

Wind farm planning

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1. Determination of wind potential A =	Available	NA = No	t Available
	Α	NA	Date
planning			
Site visit			
Collection raw data			
Implementation of wind measurements over several months			
Calculations based on WASP and WindPRO software			
Taking account of complex terrain			
Complete description of site with interpretation of photos			
Results: digitized contour map with description of obstacles and			
roughness; Weibull parameters; mean annual speed; annual			
energy yields; isolines of wind speed, energy density or energy			
yield			
Assessment of results: reliability, deviations Output of more detailed results			
Wind farm analyses Optimization stategies for micro-sites according to criteria of		+	
maximization of earnings, minimization of costs or maximum park			
effectiveness			
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2. Real estate			
	Α	NA	Date
Excerpts from cadastral maps			Duto
Generation of list of owners			
Preparation of site plans			
Excerpts from cadastral district maps			
Clarification of rights of way			
Conclusion of all permission to use contracts with real-estate			
owners			
Registration of servitudes		1	
3. Planning of approvals			1
	Α	NA	Date
Discussions with local authorities			
Discussions with organizations responsible for matters of public			
concern			
Application for outline planning permission, incl. All documents			
required			
Obtaining necessary expert reports and inspection documents for			
building permit, acoustics report, soil report, machinery report,			
static calculation of foundation, visibility analysis			
Land use plan			
Development plan			
V+E plan			
Landscape conservation plan			
Open space plan			
Water legislation			
Preliminary ecological examination			
Roads and lanes report			
Application procedure for building permit		1	1
Application procedure for building permit Building permit			



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5. Planning for mains and grid connection A =	Available	NA = Not	Available
	Α	NA	Date
Internal cabling in the wind farm			
Internal and external transformer station			
Negotiations with the utility company responsible			
Clarification of grid connection			
Obtaining the necessary technical documents			
Establishing technical grid connection plan			
Grid connection contract			
Conclusion of PPA			
Invitation to tender for trades			
Price comparison			
Awarding of all contracts for services			
Building supervision			
Construction management			
Property management and documentation			
Commissioning			
Commonity			
6. Implementation planning	I		
	Α	NA	Date
Work flow and organizational planning for project development		11/1	Dale
Work flow and organizational planning for project development Work flow and organizational planning for construction			
Zoning			
0			
Property and work specifications			
Examination of execution plans			
Determination of quantities and volumes			
Performance specifications			
Technical optimization			
Access routes			
Craneway areas			
Transport routes			
Wind turbine generator purchasing contract with manufacturer			
Maintenance contract with manufacturer or maintenance company			
Invitation to tender for the trades			
Price comparison			
Preparation of contract documents			
Awarding of contracts for services			
Building supervision			
Construction management			
Guarantees			
Time schedule with obligations under warranties			
Measurements of work done on the site			
Final inspection			
Declaration of default			
Auditing of accounts			
Cost control			
Identification of defects and monitoring of correction of defects			
Insurance			
mouranoo			
Property management and documentation			
Property management and documentation			
Commissioning of the project			
Commissioning of the project Data connection and remote monitoring			
Commissioning of the project Data connection and remote monitoring Continous collection of operating data with operational			
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7. Operational aspects A =	Available	NA = Nc	t Available
	Α	NA	Date
Determination of planning costs			
Determination of capital expenditure			
Generation of project budget			
Time scheduling			
Submitting applications for operating resources and loans			
Determination of operating costs			
Profitability calculation			
Cash flow analyses			
Establishment of the company			
Preparation of financing models			
Providing guarantees			
Turn-key contracting			
B) Wind report			Data
	Α	NA	Date
Drawing up/obtaining two independent wind reports recognized by			
the financing bank(s).			
	•	NA	Data
C) Acoustics report	Α	INA	Date
	Α	NA	Date
Site visit	A	INA	Dale
Desciption of wind turbine generator			
Assessment of raw data			
Complete description of the site with interpretation of photos			
Results: sound immission values at relevant immission points; limit			
value lines; colour print-out over topographical map			
More detailed output of results			
Optimization strategies			
D) Shadow analyses			
	Α	NA	Date
Site visit			2010
Description of wind turbine generator(s)			
Assessment of input parameters			
Complete description of the site with interpretation of photos			
Results: description of the reference points on the site, description			
of the wind turbine generator or wind farm from the immission			
points			
E) Visualisation studies	-		
	Α	NA	Date
Site visit			
Description of wind turbine generator			
Assessment of input parameters			
Complete description of the site with interpretation of photos			
Results: description of the reference points on the site, description			
of the wind turbine generator or wind farm from the immission			
points			



