can be enforced in different ways. One way is to emphasise the knowledge and self-auditing requirements. This can mean that a business should map energy performance and then implement reasonable measures under supervision of environmental authorities. The other way is for the authorities to look directly at requirements to use best possible technique and then demand measures in order to improve energy performance in a business. In reality a combination of the two methods is often required.

Several different authorities in different regions in Sweden have done work in the area of energy efficiency in inspection. They have done it in different ways. Some have emphasised the information tool in the environmental legislation and have used advisors and other actors in the energy field to promote energy efficiency, more than controlling it. Others have used a more traditional inspection method in order to implement energy requirements.

The different ways of using the Swedish Environmental Code, interpreting the legislation and enforcing it will be further explored in this paper.

Introduction

The Swedish Environmental Code is a holistic environmental legislation based on the implications of sustainable development. Energy efficiency and use of renewable energy is pointed out as one of the general rules of consideration, which gives it a central role in the legislation. The Environmental Code takes its stand in sustainability, which is stated in the portal paragraph for the Code, by which all other paragraphs should be interpreted. Apart from the portal paragraph there are a few pillars of the Code, a number of general rules of consideration that express, for example, the precautionary principle, use of best possible technique, the polluter pays principle, the product choice principle and principles regarding resource management and recycling. In resource management lays also managing energy resources and there is also stated that renewable energy should be used in first hand. That energy issues are stated so clear in the general rules of consideration only points out the importance they are given in the environmental legislation [1].

In Sweden several tools are used in order to alter energy use in industry. Among the tools you find, apart from taxes, also programmes, information and networking. Legislation should

be the foundation, where basic demands are made. Other tools, like information and networking should be used for making businesses reach even further than the basic demands. The exact level of energy performance is not determined in legislation. The Environmental Code is meant to be flexible like that. This is both the strength and the weakness of the legislation.

HISTORY – THE DEVELOPMENT OF THE ENVIRONMENTAL CODE

The Swedish Environmental Code is an inclusive and over-all-reaching legislation that was instituted in 1998. At that time several different laws, among these, legislation about chemicals, water management and the use of natural resources etc. were combined in a common code. In total, 16 different legislations were merged into one code. The holistic take of the Environmental Code makes it a modern and flexible environmental legislation.

When the Environmental Code was stipulated it represented a new take on environmental thinking, at least in a legislative perspective. The legislation took an over-all perspective on environmental consideration. This was mostly seen in permitting processes where the permit was taking consideration of the specific conditions at the site of the plant and the specific environmental aspects at that certain place. This method, to make individual judgments in every specific case, means both great environmental advantages but can also be seen as great uncertainties for those seeking environmental permits.

Self-auditing is a vital component of the Environmental Code. This is supported by the principle about the business having the burden of proof when it comes to how they comply with the legislation. The authorities are then supposed to control the self-audit system of a business, activity or measure.

ENERGY ISSUES AND THE ENVIRONMENTAL CODE

That energy efficiency and use of renewable energy is emphasised in the general rules of consideration makes them important issues that should be addressed in permitting and inspections. How this is done, however, is not further stated. This means that supervisory and permitting authorities have considerable possibilities to regulate these issues but there is no detailed legislation about exactly what this means. Guidance can be taken from precedents where the environmental courts have judged the extent to which demands on energy efficiency can be made. These demands can look different in different cases also regarding different businesses. In cases permitting energy intensive industries demands have regulated the process either by setting a fixed allowable amount of energy to be used per production unit or regulating the type of technology to be used in the process where the most energy efficient technology should be used as long as it is reasonable.

However, what seem to be reasonable demands when permitting a new business is not the same as the demands to make when doing inspections and control at a running business. Here the demands cannot be the same, even though they might be just as needed, especially when inspecting a business that does not require a permit or when the permit is old.

The national target of 20 % more efficient energy use by 2020 compared to 2008, is said to be achieved by the policy instruments currently available. Even in the enforcement of the Environmental Code this goal can thus be indicative. The target can be a starting point for the requirement for operators to manage energy. However, this is a goal that must be broken down and adapted to the target group if it is to be more practically used. In reality, a requirement for such a target means that ratios for different industries and processes must be developed. Regarding energy issues, inspection and control is targeting two aspects of the Environmental Code when looking at a business. First, that self-audit for energy performance is sufficient and appropriate for its purpose, but also that energy efficiency measures are sufficient. It is also important that inspection and control is designed in different ways for different operators so that the requirements are not unreasonable or becomes an excessive burden.

