

Chile

The Republic of Chile (República de Chile) with its capital Santiago de Chile (4.640.635 inhabitants, 1997) covers an area of 756.620 km² with a population of 15,21 million. The population density is 20 inhabitants per km² while 84 percent of the total population is living in urban areas.

Colloquial spoken, Chile is the ‘world’s largest towel’ with a length of 4.275 kilometres and an average broadness of just 188 kilometres. Situated south of Peru and west of Bolivia and Argentina, Chile fills the strip between the Andes and the Pacific. One-third of Chile is covered by the Andes. In the north there is the Atacama Desert which is the driest place on Earth. In the country’s centre is a thickly populated valley with most of Chile’s arable land.

Economically the country depends on exports which accounted for about two-fifths of the gross domestic product in 2000. Mineral resources constitute most of the exports. Copper alone accounts for 40 percent of the world market. Accordingly, the economic performance of Chile is highly dependent on external demand and commodity prices. The world economic slowdown, coupled with a 13 percent decline in copper prices during 2001, resulted in economic problems. Nevertheless the economic growth rates, while recently modest, have been among the world’s highest in the past decade. Chile is considered to have one of South America’s most open economies and is a partner in several bilateral trade agreements. Chile for example, is an associate member of Common Market of the Southern Cone, Mercosur, and has been in negotiations with the United States about inclusion in the North American Free Trade Agreement (NAFTA) as well as the planned Free Trade Area of the Americas (FTAA). Recently, Chile entered into a trade agreement with the European Union whereby both sides will eliminate all import tariffs over the next ten years.

Politically, Chile had serious problems in the past decades. On September 11, 1973 when armed forces bombarded the presidential palace. A military government, led by General Augusto Pinochet, took over control of the country. The first years of the regime were marked by serious human rights violations. On December 14, 1989, Christian Democrat Patricio Aylwin, the candidate of a coalition of 17 political parties called the Concertacion, received an absolute majority of votes. After a period of four years, Christian Democrat Eduardo Frei Ruiz-Tagle, was elected President with an absolute majority of votes, for a 6-year term. President Frei’s administration was inaugurated in March 1994. A presidential election was held on a December 12, 1999, but none of the six candidates obtained a majority, which led to an unprecedented runoff election on January 16, 2000. Ricardo Lagos Escobar of the Socialist Party and the Party for Democracy led the Concertacion coalition to a victory.

Chile’s electricity consumption of about 38,58 million MWh in 2000, was covered by a 61 percent share of fossil fuels, 35 percent hydropower and 4 percent remainder of other renewable energy sources¹. Hydropower from westward flowing rivers in the Andes Mountains has historically been Chile’s single largest electricity source, at times comprising over half of the country’s installed electric generation capacity. Severe drought from late 1997

¹ EIA 2002.

until well into 1999, crippled the country's electricity sector and caused rolling blackouts in Santiago. As a result, Chile is working to become less reliant on hydropower.

Chile has four electric grids in operation: the Central Grid, which relies chiefly on hydroelectric power to service over 90 percent of the population; the Northern Grid, which is mainly thermal and serves mostly mineral-processing centres in the North; and the Aisén and the Magallanes systems, which are both located in the South of the country, and serve remote areas with a combined generation capacity of about 1 percent of the country's total. Coordination within each system is carried out by the Economic Dispatching Centre (CDEC), an autonomous entity composed of members from all utilities within each system to ensure efficiency and security of the electric system. Aside from these four grids, 'self producers' account for about 12 percent of national generation.

With energy demand forecasted to grow by 7 percent annually, several new power generators are being developed.² Endesa (Spain) is developing the 570-MW hydroelectric project, located in the south of Chile. The project will account for an 18 percent boost in production to the current power supply of the Central Grid. Completion was originally expected in 2003, but may be delayed due to pending litigation filed by displaced indigenous people as well as by damage caused by heavy rains in June 2001. Tractebel (Belgium) is also building a 480-MW plant to begin operation in 2005. A combined-cycle facility is being developed adjacent to the existing Nueheco I plant in Quillota. The completion of the gas turbine facilities is expected in May 2003, adding 250 MW to the grid, while the steam facilities are expected to come online in March 2004, boosting the new plant's capacity to 370 MW.³

Chile is a small oil producer, with an output of 6000 barrels per day (bbl/d), and proven reserves of 30 million barrels in 2000. Chile's overall oil consumption in 2000 counted 89,4 million barrels, resulting net imports of more than 87 million barrels⁴ in 2000. Chile's oil imports mainly come from Argentina, Ecuador, Nigeria, and Venezuela.⁴

Chile has natural gas reserves of about 45 milliard cubic metres and consumed 5,52 milliard m³ in 2000. Declining production and rapidly expanding demand has resulted that Chile became a highly dependent natural gas importer. Since 1997, four natural gas pipelines have been built between Chile and Argentina. These pipelines, along with the lines already in place, extend from Argentina's producing natural gas fields westward to Chile's urban centres and power generators. Power generators are the country's largest consumers of natural gas. Chile is seeking to diversify its fuel mix by moving away from hydroelectric power and towards gas-fired electric generation. Eight new gas-fired plants are planned for completion by 2010.⁵

Chile has total recoverable coal reserves of 166 million tons, and produced 0,4 million tons in 2000. Consumption was 4,6 million tonnes, making Chile a net coal importer of 4,2 million tonnes. The power sector is the country's largest coal consumer with coal has functioning largely as a back-up to hydropower.

Despite the large prominence of agriculture in Chile, biomass is only barely used today in the electricity generation. In collaboration with the environment agency and with technical and

² WEC 2002.

³ For further information: <http://www.gobiernodechile.cl>

⁴ WEC 2002.

⁵ For further information: <http://www.gobiernodechile.cl>

financial support of International Organisations, mainly UNDP, recently a project on 'Generation of electrical energy by gasification of wood biomass' has been implemented in distinct areas of the country. A plant with a present average outcome of 40 kW supplies electricity to 31 families.⁶ Interestingly it is run by a cooperative, which was founded specially for that purpose.

Geothermal energy is one of the main potentials in using bioenergy for Chile, as the country is located in a volcanic zone. At present this capacity is fairly inadequate exploited in the metropolitan area of Santiago de Chile. The country's agricultural products are sugar beet, potatoes, wheat, corn, beans and fruit which could be utilised for energy production, while livestock and fish farms could provide biogas-suitable residues.

⁶ GTZ 2002: 43 f.