



### Denmark - powered by wind

The Kingdom of Denmark, commonly known as Denmark, is a country in the Scandinavian region of northern Europe. It is the southernmost of the Nordic countries. Denmark borders both the Baltic and the North Sea and has long controlled the approach to the Baltic Sea, and these waters are also known as the Danish straits.

Denmark is a constitutional monarchy with a parliamentary system of government. It has a state-level government and local governments in 98 municipalities. Denmark has been a member of European Union since 1973 and is a founding member of NATO. From 2006 to 2008, surveys ranked Denmark as “the happiest place in the world,” based on standards of health, welfare, and education. In the 2008 survey, the Global Peace Index ranks Denmark as the second most peaceful country in the world, after Iceland. Today Denmark has made its mark in Wind Energy Industry, occupying 40% of the world market.

From the 8th to the 10th century, the Danes were known as Vikings. Together with Norwegians and Swedes, they colonised, raided and traded in all

parts of Europe. Modern-day Danes pride themselves in their country’s welfare state with its widespread social protection for everyone. Among the best-known Danes are the writer Hans Christian Andersen, famous for his fairy tales, the author Karen Blixen and the designer Arne Jacobsen.

**Official Name :** The Kingdom of Denmark

**Location:** Denmark is located in northern Europe, and is the Southern-most of the Scandinavian countries. It is bordered by Germany to the South and by the sea on all other sides.

**Size:** 43,094 Sq. kms. Denmark includes the Jutland Peninsula as well as about 405 islands. The Faroe Islands and Greenland are autonomous and lie far to the Northwest.

**Population:** 5.447 Million (End December 2006)

**Language:** Danish. English is widely spoken.

**Head of the State:** Her Majesty Queen Margrethe II (since 1972)

**Time:** 3 1/2 hours behind IST in summer and 4-1/2 hours behind IST in winter.

**Capital:** Copenhagen

## Ambassador's Message



**HE Ole Lønsmann Poulsen**

During the past ten to fifteen years, with the emergence of globalisation, commercial relations between India and Denmark have flourished. Denmark currently ranks as the 19th largest investor in India, ahead of countries such as Russia and Norway, and around 75 Danish companies operate in India. Indo-Danish relations have developed into a multi-faceted partnership encompassing high-level political dialogue, trade and investments and cultural exchanges.

The Danish Prime Minister paid a successful state visit to India in February 2008 and launched the Danish Government's India Action Plan. A new agreement on New and Renewable Energy has been signed. Other bilateral agreements on cooperation in Environment, Clean Development Mechanism and Social Security are in the pipeline.

Denmark and India have already moved forward on renewable energy. Co-operation on renewable energy and energy efficiency is becoming increasingly important. India's energy-starved economy demands new sources of energy, and the looming threat of climate change puts emphasis on renewable sources. Denmark offers a wide range of opportunities and world-class competencies within the field of renewable energy and energy efficiency. Thirty years of focused energy policy, implemented after the 1973 oil crisis, have catapulted Denmark ahead of most other nations.

Denmark leads the way in the wind energy industry - with 20,000 people employed in the sector and occupying 40% of the world market. Denmark also has strong research activities in technologies such as hydrogen and fuel cell, with leading edge research programmes at Risø and the Danish Technical University.

The area of renewable energy is just one potential avenue for increased economic and commercial cooperation between India and Denmark in the coming years. Other obvious areas include the maritime sector, life science, the creative sector and ICT.

**Population:** 1.5 million (including suburbs).

**Other major cities:** Aarhus (216,000), Odense (140,000) and Aalborg (119,000)

**Climate:** Mean temperature of the coldest month (February) is 0.1 <sup>1</sup>/<sub>4</sub>C and that of the warmest month (July) is 17.8 <sup>1</sup>/<sub>4</sub>C. Average rainfall is 533 mm spread throughout the year.

**Religion:** Protestant (Evangelical Lutheran) -- (over 90%); Muslim -- about 3%

**Currency:** The Danish Kroner (Crown) is the unit of currency. Official rate of exchange is Rs 1.00 = DKK 0.126 (April 2007) and US \$ 1.00 = DKK 5.46 (end April 2007).

