Energy law in Sweden

Recent developments in the Swedish energy market

Fredrik Wilkens, partner, and Christian Johansson and Ulrica Åkesson, associates, Advokatfirman Vinge, Stockholm

Market development

Continued wind power expansion

The Swedish Government has for some time been pursuing a policy to increase the share of renewable electricity in Sweden and has announced that wind power has a key role to play in this context. Three times as much wind power electricity is now being produced in Sweden compared with that of 2006, and this growth is expected to continue.

In September 2010, the total installed generating capacity for Swedish wind power assets was 1,730MW which is a 70% increase from 2008.[1] A national wind power plan implying an annual generation capacity of 30TWh in 2020, of which 20TWh shall be generated onshore and 10TWh shall be generated offshore, has recently been established.

In order to facilitate the development of wind power, the threshold between the notification requirement and the permit requirement for wind turbines was changed in 2009 from measurement by installed capacity to measurement by height and quantity. Notification to the local municipality is now required for erecting up to two onshore wind turbines not being higher than 150m each or seven onshore wind turbines not being higher than 120m each. Permits are required for larger onshore wind power plants and for all offshore wind power plants. At the same time regulations regarding municipalities' participation in the permission process were introduced. The latter has been criticised as this effectively gives the municipalities a veto power with respect to establishment of new wind farms. Following reports of alleged misuse by some municipalities, the Swedish Government has now given notice that the municipalities veto power may be reduced in the near future.

The Swedish electricity certificate system was recently extended until the year 2035 which is expected to boost the wind power expansion further. The extension of the electricity certificate system is further described under "Important legislative changes" below.

In 2010, Markbygden Vind AB – a joint development company owned by the Swedish company Svevind AB (75%) and the German wind turbine manufacturer Enercon GmbH (25%) – was granted the necessary permit to build and operate up to 1101 wind turbines with a maximum total height of 200m each in the Piteå municipality area in the northern parts of Sweden. If fully built, the wind farm would produce up to 12TWh of electricity per year.

Although it is clear that wind power energy is currently gaining momentum in Sweden, it is feared that this will partly be brought to a halt following a recent principal decision by the Swedish Armed Forces, stating that all planned and permitted, and even already built, wind turbines will be stopped within a radius of 40km of ten military airfields in which JAS 39 Gripen jet fighters are based. According to the Swedish Armed Forces, the reason for this is that in some situations the jet fighters' technical systems may confuse the turbine blades with the jet fighters, thereby creating a risk of crashing. The Swedish Armed Forces have announced that the turbine halt means that all applications to build wind turbines in the relevant areas will be denied and that turbines that already have permits will have these withdrawn. In a few cases there are also existing turbines within the 40km zone which, according to the Swedish Armed Forces, will need to be dismantled (for which the owners would be compensated) should the principal decision not be called off. The decision has been heavily criticised in some places as the fear is that the ban would remove large and suitable establishment areas for wind power in Sweden.

IPOs

In March 2010 O2, Sweden's largest wind power developer with 37 wind turbines (74MW) in operation at the time, suspended its plans for a public listing on the NASDAQ OMX exchange in Stockholm. According to O2, interest from potential investors was too low to ensure a spread of ownership and sufficient liquidity in the shares after listing. The equity injection from the IPO in the amount of SEK 950 – 1,150 million, together with credit facilities from a Scandinavian bank consortium in the total amount of SEK 2,400 million, would most likely have speeded up the development of O2's 2,000MW project portfolio. O2's decision to withdraw the proposed listing came after accusations in the media during the subscription period that the revenue forecasts were too optimistic.

Only days after O2's decision to withdraw its IPO plans, Arise Windpower, another Swedish wind power developer, completed a smaller scale IPO raising SEK 550 million in new equity through a new issue of shares. According to Arise Windpower, the new issue of shares will secure equity financing for more than 100 new wind power turbines.

Shale gas prospecting

Shell is currently evaluating the viability of Alum Shale in southern Sweden as a source of shale gas, as the company believes there may be enough to make Sweden self-sufficient in natural gas for a decade. The drilling has attracted opposition from some local residents and green activists, who are worried about the environmental impact if shale gas deposits are exploited on a large scale.

