

SVENSKA KRAFTNÄT  
INFORMATION

THE  
ELECTRICITY  
MARKET IN  
SWEDEN AND  
THE ROLE  
OF SVENSKA  
KRAFTNÄT



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In this brochure, we describe the electricity market in Sweden, and the role played by Svenska Kraftnät.

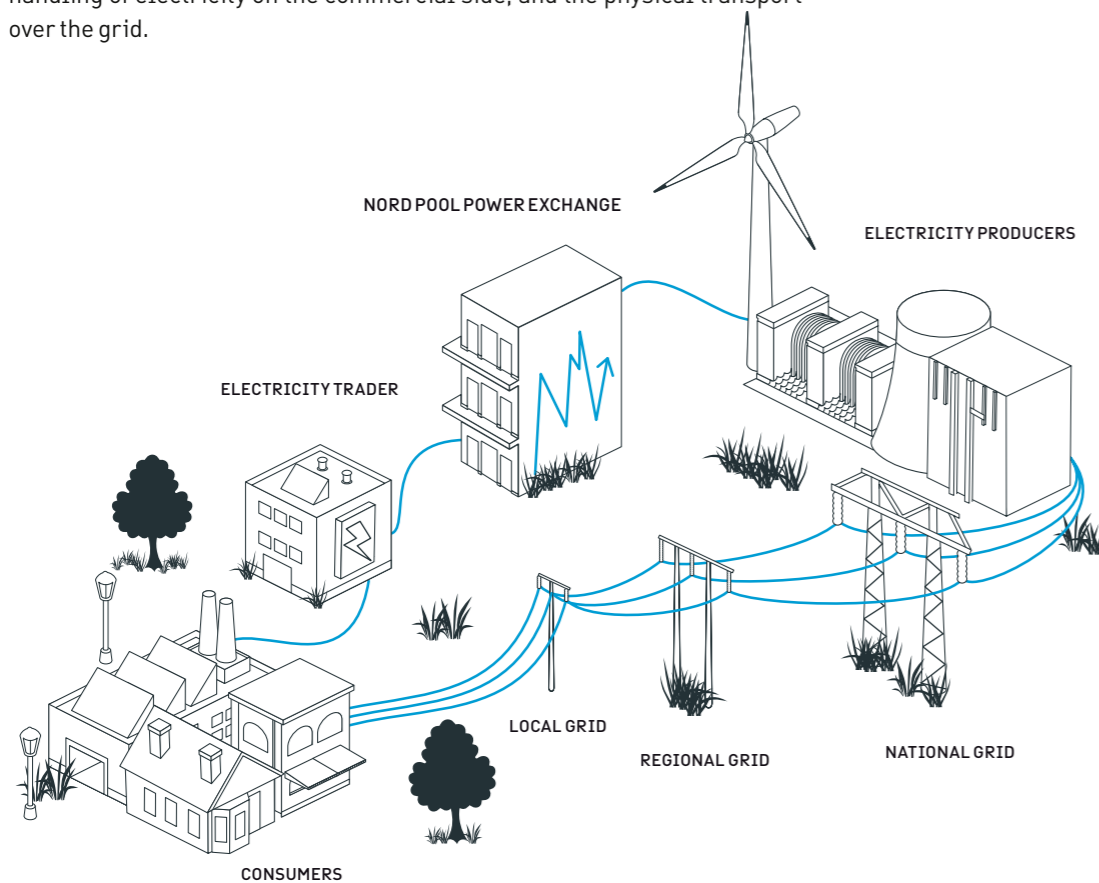
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"At present, around half of Sweden's electricity production comes from renewable energy sources like hydro-power, biofuels and wind power. The other half is generated from nuclear power."

# 01. THE SWEDISH ELECTRICITY MARKET - AN INTRODUCTION

The diagram below shows a simplified version of the electricity market – in terms of physical transmission as well as the commercial structure. Physically, the electricity passes through the various grid levels as it is transported from the power stations to the consumer. The electrical grid is a natural monopoly regulated by the Energy Markets Inspectorate. On the commercial side, producers sell electricity – either directly or via the power exchange – to electricity traders, which in turn sell it on to the consumer. The market players carry out their commercial activities in competition. Consumers pay for two separate services – the production and handling of electricity on the commercial side, and the physical transport over the grid.



The many players and functions in the electricity market need to cooperate closely, ensuring that consumers not only receive a reliable supply, but can also buy their electricity in a market where there is free and fair competi-

tion. Svenska Kraftnät plays an important role as described in a separate section later on.

Here is an outline of the functions of the other players:

**>Electricity producers** generate electricity in their power stations and feed it into the electrical grid. The producers are free to decide whether to sell their electricity directly to large consumers, to electricity traders or to the power exchange. Most of the generated electricity is sold to the spot market at the power exchange.

**>Power trading companies** buy electricity from the producers or from the power exchange, then sell it on to consumers. They are electricity suppliers, which means they have the commercial agreement with consumers.

