

Summary of follow-up report 2009/10:RFR7

Committee on Transport and Communications

SVERIGES 
RIKSDAG 

THE SWEDISH PARLIAMENT

The Act on the Obligation to Supply Renewable Fuels – A follow-up report



Follow-up of the Act on the Obligation to Supply Renewable Fuels

Preface

In December 2005 the Riksdag (Swedish Parliament) decided to adopt the Government's proposed new Act on the Obligation to Supply Renewable Fuels, also known as the Pump Act. The Act states that from 1 April 2006 the major filling stations are obliged to supply renewable fuel, such as ethanol or biogas. The objective of the decision was to reduce carbon dioxide emissions by improving the availability of renewable fuels, mainly in the light of the fact that accessibility has been regarded as one of the major obstacles to increased use of renewable fuels. The obligation to supply renewable fuels is to be realised in several stages in which all points of sale in Sweden with sales volumes of over 1,000 cubic metres of motor gasoline or diesel fuel from 1 March 2009 onwards are, by means of one or more fuel pumps or in an equivalent manner, to supply at least one type of renewable fuel.

As part of the work of the Committee on Transport and Communications on follow-up and evaluation of decisions taken by the Riksdag and to prepare a better basis for decisions on topical issues falling within the Committee's area of responsibility, the Committee decided on 3 June 2008 to follow up implementation and consequences of the introduction of the Pump Act. The work on the follow-up was begun in February 2009.

A follow-up group has been appointed in the Committee with one representative from each parliamentary party: Sten Bergheden (Moderate Party), Anita Brodén (Liberal Party), Lars Gustafsson (Christian Democrats), Per Lodenius (Centre Party), Pia Nilsson (Social Democratic Party), Peter Pedersen (Left Party) and Karin Svensson Smith (Green Party). The group's participation has consisted in ensuring that the follow-up has been carried out in accordance with the Committee's assignment and submitting opinions on what areas that may require

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more in-depth clarification. The assignment was carried out by the Parliamentary evaluation and research unit of the Research Service at the Riksdag, in close collaboration with the Committee Secretariat.

The follow-up was published in the Report from the Riksdag series (Report 2009/10:RFR7). This brochure includes a summary of observations and conclusions from the follow-up.

Observations and conclusions from the follow-up in brief

The number of filling stations in Sweden closed down every year has increased since 2006. It is not possible from this follow-up to draw the conclusion that the Pump Act is the cause of this development. However, in certain cases the Act may have contributed to the closures. It is feared that the Pump Act may have a certain bearing on coming closures of filling stations. The Pump Act has in certain cases resulted in severe economic strain for owners of filling stations when the individual owners have themselves had to bear the investment costs for pumps providing renewable fuel.

The possibility to use renewable fuels has increased dramatically since the Pump Act was introduced. However, there are large geographical differences regarding accessibility to renewable fuels, both between different parts of the country and between urban and rural areas.

The Pump Act was intended to be technologically neutral, that is not promoting the use of any specific type of renewable fuel at the expense of others. In practice, however, to a great extent the Act has resulted in the installation of pumps providing E85 at filling stations covered by the Act.

There are no published statistics that to a sufficient extent shed light upon the development of the number of filling stations and the number of filling stations providing renewable fuels in different parts of the country. It is important to clarify which authority is to be responsible for obtaining such data in the future.

Emissions of carbon dioxide from the transport sector are great and the problem they pose is too great to be solved by the Pump Act alone. However, together with other targeted measures, the Act has helped to increase the use of renewable fuels and the number of vehicles that use these fuels.

There is considerable scope for increasing domestic production of biogas for use as a fuel. Biogas could play a greater role as a renewable fuel than it does today.

In connection with the Riksdag decision to introduce the Pump Act, an announcement was submitted to the Government regarding the requirement for measures intended to stimulate both access to and demand for several types of renewable fuel. There has not been any report back to the Riksdag in this matter. This has reduced the preconditions for possible review in accordance with the intentions of the gradual implementation of the legislation.

The focus and implementation of the follow-up of the Committee on Transport and Communications

The Committee on Transport and Communications has decided to follow up the implementation and consequences of the introduction of the Act on the Obligation to Supply Renewable Fuels (the Pump Act). The Act has been implemented in stages from April 2006 onwards. A special follow-up group has been appointed in the Committee with one representative from each parliamentary party. The group's participation has consisted in ensuring that the follow-up has been carried out in accordance with the Committee's assignment and submitting opinions on what areas that may possibly require more in-depth clarification. The assignment was carried out by the Parliamentary evaluation and research unit, Research Service at the Riksdag, in close collaboration with the Committee Secretariat.

The report is structured according to the questions that the Committee wanted answered.

