CBI Product Factsheet for Power Supply Units in Scandinavia

'Practical market insights for your product'

Scandinavian countries (Sweden, Finland, Denmark, Iceland, and Norway) are relatively small markets as compared to Western European countries such as Germany and France. Nevertheless, Scandinavian countries (except for Iceland) can be considered by DC exporters as potential export destinations, either for in-country consumption of for re-export. Penetration of electronics in new markets such as electronic lighting, as well as the increasing production automation will continue driving the demand for power supply units. Product quality, exporter reliability, well-developed sales and marketing strategy, a deep understanding of all costs and responsibilities are essential to be able to enter any European market.

Product Definition

Power supply units is a sub-category within the sector of Electronics and Electrical Engineering (EEE). This product category includes power supplies (HS code 85044030), transformers (HS code 85042100), measuring transformers (HS code 85043121), batteries (HS code 850680), UPS (HS code 850440), DIN rail, voltage stabiliser, inverters, converters (HS code 850440), and accessories such as chargers (HS code 850690), and coilware accessories (HS code 850490). High-tech and more sophisticated power supplies are typically used in Scandinavian countries.

Typically, brand names of power supplies are not very significant, while the product quality and design are of higher importance. However, industrial users may still go for established brands in electronic components. The number of global suppliers of power supplies exceeds 100. Some of the leading suppliers of power supplies include Acal Bfi, Ansmann, Benning, Codico, Dehner, Emerson Network Power, Friwo, Mean Well, TDK Lambda.

Photo example: *Inverter*

Photo example: *Converter*

Product Specifications

Quality: European companies are typically looking for power supplies that meet the following requirements: 1) fulfil the agreed-upon specifications, 2) are energy efficient and sustainable, 3) and have up-to-date (intelligent) technology.

- Power supply units are used in all application industries. Depending on the application, power supplies have various specifications. Voltage, consumption, adapter, and plugs are some of the parameters that define the product application. To assure the durability and safety, products must comply with the relevant EU regulations and standards. The materials used and especially hazardous substances have to comply with RoHS and must also meet REACH requirements.
- Depending on the design, a power supply may be powered by:
  - Electrical energy transmission systems. Common examples of this include power supplies that convert AC line voltage to DC voltage,
  - Energy storage devices such as batteries and fuel cells,
  - Electromechanical systems such as generators and alternators,
  - Solar power.
- In some application industries, such as electronic lighting and energy, the function of power supply units changes to more complicated and intelligent solutions, e.g. power supplies with integrated controlling units. The ability to supply products with customised designs can be advantageous for market players that are willing to export to Europe.

Labelling:
- Power supplies would be typically labelled with description of the content, including the following information:
  - type of product,
  - model type,
  - quantity,
  - net and gross weight (in kilograms),
  - supplier/manufacturer name and location,
  - serial number.
- DC exporters have to familiarise themselves with the labelling of energy-related products pursuant to the Waste of Electrical and Electronic Equipment (WEEE) Directive in order to formulate labels, indicate all product information and mark products accordingly (e.g. the symbol of the crossed-out wheeled bin).

Photo examples: *Labelling*

Packaging:
- Power supplies are typically packaged in plastic bags and cardboard boxes to protect them from damaging.

Photo examples: *Packaging*

Legislative Requirements

To assure the durability and safety, products must comply with the relevant EU regulations and standards. Compliance with European legislative as well as non-legislative requirements is a basic necessity for all exporters in the electronics and electrical engineering sector. Below, you will find the main mandatory requirements that your products must comply with. Make sure you have familiarised yourself with legal requirements in terms of labelling, dangerous substances, product safety and liability. Your products must comply with all EU directives.

- *Liability for defective products*. The liability applies to all products manufactured or imported into the European market. Typically, the company that brings the product onto the European market is responsible, but a claim can be passed on to the producer or exporter.

- *CE marking*. Power supply units must meet several technical standards laid down in EU legislation. The manufacture must carry out a conformity assessment and when compliant, the product must be marked with the CE mark. With a few exceptions, all components must be marked with the CE mark. When electronic components are sold as a subsystem or part of a finished good, they do not legally require the CE mark. However, driven by market requirements, nearly all customers will still demand the CE mark for most components, in particular when the components are critical in the application. For power supply units, the following directives may be relevant:
  - Electromagnetic compatibility (EMC Directive 2004/108/EC)
  - Low voltage equipment (LVD 2006/95/EC)
  - Ecodesign for Energy related products (Directive 2009/125/EC)
  - Equipment for use in potentially explosive atmosphere (ATEX Directive 94/9/EC).