**>Balance providers** The Electricity Act states that there must be a balance provider for all electricity produced or consumed. Each balance provider has its own balance agreement with Svenska Kraftnät. The function of balance providers is to ensure that there is a balance on an hourly basis between electricity supply and consumption for deliveries within their undertakings. Electricity producers, as well as electricity suppliers can act as balance providers. They can choose whether to keep the function in house or outsource it to another company.

**>Grid operators** own the regional and local electrical grid. They are responsible for ensuring that the electrical energy reaches consumers. The voltage in regional grids is 40 kV– 130 kV, and in local grids 40 kV and lower. The regional grids transport electricity from the national grid to local grids, and occasionally directly to high volume consumers such as heavy industry. The local grids distribute the electricity to other users like households, offices, factories, etc.

**>Consumers**, for example households and factories, are the actual users of electricity. Consumers usually have a contract with an electricity supplier to purchase electricity, and another contract with a grid operator allowing them to connect to the grid. Consumers pay their grid operator a grid fee for the connection and for the transmission of electricity.

**>The market place** for trading electricity – the Nordic power exchange Nord Pool – offers standard agreements designed to make it easier for the market players to do business with each other. Nord Pool Spot has a spot market (physical trading), where electricity is traded on an hourly basis up to the day before delivery. OMX/Nasdaq has a futures market (financial trading) for longer-term transactions allowing players to hedge their electricity price. While most of the hourly trading takes place on the spot market, a smaller proportion is covered by bilateral arrangements between electricity producers and electricity traders. The long-term trading, can also take place on a bilateral basis.

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## 02. SVENSKA KRAFTNÄT - IN BRIEF

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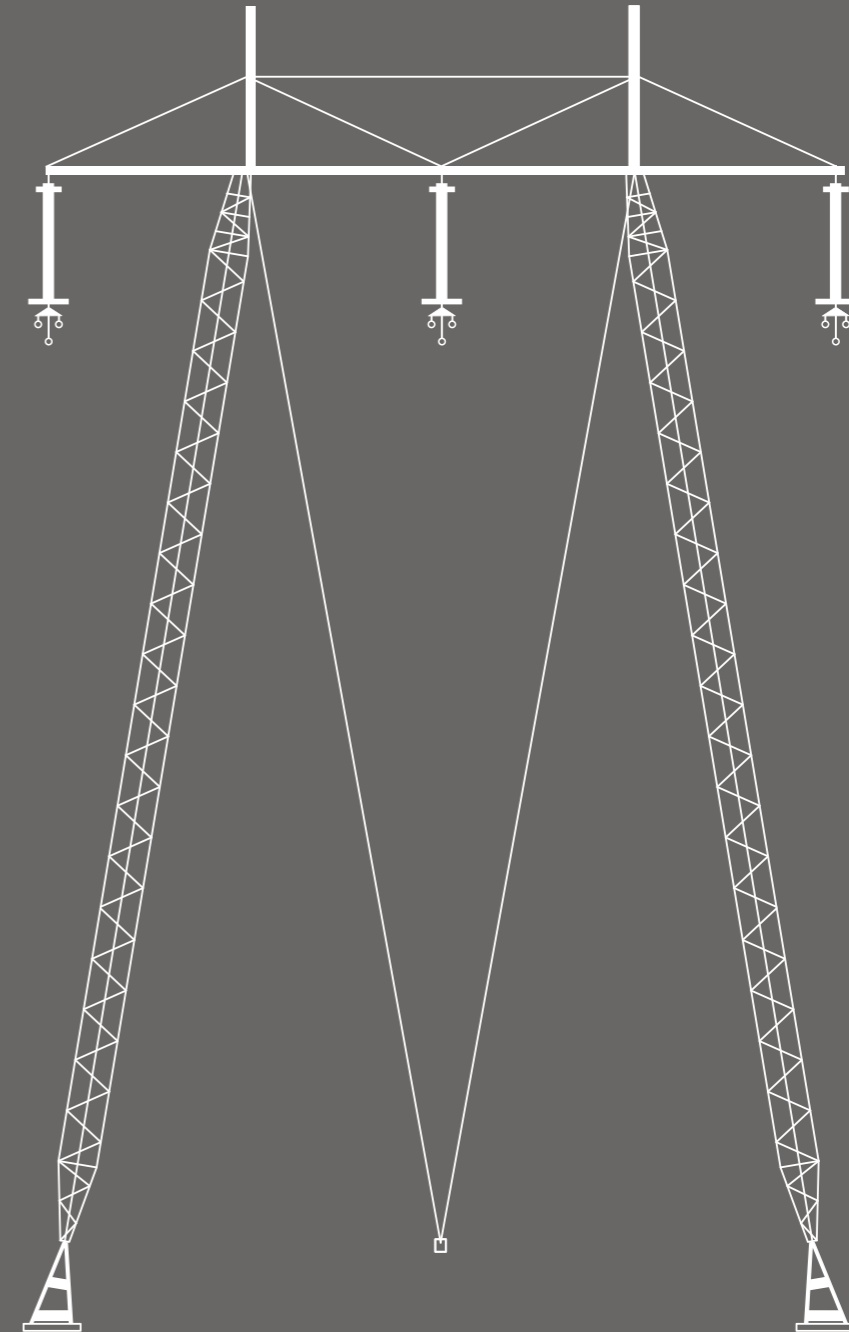
Svenska Kraftnät is a public utility that manages Sweden's national grid, which includes transmission lines, substations and international 400 and 220 kV interconnectors. The national grid carries large amounts of electricity over long distances. Only the largest production facilities and regional grids are connected to the national grid.

