

# **Power Predictor 6**

## **Report**

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# ABS Power Predictor Ed 6 2007

## Introduction

- Power Predictor is an ABS product that is made up of a report and an Excel database
- The new PP6 report contains a wealth of new analysis
- The database has been significantly expanded
- Power Predictor is an up-date which shows quite a few changes in future projected generating capacity
- The industry is changing rapidly
- Technology is moving very fast in response to concerns about security of fuel supply, environmental issues and fuel prices
- The team has researched national plans further and evaluated them
- We conclude that some will be achieved and some not

## Report Scope

- Installed generating capacity is now recorded for almost every one of the 187 countries annually from 1950 to the present and projected forward annually to 2020, an expansion on previous editions that were limited to 1991 to 2010 for annual data
- Project database of 2,456 new generation projects in the pipeline
- Annual capacity by fuel (where applicable - coal, oil, gas, hydro, nuclear, wind, solar PV, solar thermal, geothermal, biomass, ocean) is recorded from 1990/91/92 to 2011
- New additions and capacity reaching the age of 40 years is provided for every country
- The report contains over 370 charts with new analysis showing some fascinating new conclusions
- In addition to 2 previous charts which have been up-dated (generating capacity in 5 year segments and annual capacity) the report now contains 3 new sets of analysis for each country
- Capacity is charted against generation historically to show periods and trends of high and low utilisation
- Capacity by fuel charts have been introduced from the ABS Fuel Forecasts series
- The report now contains historical charts of utility production compared with auto-production (captive production) from 1950 for most countries

## Some Research Findings

- The disparities in expected growth remain between different regions of the world
- In the early days when electrical capacity was very low, the private industrial producers had a far high share of the national total than the public utilities, in some countries as high as 50-60%
- In the big industrial countries the growth of utility capacity far outstripped private industry and sometimes the share has fallen from 50% to 5% over 50 years
- In other countries, where grid coverage is poor and supply unreliable, the private share has retained a high share
- Capacity utilisation can be related to many variables; water shortages in countries heavily dependent on hydro capacity, demand increasing faster than new build (occurring in many countries at different periods for various reasons), industrial decline (very apparent in the FSU and CEE countries after the dissolution of the Soviet Union), at other times generation fell while capacity increased
- Some countries have demonstrated a perfect match of capacity against generation and there are some surprises here
- Chile and Columbia in South America have shown an almost perfect match for 50 years, whereas Paraguay with its mighty dams generated far below capacity for many years

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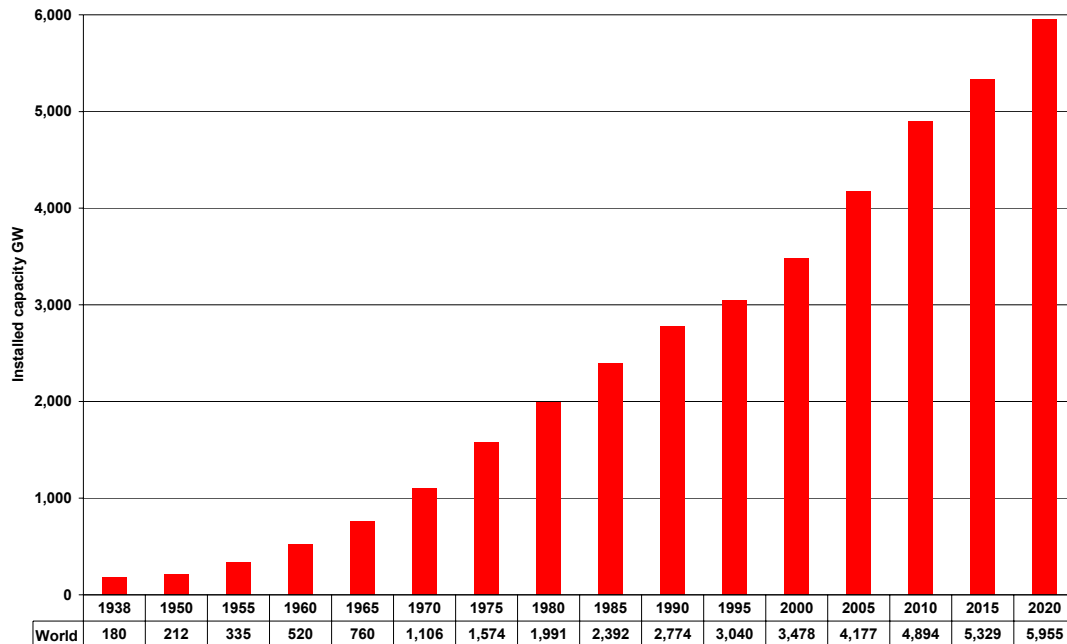
## Overview

# Overview of World Generating Capacity, the Power Prediction

Global generating capacity rose from approximately 180 GW in 1938, to 212 GW immediately following the end of the Second World War, and then to 4,519 GW in 2007.

