

# GLOSSARY

**Availability** Actual electricity generation capability in relation to the maximum possible generation.

**Brownfield site** Land or premises which has previously been used or developed and where certain infrastructure may exist.

**CHP** Combined heat and power plant. A plant that generates heat and electricity in the same process.

**CSR** Corporate Social Responsibility – a concept whereby companies integrate economic, social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.

**Deep repository** Underground facility for the final disposal of spent nuclear fuel. See also SKB's website <http://www.skb.se>.

**Deregulation** Abolishing monopoly rights and obligations to open up for competition. Used here as a synonym for liberalisation.

**Derivative instruments** Financial instruments where the value or change in value is derived from an underlying instrument. Examples of derivative instruments include options, forwards and swaps. Derivative instruments are often used in risk management.

**DSO** Distribution System Operator. Responsible for operating, ensuring the maintenance of and developing the distribution system in a given area (compare with TSO).

**EEX** European Energy Exchange, the German electricity exchange. Head office in Leipzig.

**Electricity spot market** Short-term physical trading in electricity on an exchange.

**EPD** Environmental Product Declaration. A system based on Type III declarations.

**EU 27** The 27 Member States constituting the European Union following the latest enlargement on 1 January 2007.

**Ex-ante tariff regulation** The approval of tariffs prior to implementation.

**Ex-post tariff regulation** Tariffs are examined by the regulator after implementation.

**Forward market** A market in which buyers and sellers agree on a fixed price for the future delivery of an underlying instrument, such as electricity. (See also Derivative Instruments.)

**Green Certificates/electricity certificates** Tradeable certificates issued for renewable energy. Called electricity certificates in Sweden.

**Greenfield site** A site or project location where no infrastructure exists.

**ISDA agreement** A bilateral general agreement prepared in accordance with guidelines established by the International Swap Dealers Association. The agreement regulates the parties' legal obligations in derivative transactions with each other.

**ISO 14001** International standard for environmental management systems.

**Kyoto Protocol** International agreement to reduce greenhouse gas emissions.

**Legal unbundling** Legal separation of transmission and distribution from other activities (generation/sales).

**Lignite** Brown coal.

**Local network** An electricity network in Sweden within the 0.4–20 kV range.

**Major disruption** Extensive disruptions in electricity network operations which result in many customers lacking electricity.

**Merit order** The order in which capacity is put into use.

**Nord Pool** The Nordic electricity exchange.

**NO<sub>x</sub>** A general term for various oxides of nitrogen.

**NTPA** Negotiated Third Party Access. Access to the network granted on the basis of bilateral negotiations between the network owner and the network user.

**OTC** Over the Counter. Trading (directly or via a broker) outside the official exchanges in physical and financial contracts.

**PoIPX** The Polish electricity exchange, Towarowa Gielda Energii.

**PSE** Polskie Sieci Elektroenergetyczne – Polish Power Grid Company.

**Regional network** An electricity network in Sweden within the 40–130 kV range.

**Regulator** The legal authority that supervises the market to ensure effective competition and fair pricing.

**Renewable energy sources** Non-finite energy sources such as hydro power, biofuel, wind, solar power, tidal power, wave power, geothermal power.

**Replacement power** Replacement delivery, in accordance with a riparian court decision, to the owner of another power station on the same river.

**RTPA** Regulated Third Party Access. Access to the network is provided based on published and regulated tariffs for the use of the network.

**Retailer** Firm at the end of the distribution chain, which normally buys a product from a wholesaler in order to sell it to the end consumer.

**Shared power** Several parties have the right to electricity from a particular power plant.

**SKB** Svensk Kärnbränslehantering AB, the party responsible for managing radioactive waste in Sweden.

**SO<sub>2</sub>** Sulphur dioxide.

**Spot market** A market where trade is conducted with immediate delivery.

**Swap** A financial instrument that is a combination of spot and forward transactions, a type of financial exchange agreement.

**Thermal power** Electricity generated via a heating process, such as a gas turbine or a steam process in a coal-fired or nuclear power plant (compare with CHP).

**TSO** Transmission System Operator. Responsible for operating, ensuring the maintenance of and developing the transmission system in a given area (compare with DSO).

**Unbundling** Separation of the transmission/distribution system interests from the other interests of a company.

**Value chain** Process for creating value. Within the electricity sector this includes the generation, transmission, distribution, trading and selling of electricity.