**Economy:** Agriculture formed the mainstay of the Danish economy before World War II. However, industrial exports now account for 77.6% of global Danish exports, agricultural and fishery products accounting for a mere 14.0%, the remaining 8.4% being made up by oil and natural gas exports.

Pharmaceuticals such as insulin, biotechnology, sustainable energy technology such as windmills, shipping, dairy and food processing, financial services are the strong pillars of the Danish economy.

**GNP:** DKK 1,632.5 Billion (calendar year 2006)  
approximately US \$ 274.5 Billion

**Per Capita Income:** Danish Kroner 299,700 (CY 2006) - approximately US \$ 50,395

**Inflation:** Calendar year 2006 average over CY 2005: 1.9%.

**Unemployment:** 3.9% of work force in February 2007 (approximately 107,000 persons).

### Note on economy

- GDP (2006): \$ 311.5 billion (current prices and exchange rates, source: OECD).
- Annual growth rate (real terms, 2007 est.): 1.8%.
- Per capita GDP: \$ 56,895 (current prices and exchange rates).

- Agriculture and fisheries (1.3% of GDP at gross value added): Products--meat, milk, grains, seeds, hides, fur skin, fish and shellfish.
- Industry (20.0% of GDP at gross value added): Types--industrial and construction equipment, food processing, electronics, chemicals, pharmaceuticals, furniture, textiles, windmills, and ships.
- Natural resources: North Sea--oil and gas, fish. Greenland--fish and shrimp, potential for hydrocarbons and minerals, including zinc, lead, molybdenum, uranium, gold, platinum. The Faroe Islands--fish, potential for hydrocarbons.
- Trade (2007, goods): Exports-- \$ 101.885 billion: manufactured goods 75% (of which machinery and instruments were 35%); agricultural products 9% (of which pork and pork products cover 48%); fuels, etc. 10%; fish and fish products 1%; other 5%. Imports-- \$ 98.861 billion: raw materials and semi-manufactures 44%; consumer goods 30%; capital equipment 12%; transport equipment 7%; fuels 5%; other 1%.
- Partners (percent of total trade in goods)-- Germany 17%, Sweden 15%, U.K. 8%, Norway 6%, U.S. 5%.
- Official exchange rate: 4.71 kroner=U.S. \$ 1 as of end March 2008.

Denmark's industrialized market economy depends on imported raw materials and foreign trade. Within the European Union, Denmark advocates a liberal trade policy. Its standard of living is among the highest in the world, and the Danes devote about 0.8% of gross national product (GNP) to foreign aid to less developed countries. In addition, Denmark in 2006 devoted 0.81% of GNP for overseas development. Denmark is a net exporter of food and energy. Its principal exports are machinery, instruments, and food products.

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for a mere 14.0%, the remaining 8.4% being made up by oil and natural gas exports. Pharmaceuticals such as insulin, biotechnology, sustainable energy technology such as windmills, shipping, dairy and food processing, financial services are the strong pillars of the Danish economy.

### EU membership of Denmark

Denmark is a member of EU since 1972. In a referendum on 18th May, 1993, Denmark approved the Maastricht Treaty, which allowed Denmark to join the EU however, with the exceptions in four key areas negotiated in the Edinburgh Agreement, viz. Single currency; Union Citizenship; Common Defence; and Justice and Home Affairs. In the referendum held in May 1998, 55.1% voters supported the Amsterdam Treaty thereby paving the way for Denmark's continued active participation in European cooperation. However, in the referendum held on 28th September 2000 Denmark decided not to join the common currency 'Euro'. From March 25, 2001, Denmark, along with the other four Nordic countries, joined the group of Schengen countries.

### India Denmark -bilateral trade

India's export basket mainly consists of traditional items such as apparels, textile yarns, fabrics, and carpets, footwear, organic chemicals, and pharmaceuticals. India's imports from Denmark mainly consist of medicinal and pharmaceutical goods, windmills, ocean-going vessels, special machinery, organic chemicals, electrical machines, telecommunication equipment and scientific instruments.