- *Waste of Electrical and Electronic Equipment (WEEE).* If you want to export electronic or electrical products to the EU, you have to take into account that your EU buyers have obligations regarding the waste of these products. EU producers are obliged to participate in product take-back schemes. However, this does not directly affect exporters from developing countries. Its

Considerations for action

- Familiarise yourself with standards that specifically apply to your products. To ensure that your products are of high quality, review your quality assurance and testing procedure, e.g. through the implementation of an accredited quality management system (ISO 9001). Carefully formulate labels, instructions for use, and disclaimers. Finally, make sure your insurance covers product liability. See the document on EU legislation: Liability for defective products on CBI's Market intelligence platform.

- Apply for CE marking, which is required by all customers, also in cases when your product is a subsystem or part of a finished good and does not legally require the CE mark. If you are a manufacturer, you have to be familiar with the process of affixing the CE marking to power supplies. The European Commission has a very insightful website that illustrates the key steps to undertake from the beginning to the trading of the product. See the following documents for more information on EU legislation on CBI's Market intelligence platform:
  - CE marking for Electromagnetic compatibility
  - CE marking for Low Voltage Devices
  - CE marking for Eco-design of energy related products
  - Directive 94/9/EC (ATEX)

- Make sure your product design complies with WEEE and enables product recycling, recovery or dismantling. (Note that these requirements may differ per EU Member State.) Carefully formulate labels and mark products in accordance with WEEE (e.g. the symbol of the crossed-out wheeled bin). See the document EU legislation: EU legislation: Waste Electrical and Electronic Equipment (WEEE) on CBI's

requirements may have an impact when EU buyers ask their suppliers to meet specific design requirements or provide certain information.

- *Labelling of energy-related products.* EU producers and exporters are obliged to indicate energy consumption on household appliances and other energy-related products. (The list is being extended into industrial used products. Please, check when importing your products and discuss this with your European customers.)

- *REACH regulation* to manage the risks from chemicals and to provide safety information on the substances. This legislation restricts the use of certain hazardous chemicals used. Furthermore, it sets some requirements regarding information on the used chemicals. Manufacturers are required to provide information on the properties of chemical substances used to their buyers.

- *Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).* The directive bans the placing on the EU market of electrical and electronic equipment that contains more than the agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl and polybrominateddiphenyl ether flame retardants.

- *Heavy metals in batteries and accumulators.* Manufacturers and exporters of batteries and accumulators to Europe must make sure that the products do not contain heavy metals in levels that are prohibited by the EU. There are also labelling requirements for batteries and accumulators you must apply for.

Market intelligence platform.

- Make sure you indicate all product details (including, energy class, performance, capacity, noise level, etc.) required by the EU. See the document on EU legislation: Energy labelling of energy using and energy-related products on CBI's Market intelligence platform.

- Ask your buyer for their requirements regarding REACH. List all chemicals, including raw materials and additional materials, used in your production process. See the document Chemicals REACH on CBI's Market intelligence platform.

- Make sure that none of the hazardous substances referred to in RoHS Directive is used in your production process. Exporters of electronic components have to meet the requirements under both RoHS and REACH, since they are complementary. See the document Substances in Electrical and Electronic Equipment (RoHS) on CBI's Market intelligence platform.

- Make sure that heavy metals used in your products do not exceed the allowed levels. Be aware of the labelling requirements for batteries and adapt your packaging labelling as required. See the document EU legislation: Heavy metals in batteries and accumulators on CBI's Market intelligence platform.

Non-Legislative Requirements

Considerations for action

- *Quality management systems (QMS) – ISO 9001.* If you plan to export to Europe, all products must meet buyers' quality demands. ISO 9001 is designed to make sure that the manufactured and/or exported products to Europe meet the needs of customers. This document provides information on the world's most widely used QMS.
- For automotive application, components within an assembly,

- Apply for ISO 9001 as quickly as possible. Understand your target customers' requirements and if you plan to target automotive industry, get ISO 16949.
- See the document Quality management systems on CBI's Market intelligence platform.
- See automotive application-related requirements in terms of quality management systems here.

subassembly and finished good have to meet quality demands outlined in *ISO/TS 16949 QMS*.

