Supporting Business Collaboration for Operation and Maintenance

Introducing the Digital Plant Lifecycle Record

Johannes Schmidt1, Sebastian Pfaffel2
1University of Leipzig, 2Fraunhofer IWES

1johannes.schmidt@uni-Leipzig.de, 2sebastian.pfaffel@iwes.fraunhofer.de

KEYWORDS: Digital Plant Record, Collaboration, Global Service Protocol, WinD-Pool

Problem Domain

• Complex business collaboration processes, which highly depend on the availability of data for a variety of tasks (on- and offshore)
• Problems in data exchange through insufficient ICT-support and heterogeneous formats and documents
• Inefficient inter-company coordination

Digital Plant Lifecycle Record Approach

• Ensures complete, chronological, high-quality documentation for wind turbines
• Based on a wide range of technical standards
• Holistic approach including every stakeholder in every lifecycle phase
• Integrated software system to improve and automate data exchange workflows as well as decision support

Combination of Technical Standards

IEC 61355-1
IEC 61400-25 / 61850-7
FGW TR 7 D2
Plant State
Operational Data
Plant Structure
Equipment Structure
IEC 62446
Function Product
Place
RDS-PP
DIN 199-5
Master Data

Recursive Information Structure

Information Set 1
Document 1.1
Document 1.2
Document 1.n

Information Set 2
Document 2.1
Information Set 2.1
Information Set 2.1

Stakeholder Viewpoints

€ Economic
₯ Legal
🔧 Technical
_MATERIAL
Technological

www.cv-tec.de

Integrated Approach

+ Structured data and high data quality form the basis for process optimization in every lifecycle phase
+ Improved transparency through a common understanding of business processes and data

Cross-Company database
Onshore and Offshore-WT
Gathers operational and maintenance/failure data
Performance benchmarks and reliability characteristics
Clear confidentiality rules
Operated by Fraunhofer IWES
www.windmonitor.de
www.offshore-wmep.de

Global Service Protocol

• Standardized exchange of maintenance information
• Work orders and reports
• Reduces paperwork and workload
• Increased data quality through clearly defined information categories
• Based on the XML
www.wind-fgw.de

This work is a result of the Cvtec project, supported by the Federal Ministry of Education and Research (BMBF) as grant 01IS14016C.