Important legislative changes

Nuclear new build

There are three nuclear power plants in Sweden today - Forsmark, Oskarshamn and Ringhals - comprising in all ten operative reactors. The former nuclear power plant Barsebäck was closed in 2005. The plant used to have two reactors. One reactor was closed in 1999 and the other was closed in 2005 due to political decisions.

Following the recent abolition of the Nuclear Power Phase-Out Act[2] and certain amendments to the Nuclear Activities Act[3] and the Environmental Code[4], it has now been decided that the ban on the construction of new nuclear power plants in Sweden will be abolished as from 1 January 2011. One precondition for obtaining permission to construct new reactors is that the new reactor replaces one of the existing older reactors and that the older reactor is permanently shut down. The new nuclear power reactors may only be constructed on sites where present reactors currently in operation are located.

The decision to ban new nuclear build and ultimately phase out nuclear power was reached following a 1980 referendum which presented three phase-out options and none for continuing operation. Originally, the plan had been for all nuclear units to close by 2010, but although the two Barsebäck reactors were closed in 1999 and 2005, the other operating units have since been reprieved.

Payment of damages in the event of damage connected to nuclear activities or material will be governed by the Act on liability and compensation for radiological accidents[5] which was issued in July 2010 but enters into force at a later date to be decided by the Government. Pursuant to the new act the operator of a nuclear power reactor that is in operation for the purpose of extracting nuclear energy shall be obliged to ensure (by way of effecting a liability insurance or by putting some other financial security in place) that funds corresponding to approximately €1,200 million (under the current legislation this figure is approximately €300 million) are available in case of an accident so as to compensate injured parties who are entitled to damages. The terms and conditions of the insurance should be approved by the Government or by the Swedish Financial Supervisory Authority.[6]

Once the Government has decided that the aforementioned act will enter into force, the operators of nuclear power reactors in Sweden will subject to a strict and unlimited liability regime. As mentioned above, liability is limited to approximately €300 million under current legislation. It should however be noted that under the new act the liability is only unlimited for the operating company and not for its owners, ie, the basic rule of freedom from liability for the owner of shares in a Swedish limited liability company laid down in the Companies Act[7] will remain intact.

Modifications to the electricity certificate system

By way of background, the Swedish electricity certificate system was introduced in 2003 in an effort to meet the ambitious targets for the production of electricity from renewable resources, ie, wind power, solar energy, wave energy, geothermal energy, certain biofuels, peat and certain hydro power. Electricity producers whose electricity production fulfils the requirements set out in the Electricity Certificates Act[8] receive one electricity certificate unit for each MWh of electricity they produce. Demand for certificates is created by the fact that all electricity suppliers, and certain electricity users, are required to purchase certificates corresponding to a certain quota of their electricity sales or electricity use. The number of certificates to be purchased increases on a yearly basis with progressive increases of the quota proportion, thus generating a corresponding increase in the demand for the certificates. Through the sale of certificates, producers of electricity from renewable energy sources receive additional revenue from their production of electricity, thus encouraging the expansion of electricity production from renewable sources. Following recent amendments to the Electricity Certificates Act, the quota obligation now also applies to (i) electricity users who have used electricity which they have produced themselves, imported or purchased at the Nordic Power Exchange, and (ii) to electricity users in

electricity-intensive industries.

The initial objective of the electricity certificate system was to increase the generation of electricity from renewable energy resources by 10TWh by the year 2010 relative to the corresponding production in 2002. The objective has been updated since then and was recently set to increase by 25TWh by the year 2020 compared to the production year 2002.

The electricity certificate system has proved to be an effective instrument to increase production of renewable energy, which has resulted in a recent decision to extend the electricity certificate system until 2035. The quota obligation will be calculated on the basis of new quotas that will apply from 2013 to 2035.

The Government has also presented an assessment indicating that the electricity certificate system should be developed to include more countries.[9] The aim is for a common market with Norway to be established, starting on 1 January 2012. In the opinion of the Swedish Government, an international electricity certificate market would have considerable advantages, the reason for this being that international trade contributes to a more efficient market with higher liquidity and increased turnover and therefore creates greater effectiveness and increased pressure on production costs for renewable electricity.

Electricity metering

Sweden introduced legislation as of 1 July 2010 designed to promote a more open and efficient energy market and requiring all electricity meters in Sweden to be read on a monthly basis.