- ***Functional Safety in accordance with ISO 26262.*** ISO 26262 focuses on the functional safety of electrical and electronic systems in vehicles.

- Apply for ISO 26262. Even though these requirements are not mandatory, they will definitely give you an advantage over other DC exporters. See the ISO webpage for more information on the guidelines of ISO 26262.

- ***Occupational health and safety in the electronic components sector****.* Occupational health and safety (OHS) issues are all aspects related to labour conditions and are very often part of EU buyers' social requirements for their suppliers.

- Consider implementing a management system on OHS (e.g. OHSAS 18000). European buyers are increasingly becoming more sensitive and need transparency in the supply chain and in labour conditions at all levels. Even though these requirements are not mandatory, they will definitely give you an advantage over other DC exporters if you can comply with them. See the document Occupational health and safety in the electronic components sector on CBI's Market intelligence platform.

- ***Electronic Industry Citizenship Coalition (EICC) Initiative.*** The most important sustainability initiative in the Electronics Sector, in Europe and internationally, focuses on social, ethical, health and safety, and environmental issues. Members are required to comply with the Code requirements. Some industry buyers can require their suppliers to follow the EICC code of conduct. Relevant for first tier suppliers especially.

- Find out what buyers (what industry) may require regarding the EICC code of conduct. Try to implement this policy. This will give you an advantage over other exporters. Explain your steps in this area on your website and in other company's literature. See EICC webpage for more information on the sustainability initiative.

- ***NEK standards published by the Norwegian Electrotechnical Committee, which is responsible for the electrotechnical standardisation activities.*** National standards are harmonised with European and International Standards. The application of standards is generally voluntary. However, for medical, toy, military, and some other applications, there are some additional standards on a country level, which have sometimes different limits/requirements as compared to the European standards.

- Primarily, you should aim for global compliance, but also consider country-specific requirements. Familiarise yourself with the Norwegian standards, if you plan to enter this market. Even though these requirements are not (legally) mandatory, they are often required by buyers. The decision whether to apply for country-specific standards can be driven by the application industry you are aiming for. Besides, Waste of Electrical and Electronic Equipment standards are regulated on a country level. See the NEK webpage for more information on the national standardisation in Norway.

- ***Swedish** national standards published by SEK Svensk Elsstandard*. National standards are harmonised with European and International Standards. The application of standards is generally voluntary. However, for medical, toy, military, and some other applications, there are some additional standards on a country level, which have sometimes different limits/requirements as compared to the European standards.

- You should primarily aim for global compliance, but also consider country-specific requirements. Familiarise yourself with the Swedish standards, if you plan to enter this market. Even though these requirements are not (legally) mandatory, they are often required by buyers. The decision whether to apply for country-specific standards can be driven by the application industry you are aiming for. Besides, Waste of Electrical and Electronic Equipment standards are regulated on a country level. See the SEK webpage for more information on the national standardisation in Sweden.

- ***Electrotechnical Standardisation in Finland is published by SESKO (a member of SFS – Finnish Standards Association).*** National standards are harmonised with European and International Standards. The application of standards is generally voluntary. However, for medical, toy, military, and some other applications, there are some additional standards on a country level, which have sometimes different limits/requirements compared to the European standards.

- You should primarily aim for global compliance, but also consider country-specific requirements. Familiarise yourself with the Finnish standards, if you plan to enter this market. Even though these requirements are not (legally) mandatory, they are often required by buyers. The decision whether to apply for country-specific standards can be driven by the application industry you are aiming for. Besides, Waste of Electrical and Electronic Equipment standards are regulated on a country level. See the SESKO webpage for more information on the national standardisation in Finland.

- ***National standards in Denmark are published by Danish Standards Foundation***. National standards are harmonised with European and International Standards. The application of standards is generally voluntary. However, for medical, toy, military, and some other applications, there are some additional standards on a country level, which have sometimes different limits/requirements compared to the European standards.

- You should primarily aim for global compliance, but also consider country-specific requirements. Familiarise yourself with the Danish standards, if you plan to enter this market. Even though these requirements are not (legally) mandatory, they are often required by buyers. The decision whether to apply for country-specific standards can be driven by the application industry you are aiming for. Besides, Waste of Electrical and Electronic Equipment standards are regulated on a country level. See the DS webpage for more information on the national standardisation in Denmark.