Export Import Data Bank						
Sr. No.	Year	2002 - 2003	2003 - 2004	2004 - 2005	2005 - 2006	2006 - 2007
1	Export	88,885.68	1,11,154.36	1,37,374.13	1,81,647.03	2,07,161.34
2	Percentage Growth		25.05	23.59	32.23	14.05
3	India's Total Export	2,55,13,728.00	2,93,36,674.00	3,75,33,952.00	4,56,41,788.00	5,71,77,928.00
4	Percentage Growth		14.98	27.94	21.60	25.28
5	Percentage Share	0.35	0.38	0.37	0.40	0.36
6	Import	69,379.48	1,03,667.20	1,21,414.00	2,28,424.70	1,53,925.59
7	Percentage Growth		49.42	17.12	88.14	-32.61
8	India's Total Import	2,97,20,586.00	3,59,10,764.00	5,01,06,456.00	6,60,40,888.00	8,40,50,632.00
9	Percentage Growth		20.83	39.53	31.80	27.27
10	Percentage Share	0.23	0.29	0.24	0.35	0.18
11	Total Trade	1,58,265.16	2,14,821.56	2,58,788.13	4,10,071.73	3,61,086.94
12	Percentage Growth		35.74	20.47	58.46	-11.95
13	India's Total Trade	5,52,34,314.00	6,52,47,438.00	8,76,40,408.00	11,16,82,676.00	14,12,28,560.00
14	Percentage Growth		18.13	34.32	27.43	26.46
15	Percentage Share	0.29	0.33	0.30	0.37	0.26
16	Trade Balance	19,506.20	7,487.16	15,960.13		53,235.75
17	India's Trade Balance	-42,06,858.00	-65,74,090.00	-1,25,72,504.00	-2,03,99,100.00	-2,68,72,704.00

**Note:** The country's total imports since 2000-2001 does not include import of Petroleum Products (27100093) and Crude Oil (27090000)

Danish Investment in India and Indian Investment in Denmark: During the last decade, the Danish Government encouraged direct investments into India through institutional support programmes operated by the DANIDA development agency functioning under the auspices of the Danish Ministry of Foreign Affairs and by the Danish Industrialization fund for Developing Countries (IFU). With the strengthening of the Indian economy, the Danish development aid received by India has been phased out over the last couple of years. India has also repaid all its sovereign debt to Denmark, which was around DKK 528 million. Denmark ranks as the 19th largest foreign investor in India, ahead of countries such as Spain, Canada, Russia, Ireland, and Austria. By end December 2006, total direct, Danish investment inflows received by India since 1991 had reached an amount of Rs 6,679 Million or approximately US \$ 162 Million.

Indian companies are increasingly being attracted to Denmark. Some of the leading Indian companies, namely, L&T Infotech, Tata Consultancy (TCS), Suzlon Energy Ltd., and Reliance Industries have their offices and operations in Denmark. Although many Danish companies initially entered India to tap into the Indian market, they are now increasingly moving to outsourcing. At this time India has become virtually synonymous with outsourcing with foreign investors tapping India for software development and business process outsourcing. Danfoss, Danisco, Grundfos, Maersk, and Vestas are some of the leading Danish companies' active on the Indian market.

Other Areas of bilateral co-operation: During the visit of the Danish Minister of Science, Technology and Innovation, Mr Helge Sander to India in October 2004, the countries signed an MoU for bilateral cooperation within the area of Biotechnology including stem cell research and diabetes treatment.

## The energy sector in Denmark

In 2005, 41% of Danish energy supply was covered by oil, 24% by natural gas, 20% by coal, and 15% by renewable. Since 1980, renewable energy has accounted for a steadily growing share of total energy consumption. Although Denmark is most internationally renowned for its development of wind power, two-thirds of the renewable share was bio-energy, derived from wood, straw, wastes or biogas. Wind power covers about 20% of electricity consumption. Nuclear power was long debated in Denmark, but is no longer an issue.

The electricity market in Denmark has been deregulated since 2003, considerably later than Norway, Finland and Sweden, and the gas market followed in 2004. Denmark joined the common Nordic power market NordPool in 2000.

In spite of the liberalization of the Danish energy market there is very little competition. By 2006 the mergers in the Danish energy sector had resulted in one dominant actor, the state owned DONG Energy. DONG (Dansk Olie og Naturgas) was originally established to exploit oil and gas resources and

develop Denmark's natural gas infrastructure. It has recently taken over the two main power producers, Elsam and Energi2, whose thermal plants also generate district heat. In addition, DONG Energy has taken over the electricity and district heat distribution companies in the Copenhagen region. DONG now controls 75% of Danish electricity production. Distribution networks in other parts of the country, and many smaller CHP (combined heat and power) or district heating plants as well as wind farms, are owned by local co-operatives or municipalities.

