



Copenhagen Offshore Wind Power Conference

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Turnkey contract vs. multi contracts

Presented by

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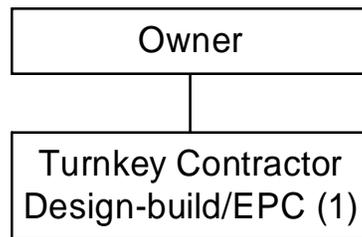
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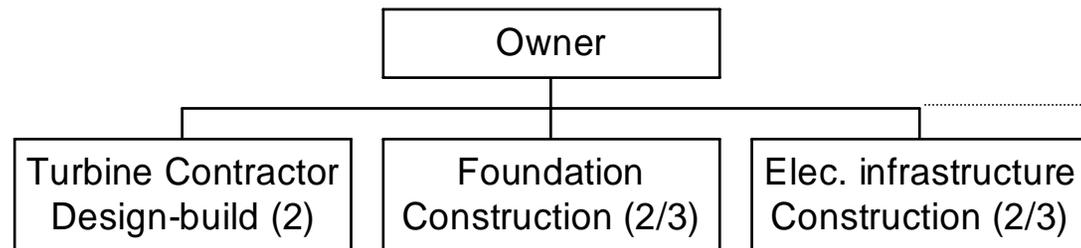


Contract principles

Turnkey/EPC



Multi contract/split delivery



Note

1. FIDIC EPC or Design-build
2. FIDIC Design-build
3. FIDIC Construction

Onshore versus offshore projects

	Onshore projects	Offshore projects
Balance of plant works	Relatively simple and low risk	Relatively complex and high risk
Construction budget distribution	Balance of plant – 25% of CAPEX	Balance of plant – 50% of CAPEX
Turbine manufacture	Complete in-house expertise or established relations	Complete expertise not available in-house
Project management	Relatively small organisation	Relatively large organisation

Agenda

- **Presentation of Elsam**
- **Tender strategies on**
 - **Horns Rev**
 - **Kentish Flats**
- **Pros and cons**
- **Requirements for multi contracts**
- **Trends in the market**
- **Our conclusion**

What is our background?

A thermal power project: Skærbækværket unit 3

- Construction budget – approx 300 million EUR
- More than 1000 individual contracts
- Construction phase – first excavation 1994 – commissioning 1999
- Detailed engineering to a large extent performed by Elsam/EE including civil works and construction, SCADA system and mechanical works
- Project organisation: 60 engineers and technicians
- Site organisation: 30 engineers and technicians



Wind turbine expertise

**Tjæreborg 2 MW
experimental wind
turbine**



Fallen hero



**New Tjæreborg
wind turbine**



Horns Rev 160 MW wind farm

Multi contract/split delivery

Elsam: Owner

EE: Project planning and management

- Detailed design of foundations
- Electrical infrastructure
- Wind farm control

Turbine supply and erection: Vestas

Foundation supply and installation: MTH

Cable/electrical infrastructure: Nexans

SCADA: Vestas

Kentish Flats 90 MW wind farm

Turnkey contract/FIDIC EPC

Elsam: Owner

EE: Owner's representative

Vestas: EPC contractor



Pros and cons

Multi contract/split delivery

Pros

- Better competition – level playing field – design only made once
- Better prices – 5-15% lower than for turnkey contracts
- Larger influence on the construction process
- Better possibility to acquire in-house expertise
- Contractors are appointed at the right time – you can obtain the optimum mix of contractors
- Risks are allocated to those responsible

Cons

- Exposed to risks (co-ordination of interfaces)
- Large project management involvement
- Numerous interfaces
- Large need for local knowledge for the owner
- Non-recourse construction finance is not an option
- Large effort on investigations before signing contracts

Pros and cons

Turnkey

Pros

- Less exposed to risks (??)
- Relatively small project management organisation
- Only limited need for local knowledge/expertise
- Limited effort on investigation before signing EPC contract
- Only one interface to manage
- Non-recourse construction finance is a possible option
- An option if there is no in-house experience

Cons

- Prices are 5-15% higher than for multi contract
- Less competition
- Reluctance among turbine contractors to take turnkey risk

Requirements for multi contracts

- **Technical expertise**
 - Expertise on detailed design
 - In-depth system knowledge
- **Local knowledge**
 - Knowledge on environmental aspects
 - HSE aspects
- **Project management expertise**
 - Strong project and site management expertise
 - Proven tender specifications
 - Experience with multi contracts
- **Financial strength**
 - Perform investigations prior to closing contracts
 - Balance sheet finance is a must

Trends

- The global onshore wind power market is booming ⇒

Manufacturers are less interested in the offshore segment than in the onshore segment due to complexity, risks and project management

- Multi contracts become a requirement from manufacturers
- Financially strong power companies and energy companies play an increasing role in offshore projects
- Projects in the market are changing strategy – from turnkey to multi contract
- New markets make extraordinary profits possible ⇒

Mature market/mature technology reduces prices ⇒

The EPC premium becomes interesting for the owner

- Will we see new turnkey contractors on the market??

Conclusion

- Tender strategy to be decided from project to project ⇔ No religion
- Large technical and project management expertise is mandatory for multi contract, AND multi contracts add significantly to the technical and management skills of the organisation
- The ability to use the multi contract principle is often a significant competitive advantage
- The ability to use the multi contract principle for offshore projects is a significant element in Elsam's strategy on developing, building, owning and operating offshore wind power
- As a consultancy company we are happy to assist external owners in the multi contract process – please visit our stand no. A-018 to discuss further