New *ex ante* regulatory regime from 2012

Following recent changes to the Electricity Act there will, from 2012 and onwards, be a switch from a system where the method used to calculate or establish the tariffs are merely approved (*ex post*) to a system where the Energy Markets Inspectorate fixes or approves the electricity network companies' tariffs for a supervisory period in advance (*ex ante*). The *ex ante* regulatory regime introduces the concept of income frames, which shall be fixed and approved by the Energy Markets Inspectorate based on proposals from the relevant network companies. Each supervisory period has been set to four years. After the supervisory period the Energy Markets Inspectorate will make a final balance of the income frame to ensure that the forecasts made prior to the approval correspond to the actual outcome.

The method to be used when calculating the income frames is rather technical. The network companies' proposal regarding income frames for the upcoming supervisory period should, *inter alia*, include information enabling the Energy Markets Inspectorate to calculate reasonable recurring costs and reasonable return on the capital required for carrying on the business. In a recent report[10] the Energy Markets Inspectorate has established, *inter alia*, that when calculating the income frames a general efficiency requirement of 1% annually will apply to recurring costs that are deemed to be within the network companies' control.

In the legislator's opinion, one of the main advantages of the *ex ante* regulatory regime is that predictability is created for both customers and companies regarding the size of the income frames. It is also expected to be clearer for the network companies how much income they may charge the customers in the form of network tariffs during the next supervisory period, always provided that the assumptions and preconditions serving as a basis for the adoption of the income frames are met. For the network companies, this may also be considered to be relevant for the planning of new investments in the grid.

footnotes

1. The Swedish Energy Markets Inspectorate's (Sw. *Energimarknadsinspektionens*) report EL R2010:12
2. Sw. *Lag (1997:1320) om kärnkraftens avveckling*
3. Sw. *Lag (1984:3) om kärnteknisk verksamhet*
4. Sw. *Miljöbalken (1998:808)*
5. Sw. *Lag (2010:950) om ansvar och ersättning vid radiologiska olyckor*
6. Sw. *Finansinspektionen*
7. Sw. *Aktiebolagslagen (2005:551)*
8. Sw. *Lag (2003:113) om elcertifikat*
9. Government Bill 2009/10:133
10. The Swedish Energy Markets Inspectorate's report EL R2010:11

Overview of the legal and regulatory framework in Sweden

A. Electricity

A.1 Industry structure

The five largest Swedish electricity producers account for over 85% of Sweden's total production, of which Vattenfall, E.ON and Fortum jointly account for 79%. The Swedish state, through Vattenfall, owns 41% of the installed generation capacity, foreign actors own 40% and Swedish municipalities 12%, while other categories account for the remaining 7%. In recent years the proportion of the total generation capacity in the hands of the Swedish state and foreign actors has declined while the other categories have increased their ownership.[1]

The Swedish national grid is state-owned and operated by the Swedish utility company Svenska Kraftnät. The six regional grids are owned by large power generators. The 175 odd local grids are owned by private, state and municipal companies or co-operative associations.

Concessions for national connections to the grid are to be submitted to the Swedish Energy Markets Inspectorate, which also issues various regulations in respect of grid connections. The Swedish Energy Markets Inspectorate is the Swedish regulator of the markets for electricity, natural gas and district heating, and is an agency subordinate to the Ministry of Enterprise, Energy and Communications. The Swedish Energy Markets Inspectorate works for an improvement of the functionality and efficiency of these markets. They supervise network tariffs and grant licences, known as network concessions, for the construction and use of power lines and gas pipeline. The Swedish Energy Markets Inspectorate also has an overall responsibility for making sure that the network-based energy markets function well, and they have an operational role as expert authority with regard to electricity trading matters.

As network authority the Swedish Energy Markets Inspectorate is responsible for monitoring network operations. It monitors compliance of various market players with the requirements of the Electricity Act[2], except for the requirements of electrical safety and system responsibility (see below).

Electricity is transmitted from power stations to consumers via power lines, consisting of three levels. The national grid consists of high voltage systems and has been built up to transmit large volumes of energy over great distances. The regional grids transmit electricity from the national grid to local grids and sometimes to high consumption users.