Trade Statistics

Imports and Exports

Being a small import and export market, Scandinavian countries (except for Iceland) can be considered by DC exporters as potential export destinations either for in-country consumption or for re-export. Geographical proximity may be beneficial for suppliers of customised electronic solutions. Consider supplying power supplies to Finland, which is strong on manufacturing.

Figure 1: Imports and growth of Power supply units (<2kW) to Scandinavian countries in 2012, %

Scandinavian countries	Share of total imports in EU+EFTA, 2012	CAGR of total imports* (2008-2012)	Share of imports from DCs of total in-country imports, 2012	CAGR of imports from DCs* (2008-2012)
Sweden	3.1%	1.9%	28%	-4.8%
Finland	2.6%	-2.1%	26%	-11%
Denmark	2.1%	6.1%	18%	18.1%
Iceland	0.2%	-3.8%	21%	5.5%
Norway	3.4%	2.9%	22%	10.8%
*Compound annual growth rate				

Source: Eurostat (2013)

Figure 2: Exports and growth of Power supply units (<2kW) from Scandinavian countries in 2012, %

Scandinavian countries	Share of total exports in EU+EFTA, 2012	CAGR of total exports* (2008-2012)	Share of exports to DCs of total in-country exports, 2012	CAGR of exports to DCs* (2008-2012)
Sweden	5.4%	4.9%	64%	9.6%
Finland	2.8%	6.1%	17%	1.2%
Denmark	1.1%	2.8%	24%	15%
Iceland	0%	-28.7%	0%	-38.6%
Norway	1.6%	7.3%	27%	9.6%
*Compound annual growth rate				

Source: Eurostat (2013)

Most important developments

- Imports of power supplies to all Scandinavian countries (Sweden, Finland, Denmark, Iceland, and Norway) account for 11.5% (in 2012) as compared to the 35% import share of the largest market in Europe - Germany.
  - o Sweden and Finland are the largest power supply units import markets among all Scandinavian countries.
  - o Norway and Denmark demonstrated the highest import growth rate in 2008-2012.
  - o Iceland is an insignificant market for power supply units.
  The role of DCs in imports of power supply units is stronger in Sweden (28% share) and in Finland (26% share), whereas the penetration of products from DCs is growing fast in Norway (10% growth) and Denmark (18% growth). DCs will continue to play an important role in

Considerations for action

- Consider targeting small European countries from the Scandinavian region. Import power supplies to Finland and Sweden, where the market is relatively large (compared to other Scandinavian countries) and to Norway and Denmark, where the importance of cooperation with DCs is growing.

Scandinavia, while OEMs are increasingly focusing on high-tech and more sophisticated power supplies and outsourcing the production of low-tech components and electronic parts to DCs.
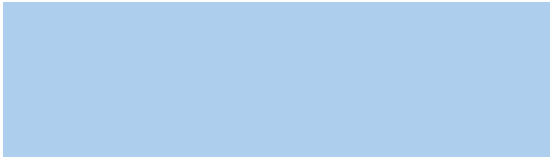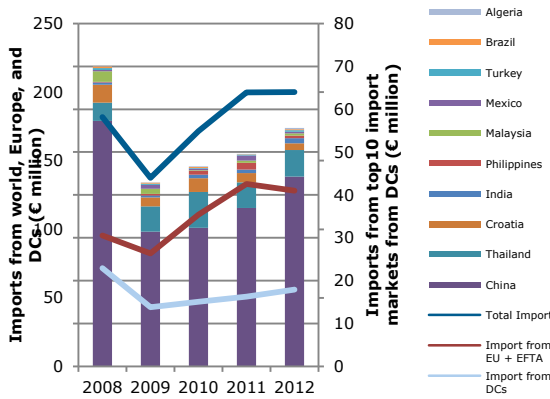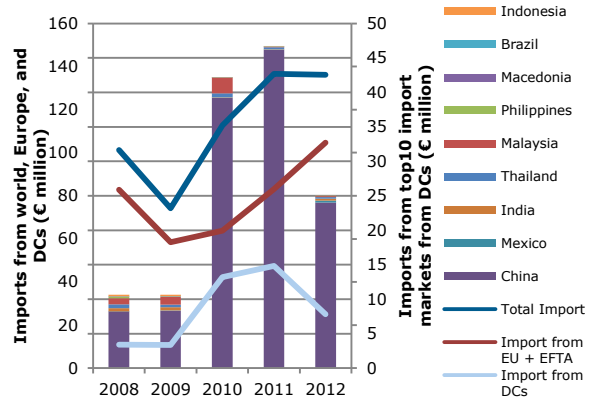
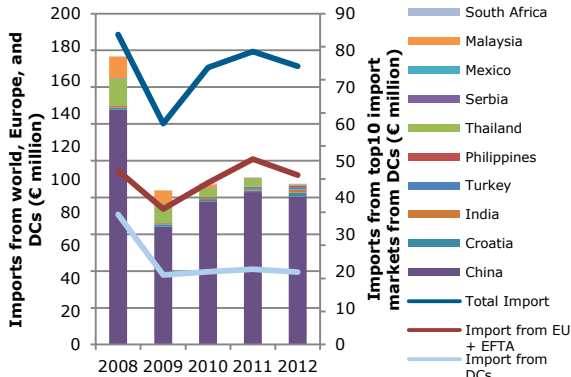**Figure 3:** **Imports of Power supply units (<2kW) to Sweden, value in € million**