Svenska Kraftnät is also the system operator for electricity in Sweden. This involves ensuring that the Swedish electricity system functions reliably at the national level and that electricity production and imports match consumption and exports throughout the country. The international term is transmission system operator (TSO).

Svenska Kraftnät also plans for electricity contingencies, working to ensure that the national electricity supply is able to cope with critical situations. We are also the central advisory authority for dam safety.

Our grid activities are financed primarily through the fees (tariffs) paid by regional grid owners and major electricity producers in order to access the national grid. The cost of acting as system operator is paid by the balance providers.

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"For a well-functioning electricity market, it is crucial that the grids on all voltage levels interact correctly. That is why the grid owners are strongly devoted to make their grids reliable."

## 03. CREATING AN EFFICIENT ELECTRICITY MARKET

The market players must be able to buy and sell electricity in competition, and this requires the following:

- > A grid that can transport the necessary amount of electricity.
- > A grid tariff that provides access to the entire electrical grid.
- > A competition-neutral market place where the market players can buy and sell electricity.
- > An electricity system in balance.

### 3.1 A GRID THAT CAN TRANSPORT THE NECESSARY AMOUNT OF ELECTRICITY

For a well-functioning electricity market, it is crucial that the grids on all voltage levels interact correctly. That is why the grid owners are strongly devoted to make their grids reliable. In addition, the grid has to have the capacity to transport the quantities of electricity required by the market players. To meet this need and to be able to transport electricity from new production facilities, Svenska Kraftnät will upgrade the national grid substantially in the years to come.

In recent years, increasing amounts of electricity have been exchanged between Sweden and other countries and also between our Nordic neighbours and the continent. This means larger flows through Sweden. The national grid has constrained sectors, and in order to manage congestions in a more market-oriented way, Svenska Kraftnät has decided to split the Swedish spot market into separate bidding areas starting on 1 November 2011. To find out more about the areas, see the info box on page 22.

Until November 2011, Svenska Kraftnät will continue to use counter-trading to deal with internal transmission congestions in the national grid. In counter-trading, Svenska Kraftnät requests and pays for higher production or lower consumption in importing areas, meanwhile requesting and paying for lower production in areas with a surplus.

### 3.2 A GRID TARIFF THAT PROVIDES ACCESS TO THE ENTIRE ELECTRICAL GRID

An electricity market can only be free, well-functioning and open if all market players are treated fairly when using the grid. There must be no discriminatory barriers to new market entrants. In Europe, the point-of-connection tariff is considered to be the pricing model that best supports a free electricity market. This is the model that is used for electrical grids in Sweden. The point-of-connection tariff means that grid account holders can access the entire grid from their point of connection, and can trade

with any other market player for the same grid fee. For example, the fee for an electricity producer in northern Sweden is the same regardless of where in the country the electricity is used.

In addition, in order to encourage trading in electricity, the special fees for transporting electricity between the neighbouring Nordic countries have been removed.

#### The national grid tariff

The national grid tariff has two components:

- > A capacity charge to cover grid improvements, maintenance and operation.
- > An energy charge to cover the cost of buying electricity to compensate for grid losses that occur in the national grid.

If a market player plans to connect a production facility to the national grid or increase the rated capacity of an existing facility, it has to pay for the investments made by Svenska Kraftnät. This rule is modified if the connection delivers benefits for other market players.

The conditions on which the national grid is used are set out in access agreements.

#### The capacity charge finances upgrades, maintenance and operation

The capacity charge is a fixed annual charge intended to cover the costs that Svenska Kraftnät has in operating, maintaining and upgrading the national grid. In Sweden, much of the electricity is generated with hydro-power in the north whereas it is used largely in the south. For this reason, the capacity charge varies according to geographical location. The electricity transmission entry charge is higher in the north and the exit charge is higher in the south. The amount paid to Svenska Kraftnät by national grid users is the product of the reserved capacity (kW) and the capacity charge (SEK/kW).

#### The energy charge is used to compensate for energy losses

The energy charge is a variable amount designed to compensate Svenska Kraftnät for the costs to buy electricity to cover transmission losses in the national grid. The energy charge has three components:

- > loss coefficient
- > correction coefficient
- > loss-energy price.

The energy charge is the product of these three components. It is multiplied by the user's actual electricity input/ouptake. Transmission losses are not always increased – they can also be reduced depending on the geographical location of the input/ouptake, and users are either billed or credited accordingly. The energy charge is billed or credited monthly afterwards in Svenska Kraftnät's settlement process. To find out more about the energy charge, see the info box on page 23.

