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Wind energy in the natural and social environment

Research and Innovation action (RIA)



wimby
WIND IN MY BACKYARD

WIMBY

Wind in My Backyard: Using holistic modelling tools to advance social awareness and engagement on large wind power installations in the EU

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Project Management Plan

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SHORT ABSTRACT FOR DISSEMINATION PURPOSES

Abstract | D7.4 Project Management Plan aims at providing an overview of the implementation plan for the activities undertaken under the WIMBY project. This including a GANTT chart, Pert chart and a work breakdown structure of the tasks to ensure on time and qualitative delivery of the project results and that the outputs are in line with the project objectives.



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LIST OF PARTNERS

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1		VRIJE UNIVERSITEIT BRUSSEL	VUB	Belgium
2		DANMARKS TEKNISKE UNIVERSITET	DTU	Denmark
3		INTERNATIONALES INSTITUT FUER ANGEWANDTE SYSTEMANALYSE	IIASA	Austria
4		UNIVERSITAET FUER BODENKULTUR WIEN	BOKU	Austria
5		UNIVERSITETET I OSLO	UiO	Norway
6		NAZKA MAPPS BVBA	NAZKA	Belgium
7		KELSO INSTITUTE EUROPE GEMEINNUTZIGE GMBH	KIE	Germany
8		DEEP BLUE SRL	DEEP BLUE	Italy
9		UNIVERSITEIT UTRECHT	UU	NL
10		POLITECNICO DI TORINO	POLITO	IT
11		UNIVERSITA DEGLI STUDI DI PALERMO	UNIPA	IT
12		APREN-ASSOCIACAO PORTUGUESA DE ENERGIAS RENOVAVEIS	APREN	PT
13		MULTICONSULT NORGE AS	MCN	NO
14		EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	ETH ZÜRICH	CH
15		PAUL SCHERRER INSTITUT	PSI	CH
16		UNIVERSITY COLLEGE LONDON	UCL	UK



ABBREVIATIONS

ACRONYM	DESCRIPTION
WP	Work Package
GIS	Geographic Information System

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EXECUTIVE SUMMARY

D7.4 Project Management Plan is the first WIMBY deliverable from the WP7 on Project Management and Coordination. This document presents the tasks and interactions undertaken under each Work Package (WP) to ensure on time and qualitative delivery of the project results.

This deliverable will be complemented by the D7.1 Project handbook foreseen in M6 of the project, which will provide the procedures for quality and risk management within the WIMBY Consortium.

This deliverable is divided in two sections:

- SECTION 1: presents overall structure of the project work plan
- SECTION 2: presents the work break down structure pointing out the interconnections between the WPs, the key milestones and identified bottlenecks and risks



1. OVERALL STRUCTURE OF WIMBY'S WORK PLAN

WIMBY is structured in seven WPs that have strong interactions between them but individually also lead to significant results. The interaction between WPs is summarised in Figure 1.