Goals and use of renewable fuels in Sweden

Issues that have been dealt with in the follow-up

According to the EU Biofuels Directive, member states are to establish indicative targets for the use of biofuels. Member states are also to submit annual reports to the Commission on developments in relation to determined targets and report on which measures have been taken. When the Riksdag took the decision to introduce the Act on the Obligation to Supply Renewable Fuels (the Pump Act) in December 2005, the Riksdag at the same time took a decision on an indicative target for the use of biofuels and other renewable fuels. According to the target, the use of biofuels and other renewable fuels in Sweden should constitute at least 5.75 per cent of the total use of petrol and diesel fuel for transportation purposes calculated on the basis of energy content from 2010 onwards. Thereafter the EU has agreed on a binding target for 2020 stating that 10 per cent of fuel use for the transport sector should be in the form of renewable fuels. In the follow-up, the following issues have been considered.

- How has the sale of renewable fuels developed in relation to the Riksdag's target that 5.75 per cent of all fuel sold for purposes of transportation should be in the form of renewable fuel in 2010?
- What is the extent of the application of the guidelines given in the Biofuel Directive in Sweden and other EU member states?

Observations

So far there has been a positive development in Sweden regarding the target for the transition to renewable fuels. In 2008, the proportion of renewable fuels amounted to 4.9 per cent, which can be compared

with 1.3 per cent in 2003. Apart from the fact that more filling stations provide renewable fuels, one contributory factor behind the increase is also that low-level blends have increased. According to the follow-ups that the European Commission has carried out so far, Sweden is second only to Germany in coming furthest in the transition to using renewable fuels. One difference between Sweden and Germany, however, is the Swedish focus on E85, while Germany has a strong focus on biodiesel (Fame/RME).

According to the Commission's latest follow-up report from 2009, the broad development of support systems at member-state level has contributed to the more rapid development of the transition to renewable fuels since 2005. Tax relief and demands for biofuels so far have been the most common tools that member states have used to stimulate the transition to renewable fuels.

Conclusions

Developments so far in Sweden show the importance of taking widespread action in order to stimulate the transition to renewable fuels. If Sweden is to continue to be a pioneer in the transition to renewable fuels, due recognition should be given to the sustainability of the measures taken. Increased use of low-level blends will help enable the EU's announced target of 10 per cent for renewable fuels to be achieved in Sweden. At the same time, there is a risk that the targets that have been decided may constitute "a ceiling rather than a floor". It is therefore necessary to raise ambitions, which require further action to be taken in the transport sector. This is in order to reduce both the use of fossil fuels and renewable fuels that do not meet requirements regarding long-term sustainability.

Reporting back to the Riksdag

Issues that have been dealt with in the follow-up

When the Pump Law was introduced, the Riksdag decided, in accordance with the Committee's proposals, also to submit an announcement to the Government on the Committee's assessment concerning measures intended to stimulate both access to and demand for several types of renewable fuel. In addition to this, the Committee on Transport and Communications stated its standpoints regarding follow-up and reporting back to the Riksdag. In the follow-up, the following issues have been considered.

What report has been made based on the Riksdag's announcement to the Government on measures intended to stimulate access to and demand for several types of renewable fuel?

What report has been made to the Riksdag in the light of the assessment of the Committee on Transport and Communications regarding follow-up and reporting?

Observations

The Riksdag's announcement

In the Government's written communication 2005/06:75 containing an account of the consideration of the Riksdag's written communications to the Government, it is stated under point 134 concerning the announcement of the Committee on Transport and Communications on the obligation to provide renewable fuels that consideration of the communication has been closed. In the equivalent written communications for the following three years, the Government reports that the consideration of the communication has not been closed.

Follow-up and reporting

The examinations that have been made of budget bills, etc. in connection with the follow-up show that no report corresponding to that which was requested in the committee report has yet been submitted. In the budget bills, it has been reported how the proportion of renewable fuels used in Sweden has developed over time together with the corresponding information that the EU member states have to report back annually to the Commission in accordance with the Biofuels Directive. Otherwise, so far no further reporting has taken place, neither in accordance with the Riksdag's announcement nor what the Committee otherwise expressed regarding follow-up and reporting in its report.

Limited access to statistics and other background data connected to the Pump Act

The follow-up also indicates that it is difficult to gain access to information that in addition to aggregated statistics at national level illuminates the development of the number of filling stations and filling stations providing ethanol in different parts of the country. This applies both to current information and information regarding the situation a few years ago. As regards information on filling stations providing methane gas for vehicles, this is available from the Swedish Gas Association which collects and reports such statistics.

The issue of fuel provision has been highlighted in connection with the fact that the County Administrative Boards of Dalarna and Värmland were entrusted by the Government with the task of investigating the development of regional service in different parts of the country during 2008 and 2009. This Government assignment was however not focused on renewable fuels. The follow-up indicates that there is still no regular and systematic follow-up of the development of the number of filling stations and filling stations providing renewable fuels in different parts of the country. Nor is there any cohesive responsibility today at any agency for following this up.