### 3.3 A COMPETITION-NEUTRAL MARKET PLACE

OMX/Nasdaq operates an exchange for long-term contracts (financial trading) for organisations involved in the Nordic electricity market. Nord Pool Spot AS is owned by the system operators in the Nordic countries, and

it runs the spot market – the exchange for hourly trading of electricity for the next day (physical trading).

From the point of view of the market players, the different parts of the power exchange work as a single market place.

#### **Spot market for hourly trading**

At Nord Pool Spot, the market players buy and sell electricity on an hourly basis for the next day. The countries involved are Sweden, Norway, Finland and Denmark. Estonia was established as a bidding area on 1 April 2010. At present, most electricity is traded on the spot market. In 2009, over 70% of consumption in the Nordic countries was traded at Nord Pool Spot.

Nord Pool Spot calculates the system price, which forms a reference price for the financial contracts concluded in the financial markets, and also for bilateral agreements.

#### **Adjustment market – when the spot market is closed**

Nord Pool Spot has an adjustment market called Elbas, where the market players can carry out intra-day trading, correcting any imbalances that arise after the spot market closes.

The adjustment market starts trading for the next day at 14:00 – two hours after the spot market finishes for the day. In the adjustment market, electricity can be traded in Finland, Sweden, Denmark and Norway up to one hour before delivery.

#### **Futures market for longer-term trading**

The financial futures market allows organisations to hedge the price of the electricity they buy, so they can offer fixed-price agreements to their customers. Standardised financial instruments (futures) are purchased for delivery in the future. The contract is for a specified amount of electricity over a specified period for a specified price. Because the contracts being traded do not involve physical delivery, this market place is also an attractive proposition for other categories of market player, for example banks. To find out more about pricing, see the info box on page 23.

### **3.4 BALANCE IN THE ELECTRICITY SYSTEM**

An electricity system can only function if there is always a balance between electricity production and consumption. Maintaining this balance relies on a shared responsibility between various organisations that are active in the electricity market. Much of the work is decentralised and done by the balance providers on hourly basis. However, the overall responsibility for the final balance falls under the authority of the system operator – in Sweden, that means Svenska Kraftnät.

This section describes the balancing process in its three phases: before, during and after the operating hour. By "operating hour", we mean the hour when production and consumption take place and steps must be taken in real time to maintain balance.

#### **Before the operating hour – planning**

In the planning phase before each operating hour, the balance providers must ensure that the electricity system will be supplied with the same amount of electricity they forecast to sell to their customers. The smallest increment time unit used for planning are hourly average values.

The supplied electricity includes own production and purchased electricity. Sales include deliveries direct to customers as well as sales on the power exchange. To maintain the balance every hour of the day and night, balance providers have some tools at their disposal – physical trading at Nord Pool Spot, the Elbas adjustment market and bilateral agreements.

When trading in the spot market is closed for the following day, Nord Pool releases information about the outcome to the market players. They can then use the information to formulate the following day's production plans hour by hour. In the case of hydro-power, this involves planning how the water in the reservoir will be used, taking account of legal environmental restrictions and the interdependence of the power stations in the same rivers. In the case of thermal power, it takes time to get the various types of facility up and running, and this needs to be considered during planning.

The decentralised planning carried out by the balance providers results in preliminary balancing of the wide fluctuations in consumption during the course of the day. As such, it is a crucial part of the overall balancing mechanism.

The balance providers are required to provide Svenska Kraftnät's balance service with information about production plans and forecast consumption for the following day. Svenska Kraftnät uses these plans and forecasts as a basis for balancing the entire electricity system in Sweden and transmissions over the national grid and overseas links. In doing so, we work closely with the system operators in neighbouring countries.

#### **During the operating hour – balancing in real time**

Each operating hour is supposed to begin with the preliminary balance broadly as planned by the balance providers. However, there are uncertainties due to forecasting errors or events occurring after the plans were finalised. Differences between the balance providers' plans and the actual situation can sometimes cancel each other out. But if they reinforce each other, action has to be taken.

During each operating hour, the system operator, i.e. Svenska Kraftnät, is responsible for the final balance. Svenska Kraftnät does not have its own physical resources to carry out balancing in normal situations. Instead, Svenska Kraftnät buys regulation services from balance providers with suitable resources, at present primarily production facilities.

The use of services is organised in a regulation market operated by Svenska Kraftnät's balance service. The balancing of the Nordic synchronized system must be done in a coordinated way. That is why certain functions in the national regulation markets are integrated with each other.

The frequency of the Nordic electricity system is used as a control parameter to regulate the physical balance. The normal range is 49.9 – 50.1 Hertz. Minor deviations from the planned balance are dealt with automatically by a process called primary regulation. At selected power stations – usually hydro-power – production automatically increases when the frequency drops and decreases when the frequency rises. If the frequency reaches the bottom of the range, this indicates that the primary regulation system has been stretched to its limits trying to maintain balance.