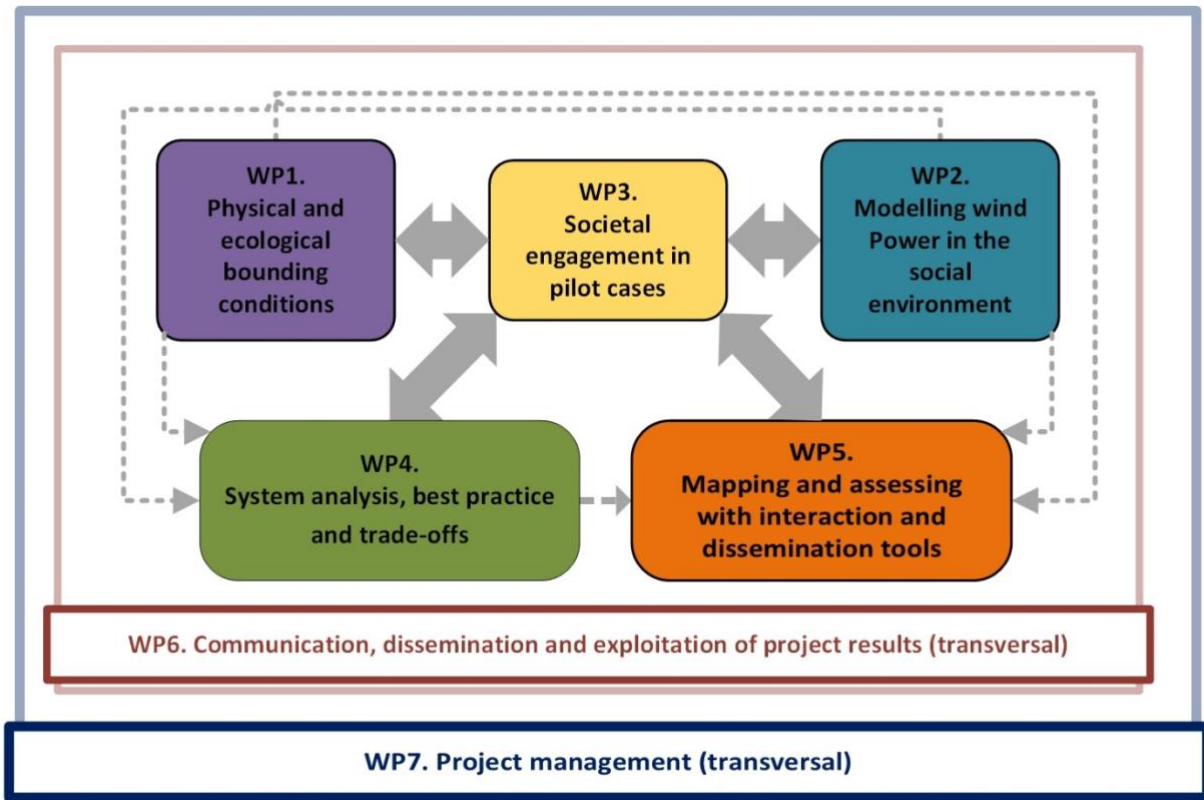


Figure 1 - WIMBY's Pert Chart

WP1 and WP2 constitute the basis of knowledge and data by focusing on the assessment of the energy potentials and impacts of wind power in the environment and wider society, respectively. In both WPs, spatially explicit data addressing a wide range of key conditions for the deployment of wind power as well as models to support decision making are developed. These two work packages start in M1 of the project, provide the first full set of results towards the end of the first year of the project and consecutive iterations of refined/corrected data sets until months 18 and 24. The data sets generated in WP1 and WP2 are the input, on the one side, for the analysis of synergies and trade-offs in WP4 and, on the other side, for the tools developed in WP5, namely the Web-GIS interactive forum (for EU wide data) and the immersive 3D platform (for the pilot cases). Both WP4 and WP5 start early in the project (M6 and M9 respectively) to ensure that system analysis and the tools development is well aligned with the data generated in WP1 and WP2.

WP1, WP2, WP4 and WP5 develop through feedback loops with the core of the project, the pilot cases, in WP3. Dedicated pilot case leaders (POLITO, APREN, BOKU, UiO+McN) ensure that the interaction with local stakeholders, in the pilot cases in Italy, Portugal, Austria and Norway, takes place and that the engagement is maintained throughout the lifetime of the project. WP3 runs from M13 (after the first data sets of WP1 and WP2 have been completed) until the end of the project. The interaction with stakeholders in the pilot cases leads to a better understanding of reasons and motivations to support or be opposed to wind power deployment and to the development of guidelines and best practice to foster its adoption (WP4). Moreover, the tools developed in WP5 are not only a key for the engagement process but also enriched and improved through the interaction and a co-creation process with the stakeholders (WP3) and their gradual improvement promoted and disseminated (WP6). The pilots have been selected to cover a wide range of geographical, technological and societal characteristics that ensure the developed tools are relevant and useful to nurture wind power deployment and energy citizenship beyond the specific cases. The macro and micro level analysis of the integration of high shares of wind power from the continental right down to the municipal level delivers valuable insights on where best to locate future projects, which is also integrated into the interactive mapping tools developed in WP5.

WP6 Communication, dissemination and exploitation of project results and WP7 project management and coordination are transversal to the project (M1-M36) and include the participation of all partners to ensure that WIMBY has a wide dissemination, that the results have a sound impact and that objectives of the project are reached on time, within the requested budget and following the highest standards in research.

WIMBY runs over a period of three years (36M), it has a total of 30 tasks to be performed by 16 partners, that lead to 5 core milestones and a total of 41 deliverables. An overview of the duration of WPs and tasks is presented in the Gantt Chart below (Figure 2.) and detail on the interconnection between tasks and deliverables is provided in the next section.