Source: Eurostat (2013)

Figure 4: **Imports of Power supply units (<2kW) to Denmark, value in € million**

Source: Eurostat (2013)

Figure 5: **Imports of Power supply units (<2kW) to Finland, value in € million**

Source: Eurostat (2013)

Figure 6: **Imports of Power supply units (<2kW) to Norway, value in € million**
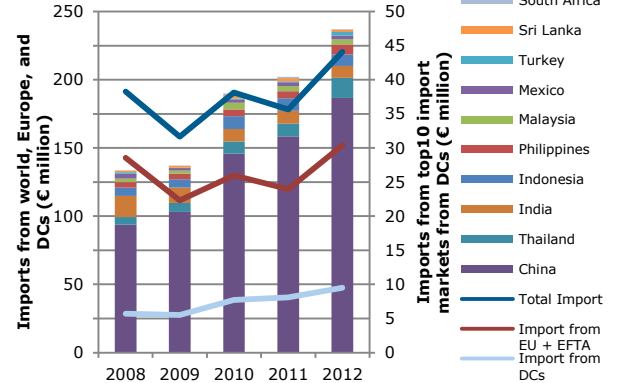
Source: Eurostat (2013)

Figure 7: **Exports of Power supply units (<2kW) from Sweden, value in € million**
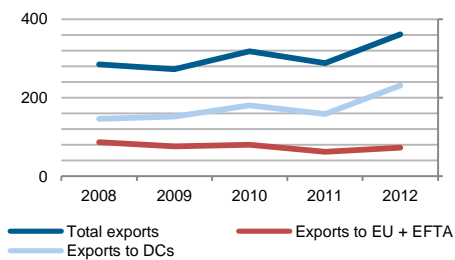
Source: Eurostat (2013)

Figure 8: **Exports of Power supply units (<2kW) from Finland, value in € million**
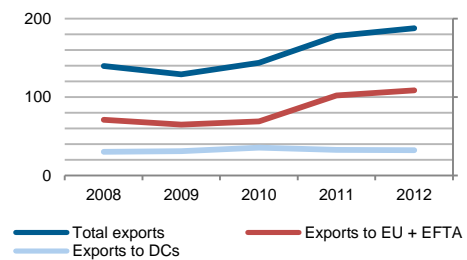
Source: Eurostat (2013)

Figure 9: Exports of Power supply units (<2kW) from Denmark, value in € million
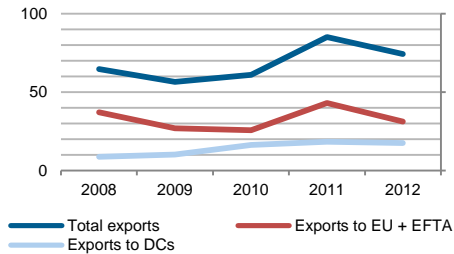
Source: Eurostat (2013)
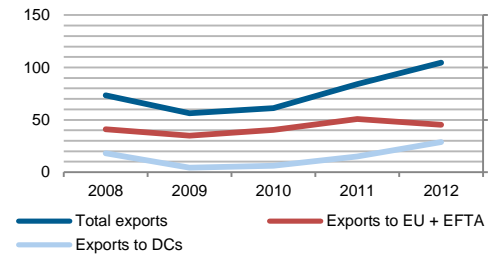
Figure 10: Exports of Power supply units (<2kW) from Norway, value in € million