Electricity transmission is a regulated activity which means that an entity wishing to engage in grid operations is required to have a grid concession for a particular transmission line or for all transmission lines within a certain territory. However, exemption rules[3] apply to, *inter alia*, internal grids connecting two or more electrical production plants. Concessions for national (but not international) connections are granted by the Government or by the Swedish Energy Markets Inspectorate. Concessions have a limited duration of 40 years for particular transmission lines and 25 years for all transmission lines within a certain territory. Applications for grid concessions involving interconnecting links with other countries are only granted by the Government.

A concession may only be granted where an establishment is suitable from a general point of view and subject to certain conditions. Such conditions usually protect public interests and individual rights, such as security, health and environment.

Transmission of electricity (which in practice is a natural monopoly) is still regulated whereas competition is allowed in relation to electricity generation and electricity trade.

In order to incorporate the Third Electricity Package into Swedish legislation, changes to the Energy Act were required and entered into force in 2009 and 2010, some of which are mentioned below.

The Electricity Act prohibits any legal entity involved in generation or electricity trade activities from also being involved in grid operations. A member of the board of directors, the managing director, or an authorised signatory in a distribution system operator who is part of a vertically integrated undertaking and whose network serves more than 100,000 connected customers may not be a member of the board of directors, the managing director, or an authorised signatory in another group company producing or supplying electricity. The accounts for grid operations shall be drawn up separately and shall always be kept separate from accounts in respect of other businesses pursued by a concession holder. The holder of a concession is required to draw up an annual report, which is to be submitted to the Swedish Energy Markets Inspectorate. The report has to be available for public review.

A.2 Electricity trading

Since the deregulation of the Swedish electricity market in 1996, electricity trading has taken place on a free competitive market open to any new participants. Trade takes place either through bilateral agreements or on the Nord Pool Nordic electricity exchange.

Generally, trading companies do not generate electricity but instead purchase it from electricity generators. Large generating companies do, however, have their own sales and supply companies.

Electricity trading is subject to legislative requirements as well as private regulations issued by for example Nord Pool. Applicable legislation provides for consumer protection. Currently, no permit for import or export is required in Sweden.

Nord Pool ASA is a commodity derivatives exchange authorised by the Norwegian Ministry of Finance and supervised by the Norwegian Financial Supervisory Authority. Nord Pool has adopted its own rules and agreements for traders active on this exchange. Nord Pool has a vital role in facilitating electricity trade within the Nordic region. It consists of a physical spot market for power trading on an hourly basis and a financial futures market for trading in futures contracts for up to three years ahead, as well as a clearing service. Since 2010, Nord Pool ASA is a wholly owned subsidiary of NASDAQ OMX. However, Nord Pool Spot AS – the operator of the market for electrical energy – remains owned by the Nordic transmission system operators.

Contracts, such as electricity derivatives, are mainly used by electricity trading companies in order to protect themselves against volatile prices on the electricity market. Standard agreements, such as ISDA Master Agreements, are commonly used by electricity trading companies.

Svenska Kraftnät is responsible for maintaining the balance between production and consumption of electricity in Sweden. Svenska Kraftnät collaborates with approximately 40 players, known as balance providers, who have assumed the balance responsibility for one or more electricity consumers. Balance responsibility involves assuming financial responsibility for Sweden's electricity system, hour by hour, being supplied with the same amount of power that is being used by electricity consumers. The balance provider creates a balance between supply and consumption by planning its production (if the balance provider is a producer), and by buying and selling power by trading with other balance providers on the Nord Pool power exchange. Deviations in frequency arising during the operating phase, due to the balance providers not being able to create a perfect balance, are corrected by Svenska Kraftnät during the hour of delivery (balance regulation).

Balance providers capable of changing their production or consumption during an hour of delivery may submit bids to Svenska Kraftnät regarding upward or downward regulation. Normally, the bids are to be submitted not later than 30 minutes before the start of the relevant hour and should state the price and quantity.

A.3 Third party access regime

All holders of grid concessions are obliged to connect anyone wishing to be connected to the holder's line on reasonable terms (subject to certain exemptions, mostly technical). This obligation to connect a third party is more comprehensive for a holder of a concession for all lines within a certain geographical area compared to that of a holder of a concession for a specific line. Exemptions from the obligation to connect others may be granted if there are special circumstances- such as, for example a capacity shortage.