Global capacity is forecast to reach 5,955 GW in 2020.

**Figure 0.1: The evolution of global generating capacity, GW, 1938 to 2020**



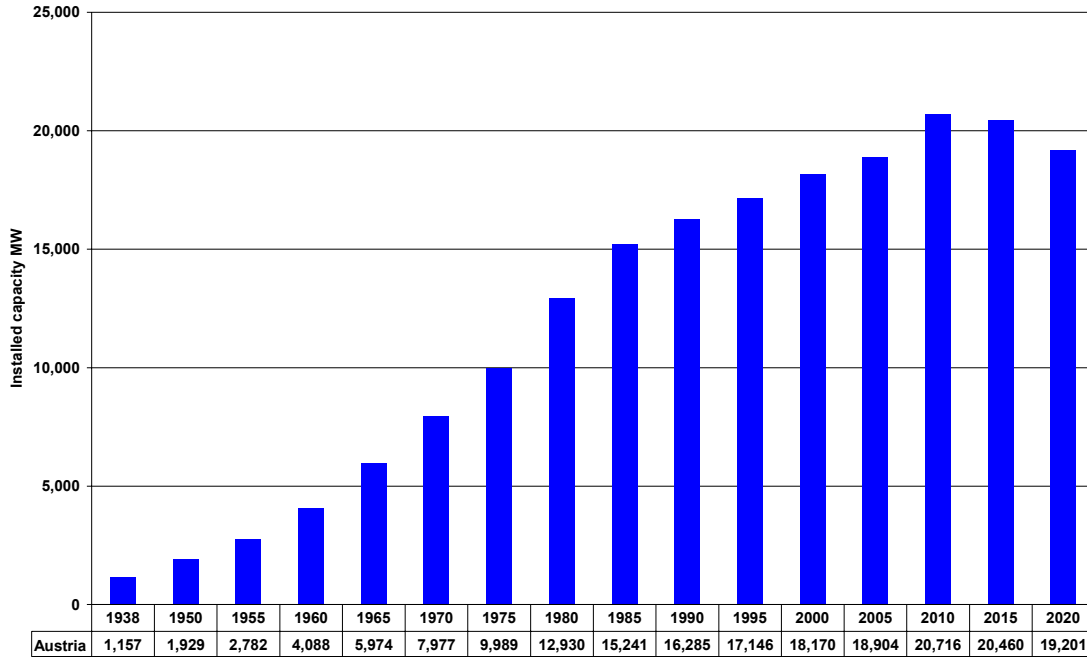
In its early years, the electrical industry was dominated by Europe with 83 GW in 1950 and North America with 79 GW. Only two other countries were electrically significant, the USSR with 19.6 GW and Japan with 10.5 GW