PROMOTING ENERGY EFFICIENCY IN INDUSTRY

In Sweden there are several tools in order to alter the energy use in industry. Among these tools you find, apart from taxes, also programmes, information and networking projects as well as financial help in determining the energy performance and possible activities in order to lower use of energy. However, these different tools do not manage to impose the will to work with energy efficiency to the extent needed. There is urgency in finding ways and tools in order to achieve the energy efficiency needed to be achieved.

Legislation should be the foundation, where basic and compulsory demands are made. Other tools, like information and networking should be used for making businesses reach even further than the basic demands. The exact level of energy performance is not determined in legislation. This is both the strength and the weakness of the legislation. The Code, as it is legally defined, is a strong tool that can impose far-reaching demands. However, the full potential is not used today and it is still being explored. This means that basic and compulsory demands can be tougher if the legislation is enforced in a certain way.

Enforcement of the Environmental Code

There is a wide range of businesses and activities that falls under inspection and control according to the Environmental Code. The responsibility for supervising the legislation is, in most cases, placed on local authorities on regional and local level (regional governments and municipalities). Each authority at the local level is autonomous and enforces the legislation with its own personnel and makes decisions and demands according to the legislation. The decisions can then be appealed in higher court.

Since the Environmental Code includes a wide range of issues there are several central/national agencies involved in both inspection but mainly guiding local authorities in inspection and enforcement. In this case it means that The Swedish Energy Agency is responsible for guiding local authorities when it comes to enforcing demands on energy efficiency and using renewable energy.

Self-auditing is a vital component of the Environmental Code. This is supported by the rule that the business has the burden of proof of whether they comply with the legislation. The authorities are then supposed to inspect the self-audit system of a business, activity or measure.

The extent of self-audit system and documentation is based on the environmental and health impacts of the business and

that also includes energy aspects. A large business should have a more extensive self-audit. If the business is subject to permitting or reporting requirements the self-audit should be documented.

Businesses that fall under permit requirements also annually submit an environmental report to the regulatory authority. The legislation on what to include in an environmental report stipulates that significant measures taken during the year to reduce its consumption of raw materials and energy should be presented and described. This is also a way of forcing the businesses to work with energy efficiency.

PERMITTING BY THE CODE

It is in the permitting process that there are opportunities to really affect the energy performance in an industry or other businesses.

The issue of making demands on operators regarding energy conservation is something that regulators started working actively with only after the introduction of the Environmental Code. Primarily, the concern raised previously, in connection with permit applications and amendments to conditions and not in inspection and control. Therefore, there are few court cases concerning regulatory requirements for energy management in inspection and control or self-audit. By a judgment of the Environmental Court, it is clear that the environmental authority of a municipality has the right to conduct inspection of operators' energy consumption, and that this oversight involves checking that energy efficiency demands are fulfilled. Apart from that, there are only court cases regarding the conditions for energy efficiency in the context of permitting under the Environmental Code.

Of particular interest in this context is a judgment of 2009 on the Scania industry, where the company was required to annually submit an energy efficiency plan. The judgment applies to a business with great energy use, although it is not classified as energy intensive industry according to the Energy Agency's classification (more information see information on PFE at www.energimyndigheten.se). The Environmental Court in this case agreed that the company's effort to conserve energy should be aiming forward, and was best conducted by continuously and gradually improving energy performance through several steps, each of which is less extensive. The Environmental Court authorized the controlling authority to impose conditions on energy, through the energy efficiency plan, and concluded that the conditions may be more extensive than what is profitable from a business financial perspective.

Before the Scania case there were three guiding judgments where the permitting authority chose a different starting point for the examination of terms for energy efficiency. The cases related to three major process industries (the mining industry LKAB, the paper producers Swedish Tissue and Mondi Dynäs) all of which were classified as energy intensive industries according to the Energy Agency's classification, and participated in PFE. Common to all of the businesses were that certain parts of the production process was of great importance for energy performance, and therefore there was a high potential for efficiency improvements in individual process components. In these cases the issues where about the construction or reconstruction of major production process equipment with major investments for a longer period of time, or other significant measures in business processes. In the case of Swedish Tissue the court chose to give a limiting value (MWh/tonne tissue) for the use of energy – which is not found in any other cases. In the other two cases the court did a cost benefit analysis of the investment cost at the time of application, and decided on conditions based on the results of the analysis. Even in these earlier cases the court has clarified that the requirements may be more stringent than what is profitable from a purely business economic perspective.