Source: Eurostat (2013)

Most important developments

- Besides China, the largest DC exporters of power supply units are Thailand, Croatia (to join EU in July 2013), India, Indonesia, Philippines, Malaysia, and others. However, the strongest growth in imports to Scandinavian countries was recorded by Serbia, Algeria, and Turkey along with Mexico, Philippines, Brazil, and others. These countries are expected to continue to take up the share of imports from China.

- Sweden and Finland are the largest markets also in terms of exports of power supply units. The cooperation between Sweden and developing countries is the strongest of all Scandinavian countries. Finland, Denmark, and Norway are strong in the re-export to European countries. Finland is quite strong on manufacturing (14.5% of the GDP, see OECD statistics for more details), creating opportunities for DC exporters. The economic situation in the Scandinavian countries is expected to remain stable, driven by the refocus on the production and export of high-tech electronic components and systems.

Considerations for action

- Any developing country with a profound know-how and good product quality has opportunities for entering the European market and Scandinavian countries. Whereas with the increasing importance of customised electronic products and more intelligent electronic solutions, the geographical proximity may be a significant influencing factor in entering the European market.

- Sweden offers the best cooperation opportunities for DC exporters, as the export of power supply units to DCs demonstrated a significant compound annual growth (CAGR) in 2008-2012, but the import from DCs has been continuously growing after a plunge in 2009. Consider establishing partnerships with companies from Finland, Denmark, and Norway and targeting other European markets through re-export.

Production and Consumption

DC exporters will see opportunities for supplying Scandinavian countries with power supply units, where the production and investments in the electrical and electronics industry are set to decline or be transformed by refocusing on hi-tech know-how and by outsourcing the production of low-tech components and parts to low-cost production countries. The penetration of electronics in new markets will continue to drive the demand for power supply units.

Figure 11: Production of Power supply units in Scandinavia*, value in € million

Figure 12: Consumption** of Power supply units in Scandinavia*, value in € million
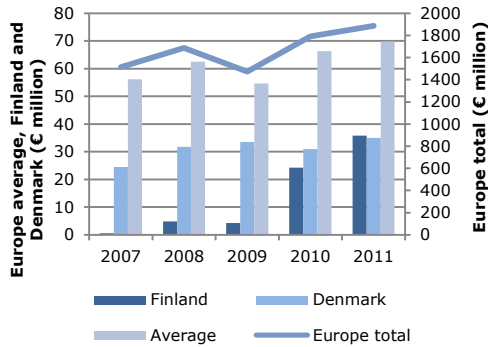
*Data for Sweden, Norway, and Iceland is not available.
Source: Prodcom (2013)
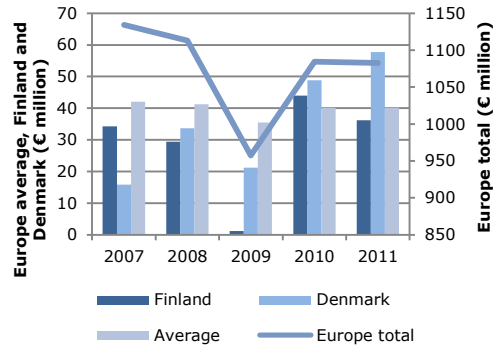
*Data for Sweden, Norway, and Iceland is not available.
**Apparent consumption (Production + Imports – Exports)
Source: Prodcom (2013)

Most important developments

- Finland and Denmark account for nearly 2% (each) of the total production value in Europe. The production in Scandinavian countries has been growing and in 2011, it could recover from the crisis that hit Europe in 2009. However, according to recent estimates, the electronics industry is undergoing a transformation in Scandinavia and in particular in Finland, where the production shift of Nokia to DC countries resulted in shifting power supply demand to those countries. While the output of the electrical and electronics industry is going down in Finland, manufacturers are refocusing on high-tech know-how and manufacturing with a high degree of automation. (Source: Invest in Finland, Statistics Finland). In Sweden, the rate of investment in the electronics industry is set to decline after several years of increasing investments. In 2012, companies from the electronics industry invested 22% less (source: Evertiq.se). This can have a negative impact on the production of power supply units in Scandinavia.