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F) Project report A =	<u>Availabl</u> e	<u> NA = No</u>	ot Available
	Α	NA	Date
General project status			
Wind potential, wind report			
Soil report			
Status of approvals, approvability			
Provision of security for real estate			
Grid connection, grid access authorizations			
Access route			
Capital expenditure required			
Suitability for grants-in-aid			
Operating costs			
Purchase contracts			
Maintenance agreements			
Guarantee agreements			
Due Diligence			
G) Environmental Impact Assessment - EIA and A	ccompan	ying La	andscape
Conservation Plan	-		-
	Α	NA	Date
Site visit			
Description of relevant legal provisions			
Description of the project			
Description of the project Description of the region analysed			
Description of the region analysed			
Description of the region analysed Description of the situation at the site prior to the intervention			
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Description of the region analysed Description of the situation at the site prior to the intervention Assessment of the situation at the site prior to the intervention compared with regions close to the site			
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Annex 3 Project budget	= Available	NA = No	t Available
	A	NA	Date
Seller submits to Umweltkontor® a project budget, a profitabilitical calculation and a project liquidity plan.	ty		
Annex 4 Documentation			
	a.t.		
The following documents/data must be submitted to the plan management:			
1. Layout plans			
Project manual (submitted by)			
List of generator components indicating the manufacturer/serie number	al		
2. Site plans			
Site plan, access route, description of access roads, map surroundings	of		
Cadastral district map and relevant land register excerpts for th site	ie		
Evidence of registered construction and maintenance obligation			
3. Cable positioning plans			
(for all cables, specifying the cables used)			
4. Building permit			
(building permit documents with relevant expert opinions)			
5. Expert reports (unless included in building permit)			
Wind report			
Acoustic report			
Shadow report			
Soil report			
Environmental Impact Assessment			
Other reports			
6. Purchase contracts			
between project company and manufacturer			
between corporation (managing company) and project company			
7. Permission to use contracts			
Permission to use contracts, lease contracts			
Servitudes			
Contracts relating to construction and maintenance obligation			



Wind farm planning

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A = Available | NA = Not Available

A =	Available	NA = No	t Available
	Α	NA	Date
Contracts relating to crossing / use of country roads and lanes;			
railway lines, etc.			
List of real estate / owners of construction and maintenance			
obligations			
Other contracts			
8. Utility companies			
Crid food in contract (plus tolophone number, emergency convice			
Grid feed-in contract (plus telephone number, emergency service and place of power input, transformer station)			
Grid input commitment / PPA			
0. In an anti-			
9. Inspections			
Commissioning protocol between project company and			
manufacturer			
Final inspection protocol for excavation			
Final inspection protocol for reinforcement			
Final inspection of construction work by the authority granting the			
building permit			
10. Technology: wind turbine generator manufacturers			
Circuit diagrams			
Plant control documents			
Hydraulic plans			
Lists of components			
Servicing instructions			
Servicing specifications			
Homologation documents (cf. building permit)			
Conformity certificates			
Operating manual			
Evidence of corrosion protection			
11. Others			
Transformer station and corresponding complete circuit diagrams			
Telophone system (e.g. phone number)			
Software to monitor WTG			
Climber protection features / safety features (documentation,			
serial numbers / inspection date: belts, carriages, fall absorbers,			
fire extinguishers, first-aid box)			
Earthing measurement protocol			
In addition, the following documents shall be delivered, if			
available:			
Expert report on the final inspection of WTG			L
Insurance policy documents			
Serving agreement			