The Electricity Act does not impose any specific obligations on third parties. It is, however, common that the holder of the grid concession makes the issuing of a bank guarantee for part or the whole amount to be paid by the third party a condition for the grid connection.

A.4 Use of system

The charges levied and other conditions imposed on the transmission of electricity and connection to a power line or to a power line grid are called grid tariffs. The grid tariff payer is entitled to access to the entire transmission system and is therefore entitled to buy and sell electricity through the electricity market area. Local grid charges include the regional and national grid charges.

Grid tariffs must be objectively justifiable and non-discriminatory. Following recent changes to the Electricity Act, from 2012 and onwards, income frames shall be established by the Swedish Energy Markets Inspectorate in advance for every four year period. Such income frames shall cover reasonable costs for carrying on the network business during the relevant period and should generate a reasonable return on the capital necessary for carrying on the business. The quality in which the network operator runs its business shall also be taken into account when the income frames are established.

For licence obligations, see A.1 above.

A.5 Market entry

See A.1 above.

A.6 Public service obligations

Network operators are required to transmit third parties' electricity on reasonable terms. The transmission of electricity shall be of good quality and the network operator is under an obligation to remedy deficiencies in the transmission to the extent that the costs to remedy the deficiencies are reasonable when compared with the inconvenience caused to the relevant electricity consumers.

A network company has an obligation to assign a supplier to a customer who does not actively choose one itself. It is also obliged to notify the customer which supplier it has assigned and of the possibility to change supplier. The assigned supplier shall without delay notify the customer of its terms and conditions.

A.7 Cross-border interconnectors

The current interconnectors are Svenska Kraftnät in respect of Norway, Finland and Denmark (to the Swedish border), Baltic Cable AB (an entity owned by E.ON Sverige AB in Sweden and Statkraft Energi AS in Norway) in respect of Germany and SwePol Link AB in respect of Poland (a company owned by Svenska Kraftnät (51%) and PGE Polska Grupa Energetyczna

S.A. (49%)).

Currently, no permit for import or export of electricity is required in Sweden.

B. Oil and gas

B.1 Industry structure

Sweden has around 47,000 natural gas consumers of which approximately 2,600 are business customers. In recent years, the number of end-users has declined due primarily to a drop in the number of households using gas solely for cooking.[4]

The Swedish transmission system is owned by two companies; Swedegas AB and E.ON Gas Sverige AB. The Swedish Energy Markets Inspectorate is responsible for monitoring the natural gas market in accordance with the Natural Gas Act[5] and for issuing various regulations.

Svenska Kraftnät has the system responsibility for the national supply of natural gas.

The Natural Gas Act contains provisions regarding natural gas pipelines and storage of natural gas. Generally, natural gas pipelines (or storage facilities) may not be built or used without a concession from the Government. However, a concession is not required where, for example, a pipeline is situated after a metering and control station.

Concessions are granted by the Government but applications for such concessions are to be submitted to the Swedish Energy Markets Inspectorate. In connection with an application for concession, an environmental impact assessment[6] and other information should be provided in accordance with the Swedish Environmental Code.[7]

A concession has to state the principal route of the pipeline. The initial term of a concession is normally 40 years. Concessions for a pipeline will only be granted if the route is deemed suitable and in the general public interest. Concessions may be granted subject to certain conditions. Such conditions usually protect general interests and individual rights, such as security, health and environment. An applicant for a concession must be suitable to conduct operations in respect of the concession from the general public's viewpoint.

Since 2005, all companies have been able to choose their natural gas supplier. Since 2007, the natural gas market has also been open to private consumers in accordance with the Second Gas Directive.

The transmission markets are still organised as local monopolies.

B.2 Gas trading

The Natural Gas Act prohibits any company involved in natural gas transfer activities from also being involved in gas trading activities. A member of the board of directors, the managing director, or an authorised signatory of a company holding a concession for natural gas pipelines may not be a member of the board of directors, the managing director, or an authorised signatory in another company involved in gas trading activities. The accounts for natural gas transfer operations shall be drawn up separately and shall always be kept separate from those in respect of other operations. However, Swedish law does not stipulate that a gas network company may not be part of a group of companies that produces or trades in natural gas.