- Consumption of power supply units in Scandinavia is expected to be driven by the growing role of cooperation between Europe and DCs as a result of high production costs in Europe. Moreover, the emergence of new markets such as electronic lighting, the penetration of electronics into mechanical products/parts, production automation, and other drivers will push up the demand for power supply units in Scandinavia (which have a broad number of applications).

Considerations for action

- While Scandinavian countries are undergoing a transformation of the manufacturing industry and start refocusing on high-tech know-how and production automation, DC exporters have opportunities in supplying Scandinavian OEMs with electronic components, including power supply units, for further utilisation in an electronic solution or for industrial purposes (e.g., production automation).

- DC exporters will benefit from the growing demand of power supply units in Europe and in Scandinavian countries, as these products are used in a number of applications and are increasingly required in new markets such as electronic lighting.

Market Trends

Most important developments

- As a result of political measures and technological innovations such as electronic lighting, new markets emerge and create opportunities for electric and electronic component suppliers. New functions of lighting have been introduced recently: modified lighting to create an impact on emotions, adjustment of light colour, position, and micro flickering. Electronic lighting is of particular importance in Scandinavia, where the duration of daylight is very short during winters, i.e. there is a need for modified lighting to impact emotions.

- The importance of internet and connectivity, as well as of flexibility and efficiency resulted in the growing role of e-health, including telemedicine, electronic health records, dedicated software solutions for patient data management, appointment scheduling, etc. Telemedicine is of particular importance in Scandinavian countries, providing healthcare service to people living in remote and isolated areas. Scandinavian countries already have a number of solutions in place (more details at EC).

- Not only the product quality is essential for European OEMs, but also the product design is increasingly important. DCs need to work on acquiring Europe's best practices not only in the implementation of quality standards, but also in product design and presentation. E.g. no signs of handwork on product surface, clean and accurate packaging.

- With the growing role of international cooperation, European companies will increasingly be facing various risks that need to be measured and managed in order to keep the total cost of ownership (TCO) at a reasonable (low) level. Both smaller and larger companies will increasingly be looking for the most reliable suppliers and will try to eliminate the risk through supplier contract and cost management.

Considerations for action

- DC exporters have opportunities for supplying intelligent components for lighting solutions, such as intelligent power supplies for lighting with a controlling function or power supplies equipped with an integrated sensor (for example, to measure temperature changes).

- Consider offering power supply units to the emerging telemedicine industry in Scandinavia. Consider starting cooperation with companies that are involved in the development of e-health solutions in Scandinavia.

- Work on the improvement of product design and packaging. Work in line with European standards and follow all the buyer requirements.

- European SMEs present better opportunities as potential customers for DC exporters, but larger companies may also contact you as a potential supplier. That is why visibility on the market is crucial. Develop your sales and marketing strategy:
  - Work on well-structured and up-to-date content on your company's website;
  - Attend trade shows several years in a row. Start preparations for the trade show far in advance (see a list of trade shows in Annex 1);
  - Work on your *Unique Buying Proposition*, i.e. why should European OEMs buy your product;
  - Work on the product pricing (see Annex 2 for more details).

For more information on entering the European market, please refer to CBI Trendmapping for Electronics and Electrical Engineering.

Market Channels and Segments

See CBI Market Competitiveness for Electronics and Electrical Engineering, because the viable trade route for Power Supply Units does not differ significantly from the general trade route.

Market Competitiveness

See CBI Market Competitiveness for Electronics and Electrical Engineering, because competitiveness of Power Supply Units does not differ significantly from this general overview.

Useful Sources

Europe
- Eurostat, URL: http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/
- Eurostat Prodcom, URL: http://epp.eurostat.ec.europa.eu/portal/page/portal/prodcom/introduction
- Organisation for Economic Co-operation and Development (OECD), URL: http://www.oecd.org
- Distributors of electronics in all Scandinavian countries, URL: http://www.list-of-companies.org/

Finland
- Statistics of Finland, URL: http://www.stat.fi/index_en.html
- Electrotechnical Standardisation in Finland SESKO, URL: http://www.sesko.fi/portal/en/
- Online electronics magazine Prosessori in Finland, URL: http://www.prosessori.fi
- Weekly Finnish technology and economy magazine Tekniikka & Talous, URL: http://www.tekniikkatalous.fi
- Association of Suppliers of Electronic Components and Measuring Equipment in Finland, URL: http://www.elkomit.fi
- Federation of Finnish Technology Industries, URL: http://www.teknologiateollisuus.fi