Conclusions

Consideration of the Riksdag's announcement to the Government from 2005/06 on the Committee's assessment concerning measures intended to stimulate both access to and demand for several types of renewable fuels has still not been completed and there is also no information concerning an estimated final deadline for reporting. Nor has any reporting otherwise taken place in accordance with what was requested in the report of the Committee on Transport and Communications prior to the introduction of the Pump Act. A reasonable assumption here is that the Government will promptly get back to the Riksdag regarding these issues.

The lack of requested reporting back to the Riksdag during the previous and present term of office has reduced the preconditions for possible review in accordance with the intentions of the gradual implementation of the legislation.

As regards the development of accessibility to and availability of renewable fuels, it can be noted that there is not sufficient basis for political decision-making concerning continued focus on these issues. It is therefore important to obtain background information on the development of the number of filling stations and filling stations providing different types of renewable fuels over time, both at the local and regional level. It is also important that it is made clear which authority is to be responsible for this. Clearly defined responsibility of this kind is lacking today.

The Act on the Obligation to Supply Renewable Fuels (the "Pump Act") is one of several policy instruments designed to increase the use of renewable fuels

Issues that have been dealt with in the follow-up

In the Government Bill that preceded the Riksdag's decision to introduce the Pump Act, considerable emphasis was placed on long-term mea-

asures that would significantly reduce total emissions of carbon dioxide. In view of the fact that emissions from the transport sector have continued to grow, the importance of applying forceful measures to promote long-term sustainable development and make renewable fuels available at stations where conventional fuels are sold was emphasised. The Pump Act has been introduced in stages and entails that – from March 2009 – all filling stations with annual sales volumes exceeding 1,000 cubic metres must supply at least one renewable fuel. In the follow-up, the following issues have been considered.

- What measures have been taken to increase the supply of and demand for renewable fuels?
- What other measures have the central political authorities taken to encourage the transition from fossil to renewable fuels?

Observations

The examination of EU documents and answers to questions addressed to the Research Services of other parliaments reveal that no other European country has introduced legislation corresponding to the Swedish Pump Act.

In the fields of energy and environmental policy, a number of policy measures are applied with the aim of influencing developments and reducing the impact on the climate and environment. Economic policy measures include taxes and fees. Others economic policy measures include subsidies in the form of allowances, other forms of direct support and tax reductions. The Pump Act is an example of an administrative measure. This category includes laws, ordinances, regulations and general recommendations. In addition it includes measures taken by central government such as follow-ups, information, education, research, development and demonstration. An important measure with an impact on the use of renewable fuels is the addition of low-level blends of renewable fuels in petrol and diesel.

In Sweden, various measures have been taken to increase the supply of renewable fuels. An important element is the central government funds

for research focusing on developing renewable fuels, contributions to investments in production plants for renewable fuels and contributions to methane gas filling stations. The Pump Act is therefore one of several measures that the central political authorities have chosen to promote the transition to renewable fuels. The legislation is drawn up in such a way that it is the fuel retailers, i.e., the filling stations, that are obliged to provide renewable fuels and it is also the filling stations and fuel industry that bear the costs of the investments that this legislation involves. In the follow-up, it has emerged that, to date, it is mainly the petrol companies that have borne the costs of investments in pumps for renewable fuels.

Measures taken by central government to encourage consumers to switch to vehicles run on renewable fuels and therefore also switch to using renewable fuels include the previous green car premium and exemptions from congestion charges in Stockholm. These measures, in combination with others, have contributed to a considerable increase in the number of vehicles run on renewable fuels. In Sweden, the total number of cars on the roads increased slightly in the period 2006–2008. At the same time it can be noted that the number of cars on the roads that were run on petrol or diesel fell during the same period, while the total number of cars run on renewable fuels increased. The greatest increase has been in ethanol hybrid cars (“flexi-fuel cars”). In 2009, there has been a significant increase in the number of newly-registered gas-powered cars.

Price is an important factor that affects the consumer’s use and choice of fuel. Energy and carbon-dioxide tax on petrol and diesel and carbon-dioxide tax on natural gas in combination with energy-tax exemptions for carbon-dioxide neutral fuels such as biogas and ethanol make it more expensive for the consumer to use fossil fuels. The follow-up also shows that even if a growing number of filling stations have started to provide renewable fuels since the introduction of the Pump Act and even though a number of economic incentives mean that there are more cars on the road that run on renewable fuels, this does not guarantee that consumers choose to fill their cars with renewable fuels. The price of the fuels on offer strongly influences consumers’ choices. This is very

clear from the changes in consumption patterns in the autumn of 2008. Until the autumn of 2008, it was economically advantageous to choose E85 in the flexi-fuel cars that can be run on E85 or petrol. When the price of petrol fell during the latter part of the autumn of 2008 at the same time as the price of E85 rose, it became clear that many of the motorists who could choose between a renewable fuel (E85) and petrol chose petrol. During the summer of 2009, when petrol prices rose while the price of E85 remained the same, delivery volumes of E85 increased.