Financial trading is not very common in Sweden. The majority of gas trading is physical. For physical gas trading, long-term contracts are used on the Swedish market.

B.3 Third party access regime to gas transportation networks

An owner of a natural gas pipeline is obliged to connect other natural gas pipelines on reasonable terms. However, this obligation does not apply where a pipeline does not have the requisite capacity or if there are other special grounds. In addition, an owner of a natural gas pipeline is obliged to transport natural gas on reasonable terms. None of these obligations apply where the natural gas pipeline is used solely for the owner's own account.

The Swedish Energy Markets Inspectorate's audit of the network companies' methods for establishing charges aims to ensure that these are objective and non-discriminatory in accordance with the Natural Gas Act. The audit of the distribution charges is currently being performed retrospectively, but with effect from 2011, there will be a switch to advance regulation. This method means that a four-year inspection period will be introduced, and the first one will run from 2011 to 2014.

B.4 LNG

The first Swedish LNG terminal, located in Nynäshamn south of Stockholm, is currently under construction and is expected to be operational in 2011.

B.5 Third party access to LNG terminals and storage facilities

Pursuant to the Natural Gas Act an owner of a natural gas pipeline is obliged to connect gas storage or LNG terminals on reasonable terms.

B.6 Use of system

As stated above, an owner of a natural gas pipeline is obliged to connect another natural gas pipeline on reasonable terms. In addition, an owner of a natural gas pipeline is obliged to transport natural gas on reasonable terms.

B.7 Market entry

It has previously been questioned whether the Swedish natural gas market is sufficiently open to competition. As mentioned under B.1 above, the Swedish natural

gas market is relatively small and has mainly only one line of supply, as there is principally only one natural gas exporter to Sweden. Also, most contracts are entered into on a long-term basis, which makes market entry more difficult.

For a description of legal barriers to enter the market (licence requirements) see B.1 above.

B.8 Public service obligations

The operator of a natural gas pipeline is under an obligation to transmit natural gas on reasonable terms.

The network companies have an obligation to assign a supplier in cases where the customer does not actively choose one. It is also obliged to notify the customer of which supplier it has assigned and of the possibility of changing supplier. The assigned supplier shall notify the customer of its terms and conditions without delay.

B.9 Cross border interconnectors

Natural gas is currently only imported to Sweden from Denmark. The only current cross border interconnector is Swedegas AB.

C. Climate change and sustainability

C.1 Climate change initiatives

A carbon dioxide tax was introduced in 1991. In 2009 taxes were also introduced for nitrous oxide and perfluorocarbon (carbon dioxide, nitrous oxide and perfluorocarbon hereafter being jointly referred to as "greenhouse gas"). Although certain sectors pay a lower greenhouse gas tax, and even if special rules for the reduction of the tax for energy-intensive industries remain applicable, the tax rate has been increased from SEK 0.25/kg in 1991 to SEK 1.03/kg in 2010. Some sectors are exempt from the greenhouse gas tax altogether.

C.2 Emission trading

Relevant legislative framework

Trade of emission allowances[8] under the EU Emissions Trading Scheme governed by the Emissions Trading Directive (2003/87/EC)[9] was introduced in Sweden in 2005. The regulations have been implemented by way of the Emissions Trading Act[10] and the Emissions Trading Ordinance.[11]

According to the Emissions Trading Act all companies covered by the emissions system are required to have a specific permit to emit carbon dioxide. This permit is required in order to obtain emission allowances. Operators covered by the emissions trading scheme cannot conduct their activity without a permit. To qualify for a permit, the operator must monitor and report the level of emissions. An application must be submitted to the local County Administrative Board.[12]

The basis for the trade of emission allowances is a cap on the maximum level of emissions per year and for each period of trade. Each plant will receive a number of tradable emission allowances. Two companies can enter into purchase contracts between themselves or through brokers. In Sweden the registry for trading in emission allowances, the Swedish Emissions Trading Registry (Sw. *Svenskt utsläppsrättssystem*, *SUS*, the "ETR"), was established by the Swedish Energy Agency.[13] All Swedish transactions are registered in the register, which is linked to the Community transaction log operated by the European Commission.