The energy industry has developed into a success story in Denmark, also in terms of exports of energy technology. Danish wind turbines have become a major export commodity with currency earnings of billions of €. In 2006, the export of energy technology reached 46 billion DKK (about 6 billion €), a figure that has tripled in only 10 years.

In 2006, total Danish energy production was 1240 PJ, which is 5.6% less than in 2005. The degree of energy self-sufficiency in 2006 was 145%. In other words Denmark produced 45 per cent more energy than it consumed. In 2006 Denmark was the only EU country to produce more energy than it consumed. Exports of gas, oil and electricity accounted for 76% of the Danish trade surplus in 2006.

### Important companies in the Danish energy sector

#### DONG Energy

Since 1984, DONG has explored for and produced oil and natural gas and, as a state-owned company, has established Denmark's natural gas infrastructure. DONG Energy was founded in 2006 as the result of a merger involving six Danish energy companies DONG, Elsam, ENERGI E2, Nesa, Copenhagen Energy's power activities and Frederiksberg Forsyning.

Dong is also one of Europe's leading companies within wind power, and is involved in large R&D projects of making windmills more efficient. 15% of Dong Energy's energy production comes from wind and hydropower, and this share is expected to increase. Especially offshore windmills are a central part of the corporations plan in the coming years. Lot of R&D in technologies such as solar energy and wave energy is being carried out.

#### Energinet.dk

Energinet.dk's main responsibility is to maintain an efficient and secure supply of energy through the



national transmission grid. Energinet.dk therefore secures the infrastructure in the energy field, and supervises the expansion of the grid. The state owned company intends to create equal conditions for actors in the market, and support environmentally friendly electricity production.

Energinet.dk administers programmes for funding research and development into technologies for environmentally friendly electricity production. The funding comes from electricity consumers who pay DKK 0.004 towards such research for every kWh of electricity consumed.

#### Danish solar energy

Danish Solar Energy PLC (GmbH) was established in 1993 and is one of the pioneers in the photovoltaic business. The company is strong on product development, electricity supply and solar power know-how.

#### Maersk oil

Maersk Oil Gas AS (Maersk Oil) is a company owned by A P Moller - Maersk A/S, and was established in 1962, when Mr A P Moller was awarded the concession for oil and gas exploration and production in Denmark. Maersk Oil is not involved with renewable energy. The Maersk group produces about 30% of the Danish oil and gas.



### Vestas

Vestas is the world's leading producer of high-tech wind power systems. Vestas' core business comprises the development, manufacture, sale, marketing, and maintenance of wind power systems that use wind energy to generate electricity. In June 2007, Vestas was named the world's greenest company.

### Siemens wind power AS

Siemens Wind Power AS was created when the Danish company Bonus was purchased by Siemens. All Siemens' production of wind turbines still takes place in Denmark.

## Business and government networks and dialogues

### Danish energy association

The Danish Energy Association is a commercial and professional organisation for Danish energy companies. It is managed and financed by its member companies, mainly the electricity companies, and works to secure for them the freest and most favourable conditions for competition and development in order to ensure development, growth and well-being in Denmark. The organization also works to ensure energy production with minimum environmental impact and to reduce total energy consumption, to promote innovation as to increase energy technology and provide jobs.

### Danish wind industry association

The Danish Wind Industry Association (DWIA) is a non-profit association whose purpose is to promote wind energy at home and abroad. The association was founded in 1981. DWIA today represents 99.9%

of Danish wind turbine manufacturing measured in MW and more than 140 companies with activities in the Danish wind industry.

### Danish solar energy society

The Danish Solar Energy Society works to promote the use of solar energy in Denmark.

### Danish district heating association

Danish District Heating Association is a member organisation representing 400 district heating companies. These companies account for 98% of the district heating sold in Denmark.

### Danish biogas association

The aim of the association is to increase the production of biogas on an economically sound and environmentally sustainable basis in Denmark. The Biogas Association is lobbying for politicians to create sound economic conditions for the biogas production. The Danish Biogas Association is an organisation for public institutions, associations, enterprises and farmers.

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