Conclusions

The problem of emissions of carbon dioxide from the transport sector is serious and too great to be solved by the Pump Act alone. Further measures are needed to encourage the transition to renewable fuels in the transport sector in various ways. The measures chosen need to be long-term and predictable and to focus on encouraging consumers to choose renewable fuels. At the same time, it is important to take measures focussing on production and distribution so that sustainable renewable fuels can be supplied in greater volumes. In the long term, these measures will help to reduce carbon-dioxide emissions and to bring about sustainable development in the transport sector.

Production, imports and distribution of renewable fuels

Issues that have been dealt with in the follow-up

In order to reduce the use of petrol and diesel in the transport sector, renewable fuels must be available to replace the fossil fuels. In the follow-up, the following issues have been considered.

- What access is there to renewable fuels and what is the capacity for domestic production of renewable fuels?
- What system is there for distribution of renewable fuels in Sweden?

Observations

Production and imports of renewable fuels

The follow-up shows that approximately 90 per cent of the ethanol used as fuel in cars, either as E85 or for low-level blends in petrol, is imported. Most imported ethanol comes from Brazil. Ethanol from agricultural products is regulated through the EU's common agricultural policy. However, Sweden has been granted permission by the EU to import ethanol for E85 as a chemical product, thus at a lower tariff of only 6.5 per cent. If Sweden had not been granted permission to import ethanol for E85 as a chemical product, the price of E85 would presumably be about 1 SEK higher.

Two companies produce ethanol on a larger scale in Sweden: Lantmännen Agroetanol AB and SEKAB. Production of ethanol in Sweden is mainly based on grain. The profitability of production of ethanol from grain is sensitive to increases in grain prices. Recently, the financial crisis and high grain prices have meant that several planned ethanol plants in Sweden have either been postponed or will not come about at all. Relatively small-scale trial operations have been carried out since 2004 in Örnsköldsvik to produce ethanol from raw cellulose products. Plans to expand these trial operations have not yet been implemented, owing partly to problems connected with funding such an expansion.

In Sweden there were just over 220 plants in 2008 that produced biogas and 39 upgrading plants that upgraded biogas to biomethane gas for vehicles. Biogas plants are normally owned by municipalities or municipal companies. Sweden has been identified by the European Commission as a member state that has invested in the upgrading of biogas for use as a fuel for vehicles. In most other member states, biogas is primarily used for heating and electricity production. Approximately 20 per cent of biogas in Sweden is upgraded and used for vehicles. Access to upgraded biogas for vehicle use does not always match the demand, and in several parts of the country, such as Stockholm, there is often a shortage.

Since the 1990s, substantial central government funding has been allocated to support the development of biogas production. Between 1998 and 2008, the Swedish Environmental Protection Agency allocated a total of approximately SEK 800 million of the funds for local investment programmes and climate investment programmes to biogas-related projects, primarily investments in biogas and upgrading plants. The follow-up shows that it is difficult to assess to what extent these funds have expedited the development of biogas production and upgrading plants as no follow-ups have been carried out. Further funds have also been granted for the development of biogas production, primarily for research and commercialisation of the demonstration activities. As yet, no results have been presented from this financial support.

The follow-up shows that there is potential for considerably greater biogas production in Sweden. However, greater biogas production requires improved routines to significantly increase the collection of food waste and digestion of residues from agriculture etc. A more secure allocation of biogas and methane gas for vehicles through the expansion of filling stations is a prerequisite if biogas producers are to be willing to invest in new production plants. It can, however, be noted that the demand for methane gas for vehicles has increased significantly over the past year.

Approximately 80 per cent of the biodiesel (RME) used in Sweden is domestically produced. Plants for the production of RME can be found in some ten locations in Sweden. Two of these plants produce RME on a larger scale. The other plants are considerably smaller and there are also some agricultural plants at farm level. Greater demand for and limited supply of the raw product rape oil has pushed up global market prices, which has in turn affected the amounts of RME that are produced. Another factor that affects how much RME can be produced from Swedish raw products is the available area for crop production.

Distribution of renewable fuels to existing filling stations

E85 is normally distributed and supplied at larger filling stations that also supply petrol and diesel. In September 2009 there were 1,493 filling stations that supplied E85, compared with 300 filling stations in December 2005 and 92 in December 2003. So far E85 is primarily supplied by filling stations connected with the major petrol companies.