The state of the law practice at the moment can be summarized that the normal trials is that energy efficiency is regulated by requirements on energy plan – such as the court chose to regulate energy conservation in the Scania case. The former judgments cannot to the same extent as the Scania case be used as basis for guidelines regarding inspection and self-audit. For energy intensive industry with potential for significant energy efficiency measures in individual process steps the former practice is still relevant.

Law practice shows that there are no obstacles to impose conditions on energy management for businesses participating in PFE. Similarly, the court in the case of Swedish Tissue remarked that it is not a hinder for legislative regulation of energy under the Environmental Code that the business participates in the European Emissions Trading Scheme (EU-ETS) as long as the condition regulates only energy efficiency and not specifically carbon dioxide emissions. It is however not possible to impose conditions on the business to use renewable energy instead of fossil fuels if the company participates in emissions trading.

INSPECTION AND CONTROL BY THE CODE

The Environmental Code gives the responsibility to regional and local authorities to perform inspection and control by the environmental legislation. The legislation points out regional authorities to control bigger plants that have to have permits for their operations and local authorities to control smaller businesses.

Inspection and control is also stipulated to perform information and advisory activities in order to promote fulfilment of the legal requirements.

It is the regional and local authorities themselves that plan, prioritise among businesses and environmental aspects, and execute inspection and control. This is then followed up by the agencies at the national level.

Regional and local initiatives

Several different authorities in different regions in Sweden have done work in the area of energy efficiency in permitting and inspection. They have done it in different ways. Some have emphasised the information tool in the environmental legislation and have used advisors and other actors in the energy field to promote energy efficiency, more than controlling it. Others have used a more traditional inspection method in order to implement energy requirements.

As seen in Figure 1, the local and regional authorities use different approaches to work on energy issues. The interesting result is that the actual, traditional inspection and control is the least used method. Instead information seems to be the most common approach when working on energy issues. This is also seen in the following examples, where the environmental

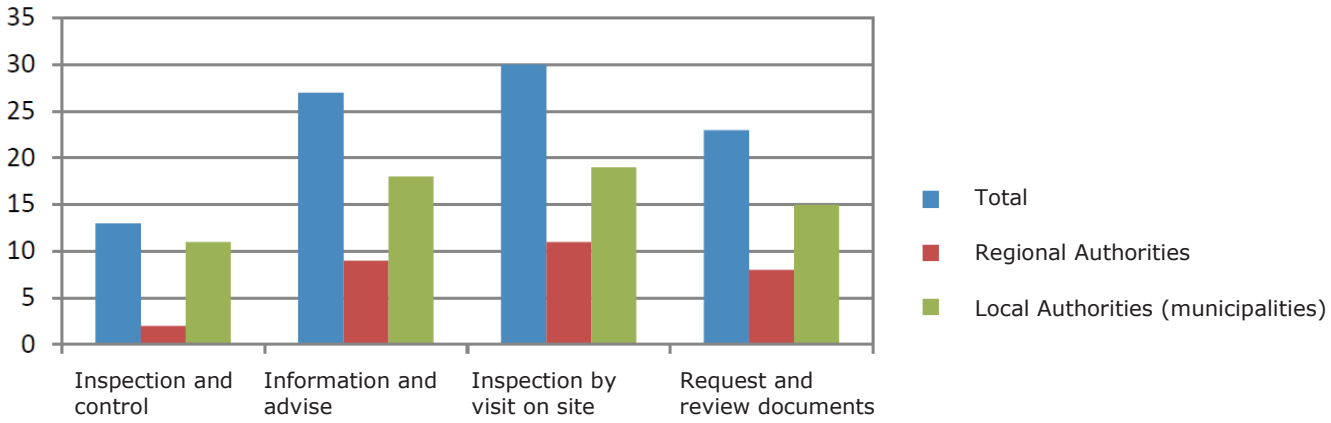

Figure 1. Methods in inspection and control. The environmental authorities use several methods when approaching energy issues [2].

authorities have done projects and taken initiatives regarding energy efficiency demands under the Environmental Code. The common issue is that they use information as the primary tool and that there are difficulties making injunctions on energy efficiency measures.