So as the frequency approaches the top or bottom of the range, production needs to be redespached in order to relieve the primary regulation. Svenska Kraftnät does this by deploying effective regulation interventions



"The primary function of Svenska Kraftnät is to operate and manage the national grid and the interconnectors of neighbouring countries. Another important function is to act as the system operator for electricity. This includes monitoring the national electricity system and ensuring that production and imports equals consumption and exports in the country."

– usually starting or stopping hydro-power units. Manual action is usually needed, although there will be a higher degree of automation in the future. These regulation interventions are called secondary regulation.

Whenever a regulation intervention is deployed in electricity production during the operating hour, the electricity producers have to change the plans they have for their power stations. For providing regulation capacity, companies quote a price that reflects the costs of making the regulation. According to the agreement on balance responsibility, the companies are obliged to make a bid to the system operator. As the Nordic regulation markets are integrated, the bids for regulation services are ordered according to price, regardless of country. The regulation services – for upward or downward regulation respectively – are used in ascending or descending price order provided that the bid meets certain conditions (for example electricity production must take place in the right geographical location) in the actual operational situation.

Svenska Kraftnät pays a price for upward/downward regulation to the company that provides the regulation service. The price is based on the highest accepted bid in the case of upward regulation (when the balance service buys electricity) or the lowest in the case of downward regulation (when the balance service sells electricity) during the particular hour in question. The same price is paid for all the bids that are accepted for balance regulation. If no regulations are necessary during the hour, a base price is used which is equal to the spot market price for the particular price area.

Payment for primary regulation services is based on agreements covering periods of varying duration. There is a pan-Nordic agreement stating the capacity that each country must maintain for primary regulation.

Under all normal circumstances, the regulation services are provided on the basis of commercial agreements. Svenska Kraftnät, as the system operator, does however have the authority to instruct electricity producers to deploy any regulation interventions that are necessary to maintain a reliable electricity supply.

#### After the operating hour – balance settlement

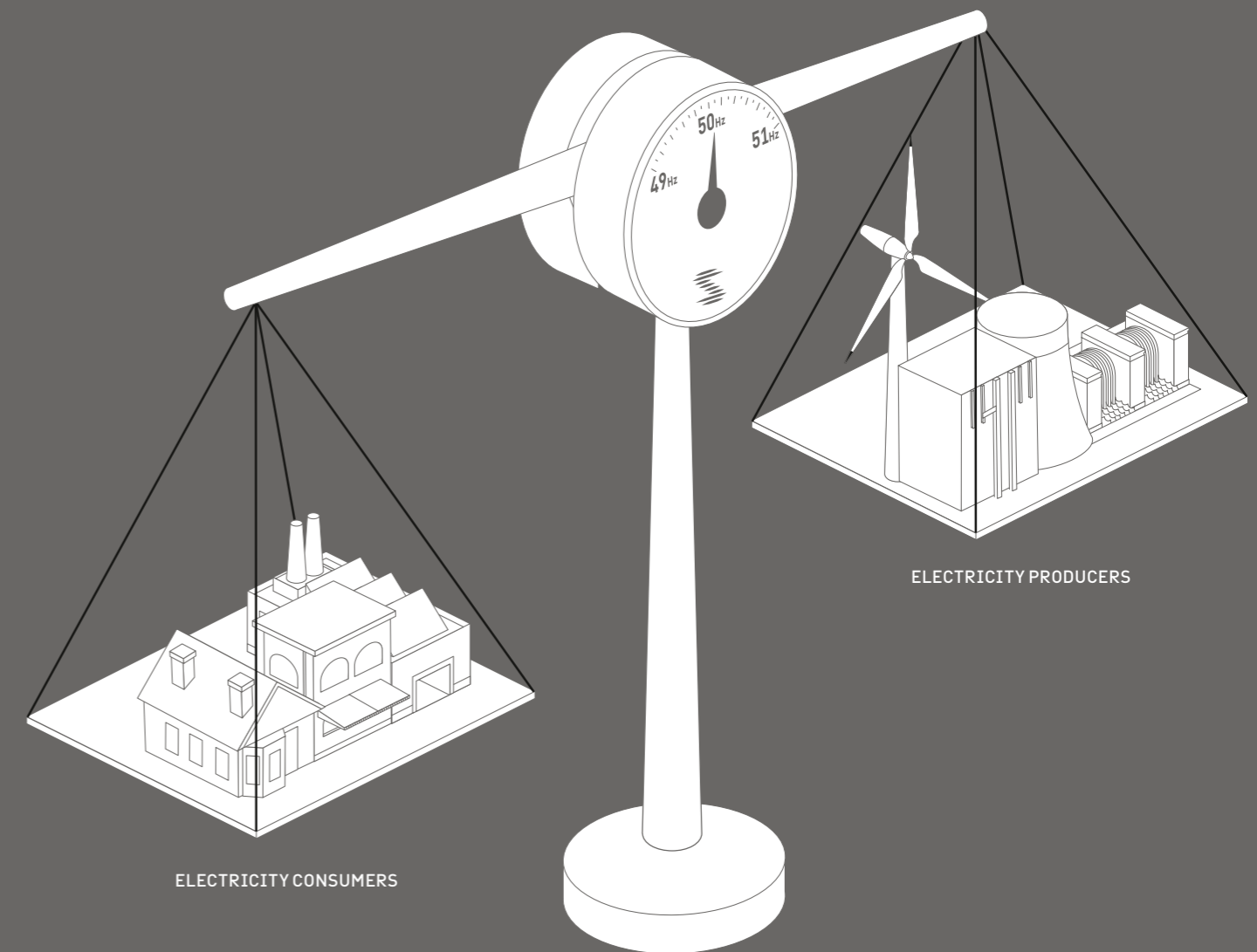
Svenska Kraftnät produces an account detailing the differences between the balance providers' planned balances and the actual situation. The differences are settled hour by hour for each 24-hour period. In accordance with the agreement on balance responsibility, the imbalance energy is billed separately for the production balance and the consumption balance.