The ETR itself is not a marketplace for emissions trading. The ETR simply notes completed transactions between two parties.[14] Trading takes place via an emissions trading exchange, broker or between companies. Trade is currently conducted at the Nordic energy exchange Nord Pool.

Following the implementation of the Markets in Financial Instruments Directive 2004/39/EC (the "MiFID")[15] by means of the new Securities Market Act[16] in 2007, trading of emission allowances no longer triggers a licensing requirement under Swedish law and, as a result, the rules and regulations applicable to financial trading no longer apply to trading of emission allowances.

Other national schemes

There are no other emission trading schemes that operate nationally.

C.3 Carbon capture and storage

Relevant legislative framework

The legislative framework relevant to carbon capture and storage consists mainly of the Emissions Trading Act (described above) and the Energy Tax Act.[17] The Energy Tax Act contains provisions regarding the payment of an energy tax and a particular carbon dioxide tax. The Swedish Environmental Code should also be considered as part of the most relevant legislative framework.

Existing carbon capture/storage projects

The Swedish Vattenfall group has announced that it has built a 30 MW pilot plant for carbon dioxide capture at the lignite-fired power plant at Schwarze Pumpe in Germany. The plant was opened in 2008 and since then tests are performed to evaluate the technology of Oxyfuel combustion before building a larger scale demonstration plant. Reportedly, the next step will be a full-scale demonstration plant at Jänschwalde in Germany. This plant will feature both the technologies of Oxyfuel and Postcombustion. Vattenfall's aim is to deliver CO_2 lean electricity to the grid in 2015.

C.4 Renewable energy

Relevant legislative and regulatory regime

The Government has announced that the production target for 2020 includes 50% renewable energy. An electricity certificate system was introduced in 2003

with the objective of increasing the use of electricity from renewable sources by 17TWh between 2002 and 2016. The planning objective for wind power production includes a requirement that local authorities must have agreed plans for 10TWh of wind power production by 2015. The Government's recently revised production targets for renewable energy implies an increase of the use of electricity from renewable sources by 25TWh between 2002 and 2020.

The electricity certificate system is a market-based support system designed to assist expansion of the production of electricity from renewable sources and from peat in Sweden. Under the system, electricity certificates are issued to operators of approved plants producing and metering electricity from renewable energy sources or peat at the rate of one certificate unit per MWh. Demand for certificates is created by the fact that all electricity suppliers, and certain electricity users, are required to buy certificates corresponding to a certain proportion of their electricity sale or use. By selling their certificates, the producers of electricity from renewable energy sources can receive additional revenue which provides further support for their production of electricity. Accordingly, the system supports the expansion of electricity production from renewable sources and the introduction of new technologies.

Electricity certificates are traded on the Nord Pool exchange.

If an insufficient number of certificates has been purchased in any given year, the electricity supplier (and certain electricity users) must pay a penalty to the Swedish Energy Agency for every outstanding certificate.

Following the implementation of the MiFID by means of the new Securities Market Act, trading of electricity certificates (like emission allowances) no longer triggers a licensing requirement under Swedish law and, as a result, the rules and regulations applicable to financial trading no longer apply to trading of electricity certificates.

In order to facilitate the development of wind power, the threshold between the notification requirement and the permit requirement for wind turbines was changed in 2009 from measurement by installed capacity to measurement by height and quantity. Notification to the local municipality is now required for erecting up to two on shore wind turbines not being higher than 150m each or seven on shore wind turbines not being higher than 120m each. Permits are required for larger on shore wind power plants and for all off shore wind power plants. In general, a notification must be submitted to the municipality and a permit application must be submitted to the Country Administrative Board.

Another focus area for the Government is the further simplification of the rules and regulation relating to the connection of electricity from renewable sources to the grid. It has been announced that the connection of offshore wind power production to the grid is of particular interest to the Government.

Legal obligations or commercial incentives to invest in service renewable plants

There is a legal obligation for all holders of grid concessions to connect anyone who wishes to be connected to the holder's line on reasonable terms subject to certain exemptions, mostly technical, eg, capacity shortage. There is no obligation for holders of grid concessions to invest in further capacity to service renewable (or other) energy plants.[18]

C.5 Biofuel

A new Act on sustainability criteria for biofuel and bioliquids[19] implementing the Renewable Energy Directive entered into force on 1 August 2010. The act states, *inter alia*, that in order for biofules and bioliquids to be deemed "sustainable" its use needs to entail a 35% decrease of greenhouse gases as compared to usage of fossil fuels. From 1 January 2017 the threshold will be increased to 50%. From 1 January 2011, biofuels are only entitled to electricity certificates to the extent these are deemed "sustainable" in accordance with the above mentioned act.