The follow-up shows that there are various ways in which methane gas for vehicles is distributed. There are, for example, biogas production plants that are responsible for the entire chain: production, upgrading to methane gas for vehicles, distribution and sales at one public filling station located next to the plant. There are also biogas plants that sell gas for vehicles to energy companies or other companies. These then sell the gas either via their own public filling station or in cooperation with a petrol company at the petrol company's filling station. A few filling stations for methane gas for vehicles are both owned and run by the petrol companies. In September 2009, there were 103 public filling stations for methane gas for vehicles, compared with 62 in December 2005 and 31 in December 2003. The follow-up shows that it is mainly a number of municipalities and a handful of actors in the gas sector that are responsible for the expansion of filling stations for methane gas for vehicles in Sweden.

Most of the RME that is consumed is sold as low-level blends in ordinary diesel. Pure RME is used almost exclusively in heavy vehicles such as lorries and buses. In the follow-up, it emerged that it is common for larger users such as bus companies, hauliers and municipal administrations and companies to install their own filling stations intended solely for their own vehicles, or that they use companies that have installed RME pumps solely for use by transport companies. In September 2009, there were nevertheless 14 public filling stations for pure RME. This is a reduction compared with 2005, when there were 23 filling stations for RME.

Conclusions

Biogas could play a greater role as a renewable fuel than it does today. There is also considerable scope for increasing domestic production of biogas for use as a fuel. The recurring bottleneck problems that have clearly been seen in the Stockholm area for example as regards access to methane gas for vehicles shows that natural gas will, for a transitional period, continue to be an important complement to biogas. At the same time it is important, regarding the future, to highlight the need for continued development of renewable fuels that are sustainable in the long term and those that have not yet started to be commercialised.

The consequences of the Act for fuel suppliers and business operators

Issues that have been dealt with in the follow-up

In its report, the Committee on Transport and Communications emphasised the importance of observing the economic consequences for individual business operators who are affected by the legislation. In the follow-up, the following issues have been considered.

- What economic consequences has the legislation had for the fuel suppliers and business operators to whom it applies?

Observations

The Swedish fuel market

At present there are no publicly available data to show the size of the market shares of various petrol companies in Sweden. Over the past year, the European Commission has examined matters from the point of view of competition in connection with major takeovers in the fuel market. A decision from the Commission from October 2008 shows that OK-Q8 and Statoil both had market shares of between 20 and 30

per cent in 2007 and that Shell, Preem and JET Sweden all had market shares of between 10 and 20 per cent. Hydro and Tanka both had shares of between 5 and 10 per cent while other actors had between 0 and 5 per cent. Ownership on the Swedish fuel market has changed since 2007. The outline above only gives a limited picture of the make-up of the Swedish fuel market.

In addition to the larger companies on the Swedish fuel market, structural changes in recent years have also created various kinds of local initiatives, with owners of filling stations, with the help of other actors or owners of filling stations, merging to be able to continue operations.

Ownership and operation of filling stations

There are various forms of ownership and operation of filling stations. In order to describe these in a simple way, we can divide them into four main categories. In the first main category, a petrol company both owns and operates the filling station, and in the second, a petrol company owns the filling station but it is run by a business operator. Both these categories of ownership and operation are the most common forms in Sweden. The other two main categories consist of the unusual constellation in which a business operator owns and a petrol company runs the filling station and of the more common arrangement whereby a business operator both owns and runs the station. The latter, with a business operator both owning and running the filling station, is most common in rural areas.

The follow-up shows that a shifting pattern of ownership and operation is taking place from activities where a petrol company owns and a business operator is responsible for running the station to activities where the petrol company both owns and runs the filling station. A parallel development is the continuous decrease in the total number of filling stations. At the start of the year 2000 there were a total of 4,089 filling stations in Sweden, but this figure had fallen to 3,245 by January 2009. This corresponds to a decrease of just over 20 per cent. It is the manned filling stations that are declining in number, while the number

of automated (self-service) filling stations increased up until 2007. In 2008, however, the number of automated filling stations also declined. This fall in the number of filling stations is not unique to Sweden. A similar development has also been seen in other countries, where sales volumes of fuel are increasing, while the number of filling stations is decreasing.

The results of the case studies in the follow-up, carried out in the counties of Värmland, Kronoberg and Västerbotten, show that the biggest structural rationalisations have been made where sales volumes are low. There have also been many cases where oil companies have chosen to terminate their contracts with filling stations with low sales volumes. One of the problems highlighted by several of the interviewees is that, in connection with current rationalisations, sellers of fuels want to carry on running a filling station even after the petrol company that delivers the fuel has expressed that it wants to discontinue operations. Depending on the ownership structure, a situation can arise where a petrol company does not want to carry the possible costs for land decontamination if the filling station continues to be run by another owner. For filling stations that are threatened with closure, and especially the smaller ones with narrow economic margins, this can have a decisive impact on their possibilities of continuing operations.

Economic consequences for business operators covered by the Act

The cost of installing pumps for renewable fuels varies. Installing a pump for methane gas for vehicles normally costs around SEK 4 million, 3.8 million of which are counted as investment costs that are eligible for subsidies. The Swedish Environmental Protection Agency can approve a grant of up to 30 per cent of the investment costs eligible for subsidies.