Sweden
- SEK Svensk Elsstandard, URL: http://elstandard.se/om/about.asp
- Swedish online magazine Elektronik i Norden, URL: http://www.elinor.se
- Swedish Industry Association Sinf, URL: http://www.sinf.se
- Association of Swedish Engineering Industries, URL: http://www.teknikforetagen.se
- Evertiq news portal for electronics industry in Sweden, URL: http://www.evertiq.se
- Swedish Electronics Trade Association, URL: http://www.svenskelektronik.se/

Denmark
- Danish Standards, URL: http://www.ds.dk/en

Norway
- Norwegian Electrotechnical Committee, URL: http://www.standard.no/elektro

More information
CBI market information:
- CBI Tradewatch for Electronics and Electrical Engineering;
- CBI Trendmapping for Electronics and Electrical Engineering;
- CBI Market Channels and Segments for Electronics and Electrical Engineering;
- CBI Market Competitiveness for Electronics and Electrical Engineering.

This survey was compiled for CBI by Global Intelligence Alliance
in collaboration with CBI sector expert Günther P.Fandrich

Disclaimer CBI market information tools: http://www.cbi.eu/disclaimer

Annex 1

Leading trade fairs in Europe

- Electronica (www.electronica.de)
- CeBIT (www.cebit.de)
- Hannover Messe (www.hannovermesse.de)
- PCIM (www.pcim.com)
- EFA (www.efa-messe.com)
- belektro (www.belektro.de)

Leading trade fairs in Scandinavia

Sweden
- Scanautomatic (http://www.svenskamassan.se/en/sites/scanautomatic-processtechnology/);
- Elfack (http://www.elfack.com);
- Scandinavian Electronics Event (http://www.see-event.se);
- Elmässa (@ Easyfairs);
- Elektronik (@ Easyfairs).

Finland
- Automation and production technology fair, Tekniikka (http://www.jklpaviljonki.fi/eng/events_exhibitions.php);
- Subcontracting fair Alihankinta (http://www.subcontractingtradefair.com);

Annex 2

Price range for Power supply units

Prices of industrial power supplies range from €10 to €3,500 in Europe. The Suppliers that are present in several European countries have harmonised their prices. Any differences in pricing may occur because of the different logistics, tax, and other local costs.

Main groups of power supplies for industrial, automotive, lighting, and communication applications	OEM volume price range, €	Major suppliers in Europe
DIN rail power supplies	€ 11 – 420	Block, Dehner, Elektro Automatik, Murr Elektronik, Phoenix Contact, Puls, Siemens, Traco Power, Wago, Weidmüller
Rack mount power supplies	€ 12 – 400	Elektro Automatik, FG Elektronik, MGV
DC-AC inverters	€ 30 - 1,275	Co Tech, Custom Power, Mean Well, Stuber Innotec, Sterling
DC-DC converters, isolated/non-isolated	€ 3 – 310	Astec, Cosel, Mean Well, Murata Power, TDK-Lambda, Traco Power
Power supplies	€ 20 – 3,500	Agilent, Aim-TTI, Elektro Automatik, Telemecanique, Voltcraft
UPS	€ 40 - 2,750	APC, Block, Elektro Automatik, Eaton, Phoenix Contact, Riello
Voltage stabiliser	€ 10 – 300	Block, Crydom, Sollatek
Chargers	€ 5 – 150	Ansmann, EnerDan, Energier, Sanyo, Voltcraft

DC producers have to be aware of different costs and value chain margins that add up to the product price. Production and administration costs of the manufacturer usually constitute 44-51% of the end price (OEM volume price). The production and administration costs should include all raw material costs, development, labour, and other fixed and administration costs. To make a unique selling proposition, DC exporters have to understand own costs, liabilities, and responsibilities, and to analyse product market price levels.

OEM volume price breakdown	Margin
Production and administration costs	44-51%
Marketing and sales costs in DCs	3%
Freight to Europe and other related costs	6%
Import and other (e.g., VAT financing) costs	5%
Marketing costs in Europe	7-10%
Importer margin	8-10%
Distributor margin	15-25%