The balance providers either pay or get paid for the imbalance energy. The price of the imbalance energy depends on whether Svenska Kraftnät requested upward or downward regulation during the hour in question, whether the balance provider's imbalance was positive or negative for the balance in Sweden as a whole, and whether the imbalance energy was related to production or consumption. Two-price settlement is used for production balances and one-price settlement is used for consumption balances.

The balance settlement is how Svenska Kraftnät shares out the cost of physical balance regulation among the balance providers. The balance settlement also shows the quality of the balance providers' production

## ELECTRICITY BALANCE

Svenska Kraftnät maintains balance between production/imports and consumption/exports in Sweden. The frequency must be kept close to 50 Hz.



planning and consumption forecasting, providing the companies with constant feedback and giving them an incentive to improve their planning accuracy.

#### Maintaining balance if there is a disturbance

When a disturbance occurs in the electricity system, due to unplanned incidents, more generation capacity must be brought in operation. This is often necessary to maintain the balance in a secure manner.

Svenska Kraftnät keeps special reserves available for situations like this.

#### Maintaining balance if there is a shortage of electricity in the system

Svenska Kraftnät does not have an absolute responsibility for ensuring that the production resources always match consumption in every situation. However, Svenska Kraftnät does have a statutory obligation to purchase an operating reserve in order to reduce the risk of a power shortage. A power shortage can occur if the demand for electricity is very high because of a cold snap, and production resources, including imports, cannot cover the demand.

There are two ways of providing the operating reserve. Svenska Kraftnät concludes agreements with electricity producers to make additional generating capacity available, and other agreements with major electricity consumers (steel works, paper mills, etc.) to reduce their consumption temporarily. The fixed costs for the operating reserve are charged to the balance providers.

If all the operating reserve is being used and there is a risk of a power shortage, Svenska Kraftnät urges the public via radio and TV to cut down on electricity use. As a last resort in order to maintain balance, Svenska Kraftnät can instruct grid operators to disconnect consumers. If this happens, Svenska Kraftnät decides where in the country the disconnections must take place, but not the individual users. These decisions are taken at the regional or local level. This is an extreme measure, and it has never yet been used in Sweden.

Read more about the difference between power and energy in the info box on the next page.

#### About bidding areas

Bidding areas are areas that can have different prices in the electricity spot market because of congestions in the national grid. They are called bidding areas because buyers and sellers invite/make area-based bids in spot market auctions. A bidding area is the smallest area that can have its own price. In principle, the prices in each area are set according to established market rules – in other words, production and consumption are adjusted so they match each other within each area and with the available transmission capacity to or from other areas. The process is organised by Nord Pool Spot in daily spot trading. For the hours in which there is adequate transmission capacity, the electricity price in all the areas will be the same.

#### How the energy charge is made up

The loss coefficient reflects how a change in the input/outtake of electricity at a point of connection marginally affects the transmission losses in the national grid. The loss coefficient is positive at points of connection where overall energy losses in the grid increase when electricity is feeded to the grid and fall when electricity is drawn from the grid. The loss coefficient is negative at points of connection where overall energy losses in the grid fall when electricity is feeded and increase when electricity is drawn.

To come closer to the average losses at points of connection, a scaling factor of 0.8 is used. The scaling factor is called the correction coefficient. Average losses are used to make sure no-one is charged or credited too much.

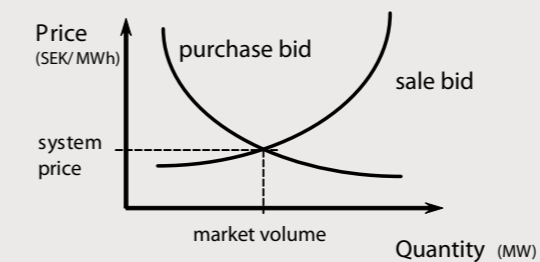
The loss-energy price is the price Svenska Kraftnät pays for the electricity it needs to make up for the losses that occur when electricity is transported in the national grid.

#### About electricity pricing on the power exchange

The electricity price is set on the basis of marginal pricing. This means that the price is based on the price of the last megawatt hour used. This is how most markets operate. Marginal pricing leads to greater competition and provides clear price signals.