# Europe

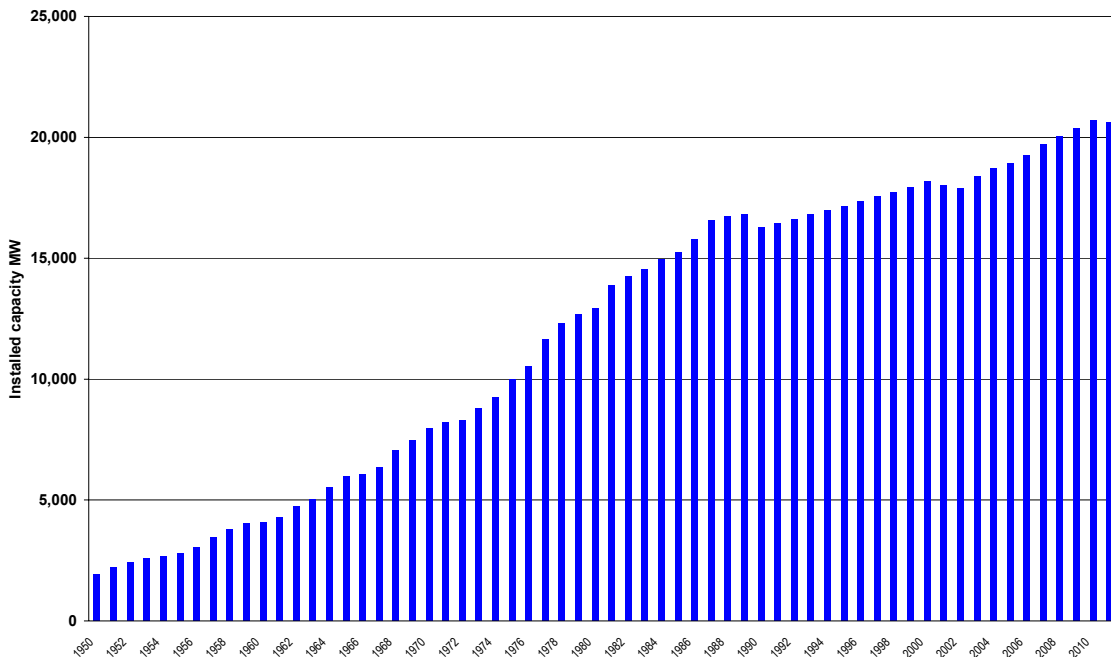
## 1. Austria

Installed generating capacity will rise from less than 1 GW in 1938 to a peak of 20.7 GW in 2010 and thereafter it will decrease to 19.5 GW in 2020 as energy efficiency measures bite, both in demand and supply.