	YEAR1 - 2023												YEAR2 - 2024												YEAR3 - 2025												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
WP1 Physical and ecological bounding conditions												Ms2																									
T1.1 Wind Resource availability and quality																																					
T1.2 Land & Sea Use And Change																																					
T1.3 Continental assessment of terrestrial biodiversity risk from wind farms																																					
T1.4 Impact on terrestrial fauna for selected pilot studies																																					
T1.5 Impact on marine fauna for selected pilot studies																																					
WP2 Modelling wind Power in the social environment												Ms2																									
T2.1 Coupled models, technical parameters and economic costs																																					
T2.2 Impact on health and safety																																					
T2.3 Landscape impacts																																					
T2.4 Life Cycle assessment																																					
T2.5 Regulations, governance models, financing sources, jobs																																					
WP3 Societal engagement in pilot cases																																					
T3.1 Pilot site - Pantelleria - Off-shore																																					
T3.2 Pilot site - Rogaland - Off-shore																																					
T3.3 Pilot region - Styria - On-shore																																					
T3.4 Pilot country - Portugal																																					
WP4 System analysis, best practice and trade-offs																																					
T4.1 Satisfaction analysis framework: criteria and indicators																																					
T4.2 Citizens' and stakeholders' acceptability of wind power plants in their vicinity																																					
T4.3 Stakeholder mapping and best practice project implementation																																					
T4.4 Macro-level analysis of energy system integration with high wind shares																																					
T4.5 Micro-level analysis of system integration of high wind shares																																					
T4.6 Assessing synergies and trade-offs: applications and recommendations																																					
WP5 Mapping and assessing with interaction and dissemination tools																		Ms3					Ms4														
T5.1 Merging natural and social environment models as well as synergies and trade-offs																																					
T5.2 Merging of detailed natural and social environment models																																					
T5.3 Web-GIS interactive forum co-creation and assessment																																					
T5.4 Immersive 3D platform for wind power awareness raising																																					
WP6 Communication, dissemination and exploitation																																					
T6.1 Communication and Dissemination Strategy and Plan																																					
T6.2 Project dissemination and communication activities																																					
T6.3 General forum																																					
T6.4 Exploitation of project results																																					
WP7 Project management																																					
7.1 Project Coordination and Operational Management																																					
7.2 Scientific Project Management																																					

Figure 2 – WIMBY's Gantt chart



2. WIMBY WORK BREAKDOWN STRUCTURE

2.1 Tasks and deliverables interconnections

In general, each task in WIMBY leads to one deliverable. However, to ensure that the tools (WP5) can be developed on time, the tasks in WP1 and WP2 require the delivery of a preliminary version of each data set or algorithm at least six months in advance of the final version. These preliminary versions have the same (data) structure, spatial and temporal coverage (in the case of geodata) and characteristics of the final version but could still be improved, e.g. in their accuracy, for the final version. This situation also applies for the Multi-Criteria Satisfaction Analysis (D4.2 and D4.3.), the Web-GIS interactive forum (D5.1 and D5.2.) and the project handbook (D7.1 and D7.2.). The division between preliminary and final version in these cases also has the intention of allowing the work with stakeholders to start early enough in the project. In the case of the handbook the preliminary version set the minimum management requirements early in the project while the final version builds up on the first 1,5 years of interaction in the consortium and consolidate the management procedures to be followed until the end of the project.

All deliverables in WIMBY are listed in Table 1. This table includes the lead beneficiary and the due month of each deliverable. It is important to note that we expect to make all our deliverables public.

Table 1: Deliverables

No	Deliverable Name	WP No	Lead Beneficiary	Type	Due Date (month)
D1.1	Wind resources API (a)	WP1	2 - DTU	R — Document, report	12
D1.2	Wind resources API (b)	WP1	2 - DTU	R — Document, report	18
D1.3	Land & Sea use and change maps (a)	WP1	4 - BOKU	R — Document, report	12
D1.4	Land & Sea use and change maps (b)	WP1	4 - BOKU	R — Document, report	18
D1.5	Terrestrial birds and bats collision risk models and maps (a)	WP1	3 - IIASA	R — Document, report	12
D1.6	Terrestrial birds and bats collision risk models and maps (b)	WP1	3 - IIASA	R — Document, report	18
D1.7	Impact assessment on terrestrial and marine fauna (a)	WP1	4 - BOKU	R — Document, report	18
D1.8	Impact assessment on terrestrial and marine fauna (b)	WP1	4 - BOKU	R — Document, report	24
D2.1	Wind power assessment tool (TOPFARM 3.0.) and data (a)	WP2	2 - DTU	R — Document, report	12