The region of Västra Götaland

The capital of the region, Gothenburg is the second city of Sweden and the region has as many as 49 municipalities. Here projects have been done about working together – the environmental authorities and the industry together in networks.

In this project the holistic approach was seen as a success factor and the action taken was effective. It was found that energy regulation can be appreciated from an entrepreneurial perspective, then the money is there to serve. From a regulatory and environmental standpoint, it is of great benefit in terms of sustainability. Also it was found that cooperation with energy advisors offered benefits. In this project many pointed to the advantage of both reaching environmental benefits, and simultaneously using the financial incentive for businesses to take action. There was also a notion that relatively small changes can result in significant effects when it comes to working with energy issues, compared to other environmental aspects. The inspection and control can lead to many important measures to be taken such as connection to the district heating network, housekeeping through heat recovery, and savings by sealing leaks and more. In the project some participants were very positive to conduct energy inspections along with energy advisors.

The difficulties found was where to put the bar of pressure for action, where the legislation is rather unclear today. Also, it is not always clear who is responsible for, and have control of, the energy issues. They may be tenants or there may be other structural issues that make it difficult to influence the use of energy.

There were also difficulties in judging what a sufficient and good energy audit is. Also it was difficult to judge when the energy audit is needed. For example companies that have worked quite a lot with energy issues but have not made any audit of its energy use and the opportunities to improve efficiency. Here it was difficult to assess whether the importance of knowledge about energy use was greater than the actual measures taken to lower energy use [3].

The region of Dalarna

Dalarna is a region in the middle of Sweden that has had a governmental assignment to work specifically with energy issues in different areas, among these the environmental inspection and control, business development and regional cooperation projects.

Regarding the environmental legislation Dalarna has promoted a more consolidated work in permitting. There are today 12 permitting authorities at regional levels and Dalarna has promoted guidelines for how to investigate and make considerations regarding energy issues. The conclusion is that there should always be an energy audit made and included in the permitting process. The danger of this approach is, however, that it might decrease the possibility of making further demands later on, by inspection and control, if the issue has been investigated already when giving a permit. This is suggested to be prevented by a general condition in the permit, delegating this issue to supervisory authorities.

In inspection and control, also Dalarna, was starting with advising activities and making companies mapping their energy performance. But the authorities are proceeding with injunctions, forcing the enterprises to take measures in order to lower energy use because the demands on energy audit and the voluntary approach did not give enough results. They have proceeded with more projects which also include the use of injunctions to achieve real measures to be made [4].

The region of Skåne

Skåne is the far most south region in Sweden. It is also a highly populated area, the third biggest city; Malmö is the capital of the region. The region has executed projects combining controlling, advising, and business development in several stages. The projects have been described as successful and have led to more knowledge of energy management as well as practical energy efficiency measures.

The project is depending on the local authorities to be willing and able to work on energy issues as well as work in cooperation with local energy advisors. Cooperation has obvious advantages but also some problems. Authorities have their legal frame to relate to while the energy advisors has an assignment to help enterprises to save energy and save money. This is an important difference between the two roles, acting together.

The advisors have an objective to make enterprises save money, in the same time as achieving the national objectives of saving energy as well as the more global objectives of hindering climate change. The authorities implement the Environmental Code, which means that energy efficiency is a way of saving natural resources and an objective of the legislation. Saving energy is a way of complying with the legislation and thereby prevent environmental effects.

Environmental effects have to be weighed against economic and social aspects by the legislation. The main point is that the economic and entrepreneurial measures are subordinate by environmental considerations. These are two different perspectives that the enterprise meets in this project. However, the two, very different perspectives do not have to be a problem but the cooperation is described in the project to have synergy effects instead [5].

Different approaches in the Environmental Code

The Environmental Code can be enforced in different ways. One way is to emphasise the knowledge and self-auditing requirements. This can mean that a business should map energy performance and then implement reasonable measures under supervision of environmental authorities. The other way is for the authorities to look directly at requirements to use best possible technique and then demand measures in order to improve energy performance in a business. In reality a combination of the two methods is often required.