Every morning, the market players submit bids or offers for a certain quantity of electricity for each hour of the following 24-hour period (midnight to midnight). When the spot market closes at 12:00 every day, the bids are combined to create bid/offer curves. The point at which the curves intersect – the equilibrium price – determines the system price and the quantity of energy that can be traded. By 13.00 each day, the power exchange is able to inform the players about the prices and the electricity trading they have been allocated during the coming twenty-four hour period.

The system price is based on all bids and offers in the market, but it does not take account of the actual trading capacity between the bidding areas. If the demand to trade between the bidding areas exceed the available capacity, area prices will be calculated for the different bidding areas.



#### About the difference between power and energy

Power is a measure of the capacity of a system. If a car cannot get up a hill, the engine is too weak. It does not provide enough power. If our production facilities cannot generate enough power to meet consumer demand, there will be a power shortage.

Energy, on the other hand, can be thought of as the endurance of the system. If there is not enough fuel to reach the next petrol station, the car will stop because it needs more energy.



The electricity supply depends on the daily exchange of vast amounts of information between the actors involved – for planning electricity transmission and supply, and for electricity trading and billing. And because end-consumers are free to change electricity supplier, it is vital for the companies to share information with each other.

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## 04. EXCHANGING INFORMATION

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The electricity supply depends on the daily exchange of vast amounts of information between the actors involved – for planning electricity transmission and supply, and for electricity trading and billing. And because end-consumers are free to change their electricity supplier, it is vital for the companies to share information with each other.

Most of the information in the electricity market is exchanged electronically using the Ediel standard. Ediel is based upon international standards for electronic messages (EDIFACT) and e-mail (SMTP).

### 4.1 INFORMATION IS NEEDED TO PLAN OPERATION

The balance providers have to supply information, so that Svenska Kraftnät can plan the operation of the national grid and maintain balance in the system. For example, they must report production plans and trading details by 16:00 on the day before the day of delivery, updating the information if necessary whenever it changes. Svenska Kraftnät uses the information to determine how much electricity will be transmitted over the national grid and to take the necessary steps (for example counter-trading) to avoid overloading the grid.

Svenska Kraftnät also keeps in constant contact with the control centres of electricity producers, grid operators and system operators in the other Nordic countries. The close cooperation between the Nordic system operators means that Svenska Kraftnät also needs access to operating information from neighbouring countries to help with planning. Large amounts of information are exchanged about subjects including transmission restrictions in the grid, planned overhauls of grids and production facilities and the common regulation market. In addition, the other grid companies, for example regional and local grids, need the information that is relevant for planning their day-to-day operation.

### 4.2 THE SETTLEMENT PROCESS REQUIRES PRODUCTION, CONSUMPTION AND TRADING DATA

The regional and local grid operators measure consumption in their own grid area and report it to Svenska Kraftnät. They add together the data from individual producers/consumers in each grid area (there are more than 300 grid areas). This aggregated data consists of 24 hourly values per day, and is reported every day of the year to electricity suppliers, balance providers and Svenska Kraftnät. The balance providers report their bilateral trading directly to Svenska Kraftnät.

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Svenska Kraftnät's balance settlement calculates the imbalance energy for each balance provider. The balance settlement is calculated every day, and the result is sent to the involved balance providers. The balance providers in turn have to calculate their own settlement in respect of the electricity supplies for which they have balance responsibility.

### 4.3 INFORMATION FOR ANALYSING THE MARKET

The players in the Nordic electricity market are able to trade on equal terms, either directly between each other or via the power exchange. To allow them and others to analyse the market, they need information about the actual trading (prices and volumes) and about the physical constraints affecting the market prices, etc. The market information must be correct and unambiguous, and must be equally accessible to all market players.

As a way of meeting these requirements, the system operators of the Nordic area have agreed to share important information about grids and balance services via the Nord Pool web site. For information about the European electricity market, visit [www.entsoe.net](http://www.entsoe.net).

### 4.4 INFORMATION ABOUT CONSUMERS

Electricity suppliers and the local grid company regularly exchange information about consumers. The grid company reports monthly usage to the supplier and also back to consumers. There is a particular need to exchange information when the consumer switches supplier or residence.

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## 05. AN OPEN EUROPEAN ELECTRICITY MARKET

To keep the electricity market running, it is vitally important to be able to monitor grid operation. Electrical grids are natural monopolies, and the grid owners must not be allowed to abuse their position. The regulator according to the Electricity Act is the Energy Markets Inspectorate, whose job is to ensure that the tariffs at all grid levels are reasonable and that grid activities do not subsidise other activities.

The Energy Markets Inspectorate checks that everyone in the electricity market plays by the rules, and also monitors and analyses developments in the electricity market.

The Nord Pool power exchange now has more than 300 participants. Electricity is traded in such high volumes at the exchange that pricing is efficient. Similar power exchanges have now been established in several European countries.

The electricity markets in much of Europe have been opened to competition as a result of an EU directive. Some of the new EU member states have not yet opened their markets, but deregulation is taking place. The Internal Market in Electricity Directive sets out the fundamental principles for deregulating electricity markets in the EU. The European Commission has also underlined how important it is for the system operators to cooperate in building a single electricity market.