The cost of investing in pumps for E85 is lower than for methane gas for vehicles and amounts to between approximately SEK 300,000 and SEK 400,000, but there are great variations depending on the type of

plant. The follow-up shows that, to date, petrol companies have borne the costs of most investments made in pumps for E85. However, there are examples of individual owners bearing the investment costs, and this has been highlighted by the Swedish Association of Petrol Traders, as narrow margins, combined with an economic situation in which the banks are very cautious about granting loans, can make it difficult to obtain funding for such investments. Central government funding for investments in pumps for methane gas for vehicles is not available in the same way as it is for E85.

Exemptions from the obligations of the legislation

The Pump Act has repeatedly received criticism, for example, in the media, for being the reason why many filling stations have to close down (the “death of the filling station”). One factor that indicates that the Pump Act is not the main reason for the closures to date is that all the stations that applied for an exemption from the obligation to supply renewable fuels were granted an exemption during the implementation of the first three stages of the Act. In 2009, the Swedish Transport Agency took over the Swedish Road Administration’s previous responsibility for central supervision of compliance with the Pump Act and thus also for examination of exemptions under Section 3 of the Act. The follow-up shows that a total of 1,330 applications for exemptions from the Act have been submitted since its entry into force in 2006. Just over half of these applications – 689 – were received during the implementation of the first three stages, and all of these were granted an exemption. Since the start of the fourth stage of the Pump Act (from March 2009), a further 650 applications for exemption have been submitted to the Swedish Transport Agency. Of the applications that had been processed by 1 September 2009, 595 had been granted an exemption and 36 had been rejected. Of the applications that were rejected, 24 had been appealed with Dalarna County Court by 1 September 2009. The follow-up shows that in 2009, the Swedish Transport Agency has based its examination of exemption applications on the volume limits stated in the Act on the

obligation to supply renewable fuels. By way of example, it can be mentioned that one of the filling stations that applied for an exemption and was rejected stated that its sales volumes for 2007 were 1,004 cubic metres. The appeals to Dalarna County Court had not yet been examined at the end of December 2009.

Conclusions

The current regulations on central government subsidies do not permit general economic support that gives full compensation to filling stations with sales volumes over 1,000 cubic metres per year. They have to bear the investment costs that the Pump Act involves themselves. The follow-up shows that the Pump Act may entail considerable economic strain for individual owners of filling stations, rather than major petrol companies, who have borne the investment costs for pumps for renewable fuels.

Since the Pump Act came into force, critics in the media etc. have cited the Act as the reason for the closure of so many filling stations. Even though the number of filling stations that are closed each year has increased since 2006, it is not possible to draw the conclusion that the closures to date can be attributed to the Pump Act, though it may have been a contributing factor in some cases. A number of closures, or conversions from manned to automated filling stations are the result of structural rationalisations in the petrol companies in recent years. A similar development is also taking place in other European countries which have not introduced any legislation similar to the Pump Act.

Depending on the outcome when the courts examine the appeals for the exemption cases, it may be the case that the Pump Act will have a bearing on future closures of filling stations. Furthermore, there is a risk that filling stations with time-limited exemptions will have to close once the period of exemption has expired.

Accessibility to renewable fuels for consumers

Issues that have been dealt with in the follow-up

The opening section of the Pump Act states that the purpose of the Act is to increase access to renewable fuels. In the follow-up, the following issues have been considered.

- To what extent are there filling stations offering renewable fuels in different parts of the country?
- What impact has the introduction of the legislation had on the overall development of the fuel sector in different parts of the country?
- What development has there been of infrastructures for various types of renewable fuels since 2006?
- What consequences are there for sparsely-populated parts of the country as regards proximity to services and travelling distances (including environmental considerations?).
- Has the Swedish Transport Agency considered the possibility of increasing access to renewable fuels by providing more signposting?
- Is there any correlation between the introduction of the Pump Act and the fall in the number of filling stations in sparsely-populated areas?

Observations

Developments in the number of filling stations

The follow-up shows that at the same time as the total number of filling stations has fallen, the number of filling stations that supply renewable fuels has multiplied since 2005. The greatest increase concerns the supply of E85 which has increased from approximately 300 filling stations in

2005 to 1,493 filling stations in September 2009. The number of filling stations supplying methane gas for vehicles has increased from 62 to 103 during the same period. However, the supply of RME has decreased from a total of 23 filling stations in 2005 to 14 in September 2009.