**Figure 1.1: Installed capacity of Austria (MW) 1938-2020, every 5 years**

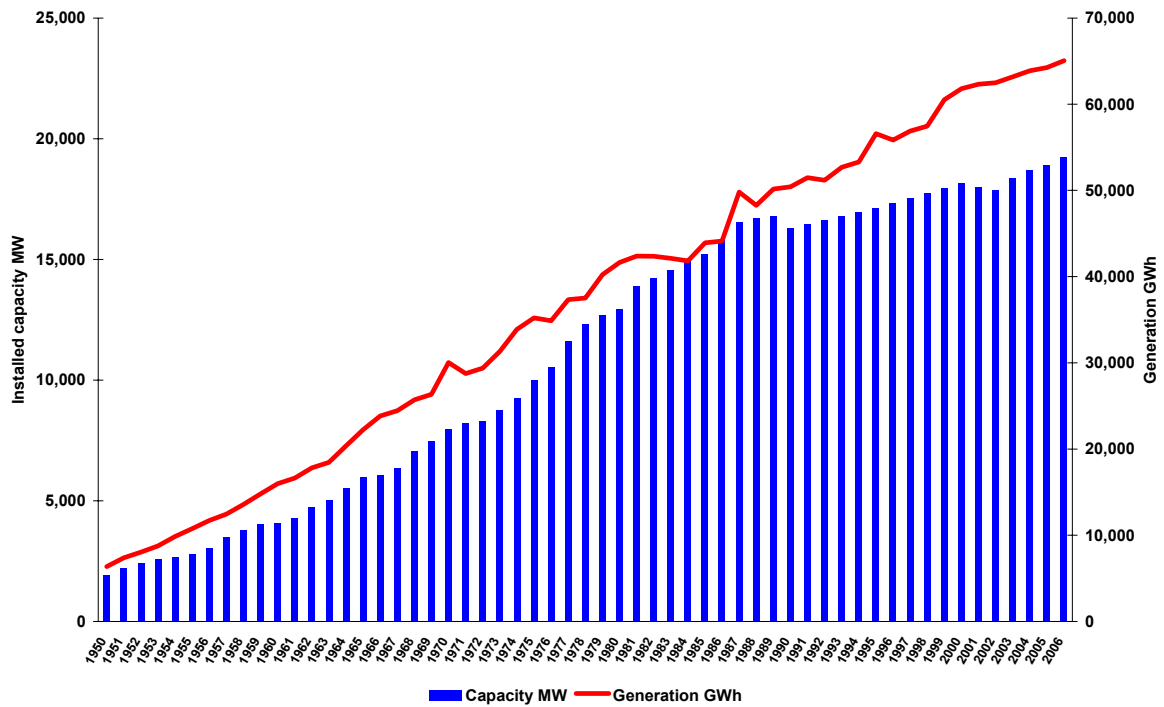


**Figure 1.2: Installed capacity of Austria (MW) 1950 to 2011 annually**



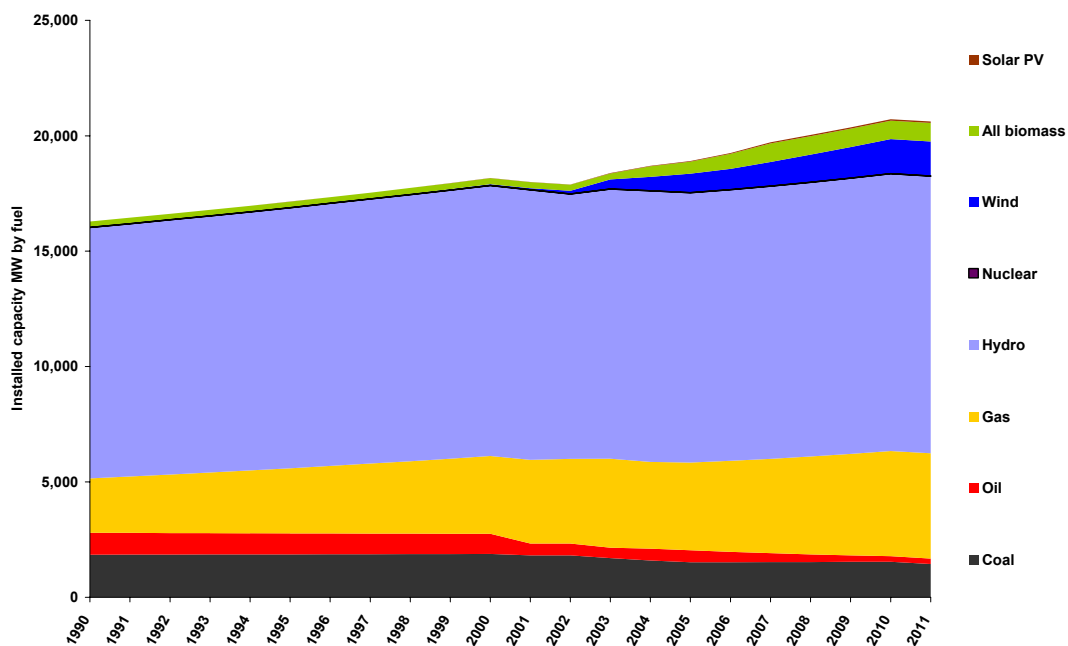
Austria experienced steadily increasing utilisation of generating capacity from 1950 to 1970 and it then came down erratically to its lowest level in the mid 1980s. From the late 1980s utilisation has increased and is now remaining fairly constant.

**Figure 1.3: Generation (GWh) and installed capacity (MW), in Austria, 1950 to 2006**



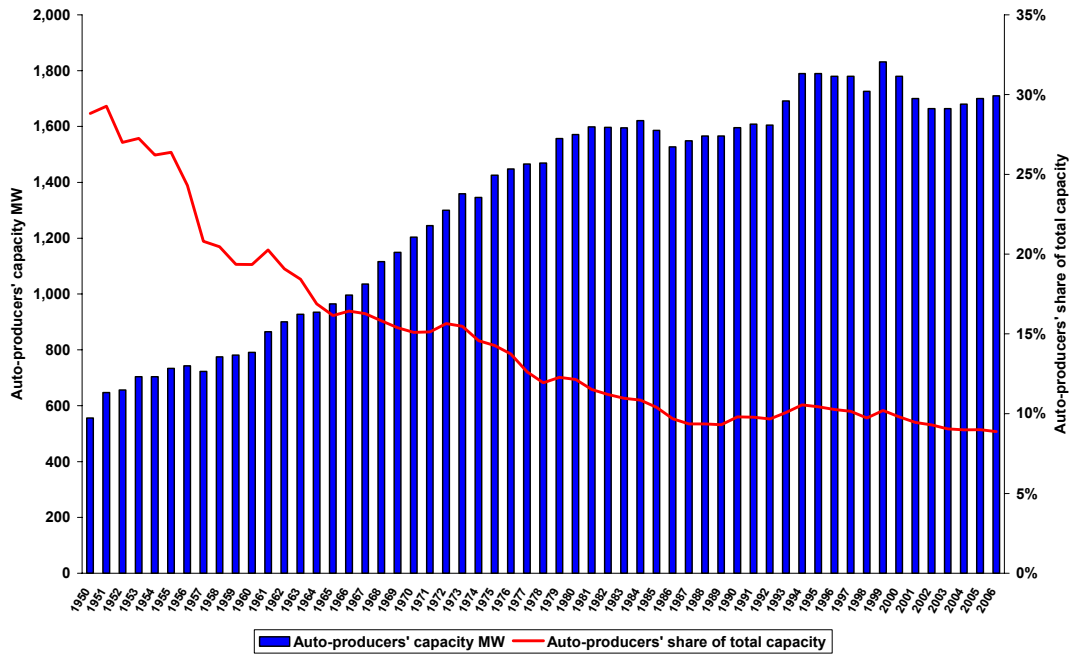
58% of Austria's installed capacity is hydro, with other renewables making up a further 11%. Gas has the second largest capacity with 22%. Hydro power contributes 58% of power production and other renewables only 3%. Gas provides 39% of produced.

**Figure 1.4: Fuel mix of generating capacity of Austria (MW) 1990 to 2011**



The structure of power production has changed completely in the last half century. In 1950, when the total capacity of the country was just 1.9 GW, the Austrian auto-producers owned 29% of the country's generating capacity. Since then, although their generating capacity has tripled, the growth of the utility sector has been such that by 2006 the auto-producers' share had declined to 8.9%.

**Figure 1.5: Capacity shares of public utilities and self-producers in Austria**



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