From 1999, the system operators for electricity cooperated under the umbrella of ETSO (European Transmission System Operators) and regional organisations like Nordel in the Nordic region. Enhanced cooperation started in July 2009, when the European Network of Transmission System Operators for Electricity (ENTSO-E) was established. ENTSO-E supersedes previous groupings like Nordel and ETSO.

The third legislative package for an internal EU gas and electricity market was adopted in June 2009. The package contains a number of measures to boost competition in the electricity and gas markets. It also includes changes to existing legislation and suggestions for greater cooperation between the energy regulators.

The really important changes include measures to effectively separate grid activities from trading and production. The national regulators are given greater independence, more harmonised competences and a wider responsibility.

## ELECTRICITY MARKET DEREGULATION – A BRIEF HISTORY

The task of deregulating the Swedish electricity market began in early 1992, when parliament agreed targets and strategies for an electricity market reform, all aimed at increasing competition. Grid owners were given the responsibility of transporting electricity to or from anyone who requested it. Grid-related activities were to be strictly separated from electricity production and trading activities.

Svenska Kraftnät was created in 1992 when Statens Vattenfallsverk was restructured.

Responsibility for the national grid passed to Svenska Kraftnät, whereas production and trading were handled by the new state-owned company Vattenfall AB. The legislation required a separation at national level between the production and sale of electricity on the one hand, and activities relating to the national grid on the other.

On 1 January 1995, Svenska Kraftnät was made the statutory system operator, taking overall responsibility for electricity supplies in Sweden.

Starting in 1996, there was a new regime in the electricity market. After that date, consumers could change suppliers. All consumers needed was an electricity meter capable of measuring consumption on an hourly basis. Meters like this were expensive, which usually meant that it made no financial sense for small-scale consumers to switch supplier. That is why a separate licence called a supply concession was introduced in 1996. Companies with a supply concession were required to sell electricity to consumers not wishing to switch supplier.

On 1 July 1997, a capped price of SEK 2,500 on hourly meters was introduced for small-scale consumers. The aim was to make it financially viable for them to benefit from the open electricity market.

A new Electricity Act (1997:857) came into force on 1 January 1998. The new act was effectively a modernisation of the 1902 Electricity Act, in terms of its wording and content. No major changes were made to the provisions introduced as part of the electricity market reform a few years earlier. The big change, however, was the incorporation of the separate Electricity Trading Act into the new Electricity Act. In late 1998, parliament implemented the "Directive of the European Parliament and of the Council concerning common rules for the internal market in electricity" (Internal Market in Electricity Directive).

In October 1999, parliament decided to abolish the requirement for hourly meters for small-scale consumers, introducing profile-based settlement of consumption instead. In profile-based settlement, consumption is distributed over the hours in the year according to a consumption profile. This means that hourly values can be obtained even for consumers without hourly meters. The system of supply concessions was also abolished because hourly metering was no longer necessary in order to switch supplier. It now made financial sense even for low-usage consumers to switch supplier. The legislative changes came into force on 1 November 1999.

The most recent electricity market reform came into effect on 1 July 2009. From then on, all domestic customers must be billed every month according to their actual usage. The grid operator reads the meter automatically, and the readings are sent to the electricity supplier. The consumer's bill contains information about the electricity used during the month and the price charged.

The electricity market is in a state of constant development.



»Grid owners were given the responsibility of transporting electricity to or from anyone who requested it. Grid-related activities were to be strictly separated from electricity production and trading activities."

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## 06. READ MORE

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Visit these web sites to find out more about the electricity market. You can also order printed information from the web site of Svenska Kraftnät.

> Svenska Kraftnät	<a href="http://www.svk.se">www.svk.se</a>
> Swedish Energy Agency	<a href="http://www.energimyndigheten.se">www.energimyndigheten.se</a>
> Energy Markets Inspectorate	<a href="http://www.energimarknadsinspektionen.se">www.energimarknadsinspektionen.se</a>
> Swedenegy	<a href="http://www.svenskenergi.se">www.svenskenergi.se</a>
> Electricity Market Guide	<a href="http://www.elmarknadsutveckling.se">www.elmarknadsutveckling.se</a>
> NASDAQ/OMX	<a href="http://www.nasdaqomxcommodities.com">www.nasdaqomxcommodities.com</a>
> Nord Pool Spot	<a href="http://www.nordpoolspot.com">www.nordpoolspot.com</a>
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PRODUCTION  
We Made It, Stockholm

PHOTOGRAPHS  
Johan Fowelin

ILLUSTRATION  
Hampus Ericstam

REPRO  
Mods Graphic Studio

PRINT  
Danagårds Grafiska

COPIES  
4000 in Swedish  
2000 in English  
May 2011

ISBN 978-91-976721-0-8

THE  
ELECTRICITY  
MARKET IN  
SWEDEN AND  
THE ROLE  
OF SVENSKA  
KRAFTNÄT