Also the permitting process points out different solutions when it comes to regulating energy efficiency, however, the more recent shows that there is an emphasis on continuous energy performance work.

To comply with the requirements under the Environment Code, the businesses have to gain knowledge about energy use, identify possible measures and continuously implement reasonable measures. This means that businesses should identify energy use, analyze, and develop an energy action plan and then implement measures. Requirements can be set on how these documents should be designed to achieve a minimum level. These requirements can be based on the requirements according to other programs like the Energy Audit Check, which is a financial support for enterprises that want to make an energy audit for the plant, or the demands that will be required for energy audits under the Energy Efficiency Directive.

Since environmental authorities are no energy experts the operator's self-audit responsibilities should be emphasized. Inspection and control should focus on the system, the operator's self-audit, rather than controlling the actual energy performance within the business.

In the question of how self-auditing should be designed in a business, there is guidance in the so-called BREF documents (Best Available Technology Reference documents). These documents describe what the EU has classified as BAT, which is slightly different from the concept of best available technology that is used in the Environmental Code. BREF was previously linked to the IPPC Directive which is now being replaced by industrial emissions directive (IED). BREF previously had a weak legal status, which has changed with IED and changes as the different BREFs are updated. The existing BREF on energy efficiency (ENE- BREF) can be used as a template for how a company should work with energy. In practice, the BREF describes how the business should work systematically with energy efficiency, in a form similar to energy management systems.

The other way is for the authorities to look directly at requirements for use of best possible technique in an energy perspective and then demand measures in order to improve energy performance in a business. The idea of self-audit is that the businesses themselves will detect and even take measures as needed to meet the demands of the Environmental Code. When it comes to energy issues there is an idea that knowledge about deficiencies in the companies' energy use will make them implement energy efficiency measures. This is because, unlike many other environmental measures that the Environmental Code stipulates, energy efficiency measures are something that the business itself benefits financially from. In case it does not work, the business must know what the minimum requirements are that they have to meet, and the regulator must know what they should demand. At what level requirements should be set on cannot be answered at the moment. It requires considering management demands and the principle of best available technology set against what is reasonable, in order to determine what measures to require. When it comes to identifying technology constraints, also here, the requirements under the Industrial Emissions Directive can be used to the extent they include energy efficiency requirements. The demands are to be found in the so-called BREF documents that contain BAT-conclusions.

In reality a combination of the two methods is often required. Even though demands have been met in self- auditing and mapping the energy performance, in the end, judgments still have to be done according to how energy performance and best possible technique should be implemented.

Several different authorities in different regions in Sweden have done work in the area of energy efficiency in inspection and control with, in some ways, different approaches, but mostly maybe with different results and experiences. No real results, as to evaluating the real energy efficiency that has taken place, have been shown so far but work is being done. To have guidance on how and what requirements can be imposed on a business need more indicative judgments and court cases.

There are several other instruments to promote energy efficiency, like the Energy Efficiency Program for energy intensive industry, the Energy Audit Check that gives financial support to small and medium size enterprises in order for them to be able to do an energy audit of the company. The Energy and Climate Advisors are a support for both the public and for enterprises to help with information about energy efficiency measures. There is plenty to choose and use but the difficult part is to use each instrument in the best possible way; that is what is being developed in the Environmental Code at the moment.

Glossary

There are a range of words and expressions that have specific legislative and technical meanings, which might slightly differ when translated into English.

References

[1] Mansikkasalo, Michanek, Söderholm, 2011, Industrins energieffektivisering – styrmedlens effekter och interaktion, Rapport 6460 Naturvårdsverket.
[2] Stigson, Öhman, Lindblom, 2011, Kartläggning av länsstyrelsers och kommuners tillsyn av verksamhetsutövarnas energihushållning, IVL för Statens Energimyndighet.
[3] Miljösamverkan Västra Götaland, 2010, www.miljosamverkanvg.se.
[4] Länsstyrelsen i Dalarna, 3013, Dalarna – Pilotlän för grön utveckling – Slutrapport och vägledning, Rapport 2013:13.
[5] Proeff (Energikontoret Skåne, länsstyrelsen i Skåne), 2013, www.proeff.se.

Acknowledgements

My contacts in the different regions that are executing and developing inspections and control of energy issues.