**Volatility** A measure of the extent to which the price of a commodity varies over a particular period.

## Energy terms

### Units of power

Power is energy per unit of time

Power is expressed in Watts (W)

1 kW (kilowatt) = 1,000 W

1 MW (megawatt) = 1,000 kW

1 GW (gigawatt) = 1,000,000 kW

### Units of energy

Energy is power multiplied by time

1 kWh (kilowatt hour) = 1 kW expended over an hour

1 MWh (megawatt hour) = 1,000 kWh

1 GWh (gigawatt hour) = 1,000,000 kWh

1 TWh (terawatt hour) = 1,000,000,000 kWh

### Voltage

1 kV (kilovolt) = 1,000 volt (V)

Vattenfall's history

# MILESTONES IN VATTENFALL'S HISTORY



**1909** The restructuring of the Trollhättan canal and hydro power plant to the Swedish State Power Board marks the birth of Vattenfall. The Swedish state had bought the water rights in Trollhättan a few years earlier and was now taking an active involvement in this emerging electricity generation technology.

**1909–1916** The first large hydro power plants – Olidan, Porjus and Älvkarleby – are built.

**1951** Inauguration of the Harsprånget hydro power plant, the world's largest hydro power plant in many respects. During the same year, the world's first 400 kilovolt transmission line is put in operation, stretching from northern Norrland to Hallsberg in Central Sweden.

**1952** The entire Swedish national electricity grid is hooked together.

**1954** Vattenfall commissions the world's first commercial high-voltage direct current line – between the mainland and the island of Gotland.

**1975–1976** Vattenfall's first two nuclear power reactors, Ringhals 1 and 2, are commissioned. During the 1970s and '80s, 12 reactors were built across Sweden, of which seven are owned by Vattenfall.

**1992** Vattenfall is transformed from a state enterprise to the limited liability company Vattenfall AB. Responsibility for the national grid – the Swedish high-voltage network – is transferred to the newly formed state authority Svenska Kraftnät.

**1995** Vattenfall's board charts out an international growth strategy for Vattenfall.

## European expansion 1996–2006

**1996** The Swedish electricity market is deregulated. The electricity network operations are legally separated from electricity generation and sales. Vattenfall's international expansion is initiated in 1996 through the acquisition of Hämeen Sähkö, a Finnish electricity distribution company. A representative office is opened in Hamburg, and Vattenfall begins working in the German market through the joint venture company VASA Energy.

**1998** The German electricity market is deregulated in April.

**1999** Vattenfall agrees to acquire 25.1% of the shares in HEW from the City of Hamburg, with an option for the city to sell another 25.1% to Vattenfall. The Barsebäck 1 nuclear reactor is decommissioned following a decision by Swedish parliament.

**2000** In January, 55% of the Polish heat production company EW is acquired in Warsaw, Poland. In August HEW signs an agreement with E.ON to acquire a majority shareholding in Berlin's energy company, Bewag. However, the deal is blocked by the US company Southern Energy (now Mirant).

**2002** In January Vattenfall acquires all of Mirant's shares in Bewag. Vattenfall's various acquisitions in Germany are gathered under the name Vattenfall Europe AG, which is formally established in August through the merger between HEW and VEAG, including LAUBAG. Vattenfall thereby becomes Germany's third-largest electricity generator.

**2003** In January/February, Bewag is merged with Vattenfall Europe AG. Vattenfall increases its stake in the Polish company EW to 70% and in GZE to 54%.

**2005** In April, 35.3% of the shares in the Danish company Elsam A/S are acquired. The nuclear reactor Barsebäck 2 is closed 31 May. In August, Vattenfall announces that it has gained possession of more than 95% of the shares in Vattenfall Europe AG and initiates compulsory redemption of the minority owners' shares.

**2006** On 1 January the German brands HEW and Bewag, and the Polish brands EW and GZE, are replaced with the Vattenfall brand. Vattenfall increases its ownership in the Polish companies to 75%. On 1 July a number of Danish wind power and combined heat and power assets are acquired from the Danish company DONG in exchange for ownership stakes in Elsam A/S and I/S Avedøre 2.

Production: Vattenfall AB and Intellecta Communication AB.

Photos: Bruno Ehlers, gettyimages and Vattenfall AB.

Illustrations: Mikael Jacobsson, Amigos.

Printing: Edita. Copyright 2007, Vattenfall AB, Stockholm, Sweden.