D. Nuclear energy

D.1 Nuclear energy

Nuclear energy generation in Sweden

There are three nuclear power plants in Sweden today - Forsmark, Oskarshamn and Ringhals - comprising a total of ten operative reactors.

The former nuclear power plant Barsebäck was closed in 2005. The plant used to have two reactors – one reactor was closed in 1999 and the other was closed in 2005 due to political decisions.

Relevant legislative framework

The construction, possession and operation of nuclear plants and dealings with nuclear material and nuclear waste are governed mainly by the Nuclear Activities Act.[20] The act contains provisions on eg, permit requirements, final storage of nuclear waste, safe shutting down and demolishing of plants in which activities are no longer to be conducted and on safety in general. Provisions aiming to protect people, animals and the environment against harmful effects of radiation are also contained in the Radiation Protection Act.[21]

The Act on financing arrangements for the disposal of nuclear waste[22] contains provisions regarding obligations for holders of permits to possess or operate a nuclear reactor to pay charges to finance the disposal of spent nuclear fuel and other radioactive waste from nuclear reactors, and certain other expenses.

Payment of damages in the event of damage connected to nuclear activities or material will be governed by the Act on liability and compensation for radiological accidents[23] which was issued in July 2010 but enters into force on a later date to be decided by the Government.

Pursuant to the new act the operator of a nuclear power reactor that is in operation for the purpose of extracting nuclear energy shall be obliged to ensure (by way of effecting a liability insurance or by putting some other financial security in place) that funds corresponding to €1,200 million (under the current legislation this figure is approximately €300 million) are available in case of an accident so as to compensate injured parties who are entitled to damages. The terms and conditions of the insurance should be approved by the Government or by the Swedish Financial Supervisory Authority.[24]

It has been decided that the ban on the construction of new nuclear power plants in Sweden will be abolished as from 1 January 2011. The decision is controversial politically and may therefore be subject to change depending on the results in the upcoming elections. For further information regarding nuclear new build, please see our article "Recent Developments in the Swedish Energy Sector".

footnotes

1. The Swedish Energy Markets Inspectorate's (Sw. *Energimarknadsinspektionens*) report EL R2010:12
2. Sw. *Ellag (1997:857)*
3. Sw. *Förordning (2007:215) om undantag från kravet på nätkoncession enligt ellagen (1997:857)*
4. The Swedish Energy Markets Inspectorate's report EL R2010:12
5. Sw. *Naturgaslagen (2005:403)*
6. Sw. *Miljökonsekvensbeskrivning*
7. Sw. *Miljöbalken (1998:808)*
8. Sw. *Utsläppsrätter*
9. As amended by Directive 2009/29/EC (the Linking Directive)
10. Sw. *Lag 2004:1199) om handel med utsläppsrätter*
11. Sw. *Förordning (2004:1205) om handel med utsläppsrätter*
12. Sw. *Länsstyrelsen*
13. Sw. *Energimyndigheten*
14. Like the companies covered by the Emissions Trading Directive, individuals and organisations can also open personal holding accounts with the ETR and trade in emissions allowances
15. Government Bill 2005/2006:143
16. Sw. *Lag (2007:528) om värdepappersmarknaden*
17. Sw. *Lag (1994:1776) om skatt på energi*
18. Government Bill 1993/94:162
19. Sw. *Lag (2010:598) om hållbarhetskriterier för biodrivmedel och flytande biobränslen*
20. Sw. *Lag (1984:3) om kärnteknisk verksamhet*
21. Sw. *Strålskyddslagen (1988:220)*
22. Sw. *Lag (2006:647) om finansiella åtgärder för finansiering av restprodukter från kärnteknisk verksamhet*
23. Sw. *Lag (2010:950) om ansvar och ersättning vid radiologiska olyckor*
24. Sw. *Finansinspektionen*