D2.2	Wind power assessment tool (TOPFARM 3.0.) and data (b)	WP2	2 - DTU	R — Document, report	24
D2.3	Maps of health and safety impact metrics (a)	WP2	15 - PSI	DATA — data sets, microdata, etc	12
D2.4	Maps of health and safety impact metrics (b)	WP2	15 - PSI	DATA — data sets, microdata, etc	24
D2.5	Maps of landscape impact metrics (a)	WP2	14 - ETH Zürich	DATA — data sets, microdata, etc	12
D2.6	Maps of landscape impact metrics (b)	WP2	14 - ETH Zürich	DATA — data sets, microdata, etc	24
D2.7	LCA results report and spatially explicit data (a)	WP2	1 - VUB	R — Document, report	12
D2.8	LCA results report and spatially explicit data (b)	WP2	1 - VUB	R — Document, report	24
D2.9	Data on regulatory and socio-economic conditions and impacts (a)	WP2	7 - KIE	R — Document, report	12
D2.10	Data on regulatory and socio-economic conditions and impacts (b)	WP2	7 - KIE	R — Document, report	24
D3.1	Pilot region 1 - Pantelleria (IT) report	WP3	10 - POLITO	R — Document, report	34
D3.2	Pilot region 2 - Rogaland (NO) report	WP3	5 - UiO	R — Document, report	34
D3.3	Pilot region 3 - Styria (AT) report	WP3	4 - BOKU	R — Document, report	34
D3.4	Pilot region 4 - Portugal (PO) report	WP3	12 - APREN	R — Document, report	34
D4.1	Report on the satisfaction analysis framework and the indicator database	WP4	15 - PSI	R — Document, report	18
D4.2	Multi-Criteria Satisfaction Analysis (a)	WP4	15 - PSI	R — Document, report	24
D4.3	Multi-Criteria Satisfaction Analysis (b)	WP4	15 - PSI	R — Document, report	30
D4.4	Report on stakeholder mapping and best practice for project implementation	WP4	7 - KIE	R — Document, report	24
D4.5	Augmented open source highRES-Europe model, JRC-EU-TIMES and micro-level model and scenario dataset around social and ecological impacts	WP4	16 - UCL	R — Document, report	30
D4.6	Final report detailing synergies, best practice and trade-offs	WP4	14 - ETH Zürich	R — Document, report	36
D5.1	Web-GIS interactive forum (a)	WP5	6 - NAZKA	R — Document, report	18
D5.2	Web-GIS interactive forum (b)	WP5	6 - NAZKA	R — Document, report	36





D5.3	Immersive 3D platform for wind-power awareness raising	WP5	4 - BOKU	R — Document, report	18
D6.1	Communication and Dissemination Plan (a)	WP6	8 - DEEP BLUE	R — Document, report	6
D6.2	Communication and Dissemination Plan (b)	WP6	8 - DEEP BLUE	R — Document, report	18
D6.3	Website and digital identity	WP6	8 - DEEP BLUE	DEC — Websites, patent filings, videos, etc	4
D6.4	General Forum objectives, structure and operation	WP6	8 - DEEP BLUE	R — Document, report	10
D6.5	Plan for results exploitation	WP6	8 - DEEP BLUE	R — Document, report	15
D6.6	Dissemination, Communication and Exploitation final report	WP6	8 - DEEP BLUE	R — Document, report	36
D7.1	Project handbook (a)	WP7	1 - VUB	R — Document, report	6
D7.2	Project handbook (b)	WP7	1 - VUB	R — Document, report	20
D7.3	Data Management Plan	WP7	9 - UU	DMP — Data Management Plan	9
D7.4	Project Management Plan	WP7	9 - UU	R — Document, report	3

2.2 Key Milestones

WIMBY has five milestones, which are spread out, on average, every six months from one another. The first one is the completed communication and dissemination plan in M6 that coincides with the completed first version of the Handbook. At this point we make sure that the entire consortium is well prepared to go ahead with the completion of the tasks, interaction with other partners and has agreed on how to proceed with the communication and dissemination of results. Our second milestone is a compilation of completed data sets and algorithms (Beta version) from WP1 and WP2 which are key for the development of the tools and conducting the pilot cases. The third milestone is the first operational version of the Web-GIS that will allow us to disseminate results and start the interaction with stakeholders. This tool integrates all the results from WP1 and WP2 with European wide coverage. