



European Reference Cases

A comprehensive energy market intelligence and forecasting solution

European Reference Cases

Reference Case reports

Reference Case reports are an industry standard used by ratings agencies, regulators, market competition commissions, energy companies, utilities, and their investors as a source of independent, transparent, consistent analysis of changing energy market fundamentals, wholesale expected prices and how they are formed. Reference Case clients span the globe, and include utilities and energy market investors, developers and traders, but are typically energy market participants looking for an independent, detailed, internally-consistent view of one or more liberalized power markets.

Each Reference Case report provides a unique insight into how the major issues currently impacting global energy markets will shape individual power markets over the next 25 years. Energy markets are complexly interconnected and interdependent, and ABB's powerful modelling tools and simulation datasets are able to capture this complexity in full hourly, unit-level detail to predict major changes to the current resource mix over the study period as old, conventional plant is replaced with new low-emission technology.

European Reference Cases

European Reference Case analysis addresses key issues affecting European energy markets both today and in the future, both quantitatively and qualitatively:

- Will plant mix changes be radical enough to meet stringent environmental targets?
- How much will gas-fired generation rise in coming years in the power generation sector?
- What's the potential impact of further fuel and carbon market price volatility?
- Will EU countries make their renewable targets?
- What's the impact of the growth in new, intermittent and low-carbon plants on incumbent conventional generation?

In addition to full details of assumptions and our tried-and-tested forecasting modelling methodology and price formation process, the Reference Case reports contain a contextual analysis of the major issues underlying the European power markets, including environmental and security of supply issues affecting the generation plant mix today and in the years to come.

Reports provide country-specific assumptions and market shaping factors employed in developing a detailed electricity market forecast for each country. The reports also include detailed country-by-country analysis and modelling results for our detailed 25-year forecast, including:

- Market overview
- Market context, structure and players
- Renewables analysis
- Conventional plant analysis
- New entry prospects
- Current market environment

- Key drivers and market issues
- Environmental policy and targets
- Emission reductions
- Energy efficiency
- Grid improvements
- Proposed and planned units additions and retirements
- Modelling dispatch of wind, hydro and pumped storage units
- Existing and planned interconnections
- Fuel and emission price forecasts
- Regional load projections
- Regional reserve margins
- Generation projections
- CO₂ emissions
- Market clearing electricity price forecast and capacity prices (where relevant)
- Fuel at margin
- Spark spreads
- Combined cycle gas turbine (CCGT) profitability
- Risk and uncertainty in the forecast

The Reference Case report includes as standard a detailed analysis of a "typical" CCGT, including sample CCGT load factors and CCGT revenues versus revenue targets.

A full table of contents for each Reference Case report is available on request.

Market Simulation Datasets

Our Market Analytics software is used by utilities and energy market players worldwide to perform detailed market analyses. ABB leverages these tools and our market expertise to provide two types of Market Simulation Datasets – both regularly updated, benchmarked, and available for clients:

- Reference Cases and
- Market Simulation Datasets

Standard Market Simulation Datasets, which provide a detailed snapshot of the current market environment and enable clients to perform short-run marginal cost simulations, and add their own forecast assumptions. These include:

- Hourly load shape for each transmission area
- General resource data by unit (eg, unit name, ownership details, location, existing capacity and fuel type)
- Unit physical and dynamic characteristics (eg, maximum and minimum capacities, heat rates, minimum up, minimum down times, ramp rates, start costs as well as energy values and reservoir values for hydro and pumped storage stations)
- Outages (maintenance rates and forced outage rates)
- Emission data (eg, CO₂ rates, emission removal factors)
- Operating costs (eg, variable O&M)
- Transmission data (eg, Interconnector capacities)
- Plant running regimes or parameters that specify the operational regimes (must-run, peak, or economic dispatch)

Two types of Market Databases – both regularly updated and benchmarked are available to ABB clients


Reference Case Market Simulation Datasets include all the Standard Simulation Datasets information and a 25-year price forecast. These datasets are calibrated against actual market prices (where available) and include ABB Advisors' independent view on forecast bidding behavior, plant mix changes, fuel price forecasts and load assumptions, including forecasts of:

- Electricity demand growth forecast
- Online dates of the plants that are currently in construction
- Closure dates
- Interconnector extension, online assumptions
- CO₂ allowance price forecast
- Fuel price forecasts (oil, natural gas, coal, etc.)
- Capacity expansion plan assumptions
- Modelling emission limits and limits on operational hours (eg, modelling Industrial Emissions Directive)

Our European Market Simulation Datasets and regional power and fuels forecasts which underlie the Reference Cases provide a comprehensive view across Europe. The datasets provide the most comprehensive, detailed and accurate electricity power, fuels and demand data available and include country specific generating units, fuels usage, hourly electricity loads, operating and capital costs, transactions and interconnections. ABB's unique set of detailed fundamental data for the European market represents years of research, documentation and testing of the data for market simulation purposes. The research data is coupled with ABB's own internally-developed data; a result of over 15 years of experience in modelling liberalizing energy markets worldwide.

Map of European Reference Case market coverage

Market databases and Reference Cases are available for all EU power markets and Turkey.

 Click on the map below for regional detail



Reference Cases and Market Simulation Datasets are also available for North America and Asia-Pacific.

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About ABB's Enterprise Software product group

We provide industry-leading software and deep domain expertise to help the world's most asset-intensive industries such as mining, energy, and utilities solve their biggest challenges, from plant level, to regional network scale, to global fleet-wide operations.

Our enterprise software portfolio offers an unparalleled range of solutions for asset performance management, operations and workforce management, network control, and energy portfolio management to help customers reach new levels of efficiency, reliability, safety and sustainability. We are constantly researching and incorporating the latest technology innovations in areas such as mobility, analytics and cloud computing.

We offer unmatched capabilities to integrate information technologies (IT) and operational technologies (OT) to provide complete solutions to our customers' business problems.

Enterprise Software

www.abb.com/enterprise-software

info.pges@abb.com

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