Access in various parts of the country

As regards access to E85, the follow-up does not reveal any major differences between different counties. However within individual counties, there are differences between densely and more sparsely populated areas. E85 is often available in densely populated areas at filling stations with relatively large sales volumes. In more sparsely-populated areas, however, access to E85 and other renewable fuels is considerably more limited. Many of the filling stations in sparsely-populated and rural areas have low sales volumes under 1,000 cubic metres per year, which means that the Pump Act does not apply to them. Access to renewable fuels is therefore poorer in comparison with densely-populated areas or rural areas close to towns. The follow-up shows that many of the filling stations in densely-populated and rural areas have experienced a dwindling customer base and that they therefore find it difficult to achieve the profitability they need to survive. In many sparsely-populated and rural areas, the issue of renewable fuels is not particularly relevant, as a much more pressing issue is that of having access to fuel at all within a reasonable distance. In connection with the follow-up, it has been noted that it is difficult to obtain information, both about filling stations and about the supply of renewable fuels, excluding methane gas for vehicles from both the Swedish Petroleum Institute and the county administrative boards.

Methane gas for vehicles is also primarily available in densely-populated areas. Furthermore, there are considerable geographical differences as regards access to methane gas for vehicles. Most filling stations for methane gas for vehicles can be found today in the southern parts of Sweden (up to Uppsala). Most public filling stations for methane gas for vehicles can be found in Göteborg, Stockholm, Linköping and Malmö.

North of Uppsala, the only places where it is possible to fill up with methane gas for vehicles today are Sundsvall, Östersund, Skellefteå and Boden. In Göteborg, Skåne and Halland, the availability of filling stations for methane gas for vehicles is connected with access to natural gas and development of supply systems. Natural gas is an important supplementary resource which has also helped to create the economic conditions for biogas investments. According to information from the Swedish Gas Association, methane gas for vehicles contained approximately 58 per cent biogas in 2008. Uppsala, Sundsvall, Östersund, Skellefteå and Boden all supply pure biogas.

As regards access to or the lack of renewable fuels, the follow-up shows that this is often connected with the fact that, on the one hand cars that run on renewable gas are needed for the filling stations to supply these and, on the other hand, filling stations that supply renewable fuels are needed for consumers to purchase cars that run on these fuels. This is particularly evident when it comes to methane gas for vehicles, as large parts of the country lack filling stations for this gas, and the rate of expansion is slow. This means that consumers are hesitant about purchasing cars run on methane gas, which in turn leads to a hesitance among companies to invest in more filling stations for methane gas for vehicles. There is also a problem with limited production of biogas which can be sold to the public as methane gas. In 2009, there was a clear increase in the number of newly-registered cars run on methane gas compared with 2008.

The follow-up reveals examples where municipalities, even before the Pump Act was introduced, chose to procure ethanol hybrid cars, which led to a demand for E85 and to filling stations choosing to install pumps for this type of fuel. Central government initiatives that can be mentioned include the new ordinance issued in 2009 which prescribes that central government authorities should choose green vehicles when purchasing or leasing.

Access to fuels is insufficient in certain sparsely-populated areas

The follow-up shows that the structural changes (rationalisation) that have taken place in the first decade of the 21st century have entailed that people in sparsely-populated areas may have long travelling distances to be able to fill their tanks at all. This problem has, to some extent, been highlighted by the central political authorities and funds have also been allocated that county administrative boards can grant to filling stations etc. that are far from other filling stations. In the course of the follow-up, however, representatives of county councils, municipalities, filling stations and stakeholder organisations have all repeatedly pointed out that we have reached a point where access to fuels is insufficient in certain sparsely-populated areas. In order to illustrate this, we can take an example from the county of Värmland, where the municipality itself may have to provide a fuel cistern above ground to enable the municipality to fulfil its commitments in the field of health care and other care services in parts of the county.

As regards the question of whether there is a correlation between the Pump Act and the fall in the number of filling stations in sparsely-populated areas, the visits to various counties that were carried out as part of the follow-up have shown that most filling stations in sparsely-populated areas have low sales volumes and therefore the Pump Act does not apply to them. The decrease may, instead, be attributed to other changes that, above all, concern current structural rationalisations in the fuel sector. These are, for example, linked to dwindling populations in certain areas and a focus on increased sales volumes per filling station.

Signposting

In the background report prior to the introduction of the Pump Act, the Committee on Transport and Communications stressed that signposting is an important aspect of efforts to improve access to renewable fuels, while at the same time, there is reason to limit the number of signposts along our roads. With the organisation that existed when

the Pump Act was introduced, the Committee on Transport and Communications pointed out that it was the task of the Swedish Road Administration to consider the possibility of better signposting for filling stations that supplied renewable fuels. In the follow-up it has emerged that there is no overall national record of the number of applications for and granted cases of new signposting.

The follow-up shows that, to date, very limited measures have been taken to improve signposting to filling stations that supply renewable fuels. The new signposts that exist are mainly for filling stations with methane gas for vehicles. The Swedish Gas Association continuously updates the list of places supplying methane gas for vehicles on the Internet. A quick inventory through spot checks carried out by the Swedish Road Administration shows that improved signposting is dependent partly on the ambitions of the individual company or filling station, and partly on the road authorities' varying interest and speed.

