



**RAMBOLL**

## COST ENGINEERING

**Integrated cost engineering offers competitive advantage with higher transparency and improved decision-making.**

The wind industry is facing tough market challenges and enormous pressure on levelised cost of energy (LCOE). There is strong demand for high efficiency in installation, operations and maintenance of on- and offshore wind farms in globalised markets. The impact of new governmental or environmental policies often requires fast product changes and corporate alignment.

Cost Engineering (CE) enables companies to flexibly adjust in such fast-changing environments. CE leads to higher cost transparency and thus fosters improved corporate decision-making.

Being one of the largest consultancies in northern Europe, Ramboll has successfully implemented cost engineering services in renewable energy like wind, solar or ocean energy. In addition, we serve as partner of many companies in industrial engineering, automotive and transportation industries.

We lead large and small-scale cost engineering projects from single cost calculations to entire supply chain initiatives. Our services cover all project phases from early cost estimations to product lifecycle support. Our holistic approach always includes change and project management expertise.

### **Our experience and competences**

Our services have enabled clients to improve their margins in terms of active cost management. Time reductions and thus cost-savings are typical results of tailor-made CE measures.

Ramboll combines specific know-how about process optimisation, asset management or business technology, with vast engineering expertise. Engineering knowledge together with management consulting provides superior solutions for the projects of our customers. Our team has broad wind experience, implemented in projects for project

developers, original equipment manufacturers (OEM), service providers and suppliers. We support cost engineering for complete wind turbine generators (WTG) as well as on the individual parts level. This typically also contains the analysis of services involved.

For further information, please visit [www.ramboll.com](http://www.ramboll.com) or contact us directly:

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### Product life cycle support

Ramboll has expert knowledge of all aspects of the product lifecycle, support and related change and project management in the following areas:

- Market analyses
- Risk evaluation
- Business Case evaluation
- Product benchmarking
- Pre-launch check / product launch evaluations
- Value analyses
- Design-to-X projects
- Cost analyses in each lifecycle and supportive measures to improve cost structures
- Technological break-even evaluations

We provide holistic services with tailor-made methods and solutions. Effective cost engineering projects need to be defined top-down-originating from the overall target or strategy. Each method is chosen carefully by our experts.

### Cost optimisation

We enable our clients to improve cost analysis and to set up controlling measures. Detailed data collection and management of transparency are the basis for sustainable decision-making.

Ramboll offers wide-ranging services such as:

- Cost optimisation and cost reduction of goods and services
- Product cost analyses and calculations
- Cost break-down
- Make-or-buy-analyses
- Target costing
- Calculation methods
- Data evaluation and data management.

Our services support our clients to improve their margins by using active cost management. Time reduction, improved manufacturability and thus cost-savings are typical results of tailor-made CE measures.

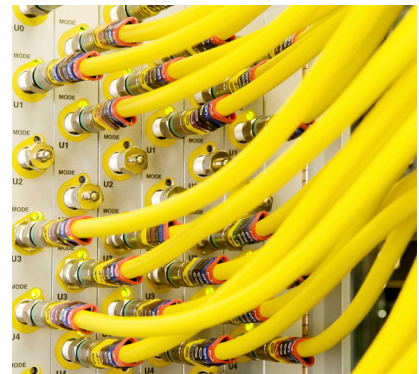
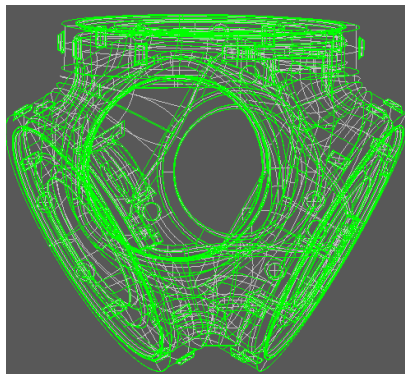
### Integrated cost engineering

Ramboll is a competent partner in delivering solutions for integrated cost engineering structures and organisational design.

Our services include:

- Corporate quick check of selective areas: existing strategy, available CE concept and measures, controlling structures
- CE concept development and organisational integration
- Implementation of CE structures into operations and business areas
- Facilitation of cross-functional processes by means of workshops, seminars, coaching, etc.
- Software evaluation and implementation
- Setup of product and project cost controlling.

We offer tailor-made concepts from corporate analyses, through CE conceptualisation and subsequent implementation.



#### COST AND TIME REDUCTION IN WIND POWER ONSHORE OPERATIONS AND PROCESSES

##### CLIENT

OEM of WTG

##### LOCATION

Hamburg, Germany

##### PERIOD

2014

##### SERVICE PROVIDED

Mapping outline of the cost structure and value chain, analysis of cost and time reduction, validation for future KPIs.

#### COST ANALYSES OF A WIND TURBINE GENERATOR ROTOR HUB

##### CLIENT

OEM of WTG

##### LOCATION

Hamburg, Germany

##### PERIOD

2016

##### SERVICE PROVIDED

Cost analyses covering changes in construction and manufacturing, decision template for revised design of the WTG rotor hub.

#### AWARDED DEVELOPMENT OF GLOBAL SUPPLY CHAIN ORGANISATION INCL. CE-STRUCTURES, RULES, TOOLS AND METHODS

##### CLIENT

Leading OEM of electrical cabinets

##### LOCATION

Herborn, Germany

##### PERIOD

2012-2015

##### SERVICE PROVIDED

Organisational design and development, methodology development, subsequent CE software implementation, staff training.