Conclusions

The Pump Act has had played an important role in increasing access to renewable fuels, and mainly to E85, since 2006. At the same time, the follow-up shows that there are still great geographical differences as regards access. People living in sparsely-populated areas rarely have access to renewable fuels within a reasonable distance. Furthermore, there are great geographical differences between northern and southern Sweden as regards access to methane gas for vehicles. The issue of access to fuels and renewable fuels in various parts of the country therefore warrants further attention. In this context, it is also important to examine whether other measures in addition to the Pump Act may be needed, with the aim of evening out current imbalances. In addition, it is necessary to review the issue of costs and responsibility for improved signposting to filling stations that supply renewable fuels.

The Pump Act and technical neutrality

Issues that have been dealt with in the follow-up

Prior to the introduction of the Pump Act, it was emphasised that the legislation should be technically neutral and cost efficient. Technical neutrality means that the legislation is not dependent on the technology chosen to achieve the desired effect or to minimise the negative impact of an activity. If the legislation is general it is possible to ensure that its objectives are achieved even if the technology changes. In the follow-up, the following issues have been considered.

Does any renewable fuel benefit more than others as a result of central government measures taken as a consequence of the Riksdag's decision to introduce the Pump Act?

Observations

There are no indications that any aspect of the Pump Act is such that it favours or disfavors any particular fuel in relation to any other. However the background material produced during the course of the follow-up does show that, even when the legislation was introduced, the investment costs for installing pumps varied considerably depending on the type of fuel, and this has not changed after its introduction either. The cost of installing pumps for methane gas is many times that of the cost of investing in pumps for E85 or pure biodiesel (RME). The subsidies provided by central government to investments in methane gas pumps have not helped to balance out these differences either. EU regulations on state support also limit opportunities for further central government subsidies for investments in methane gas pumps. The lower cost of installing E85 pumps and pumps for pure RME benefit these fuels. At the same time it can be noted that there are even fewer pumps that supply pure RME than there were at the time the Pump Act was introduced. However, this decrease is connected with the fact that there are no cars that have been approved to be run on pure RME available in Sweden. Even at the stage of the interim report of the inquiry into renewable

fuels, it was stressed that increased use of renewable fuels necessitates access to fuels that are economically competitive as well as vehicles intended to be run on such fuels. The relatively modest development as regards pumps for methane gas for vehicles and the decrease in RME pumps are therefore connected with the fact that these fuels have, in different ways, had poorer preconditions in relation to ethanol pumps. The development and commercialisation of other renewable fuels has not come sufficiently far either for the market to be able to choose to invest in other types of pump installations.

Conclusions

Even if the intention of the legislation was not to promote the use of any particular renewable fuel, this is in practice what has happened. The time for the introduction of the legislation, coupled with factors such as differences in investment costs for various types of pumps and the availability of cars powered by different kinds of fuel has led to a significant increase in the number of filling stations that supply ethanol, while biogas, for example, has seen a considerably more modest development. All in all, this means that the consequences of the legislation are not technically neutral.

What does the future hold for renewable fuels?

Issues that have been dealt with in the follow-up

The use of large volumes of fossil fuels, for example, in the transport sector has proved to generate undesired effects on both the environment and the climate. The interest in research and development on renewable fuels is therefore great. In the follow-up, the following issues have been considered.

Has the Pump Act impeded the development of renewable fuels?

What tendencies are visible as regards the continued development of renewable fuels and what developments have there been in Sweden and Norway as regards improving conditions for using electric vehicles?

Observations

Current developments in renewable fuels

New and more energy-efficient technologies are under development. Through thermal gasification, for example, fuels such as methanol, dimethyl ether (DME) and hydrogen can be produced. Biogas can also be produced through the thermal gasification of cellulose. Developments are taking place in many different areas and at present, it is unclear which fuels will become commercially viable and within what time-frame.

Provision of electricity as a fuel for vehicles

Electricity produced from renewable energy sources is not one of the renewable fuels to which the Pump Act applies. At the same time, electricity for electric cars and chargeable hybrids is one of several other areas that has successively received growing attention as a potential area for development in the future in the transition to renewable fuels. In Sweden there are various pilot projects in which municipalities etc. are seeking to use electricity-powered vehicles in their own activities or to provide the possibility of charging vehicles with electricity.

Conclusions

There are indications that the introduction of the Pump Act may to some extent have contributed to impeding the development of certain other renewable fuels. It is therefore important to continue to

follow the current developments and use of renewable fuels in the transport sector. This could be done by carrying out a survey of the development of renewable fuels and vehicles powered by renewable fuels. In this connection it is also crucial to highlight the health aspects and climate impact in order to identify which renewable fuels in the transport sector are sustainable in the long term. There should therefore be a continued focus on the development of renewable fuels in the transport sector that are sustainable in the long term.



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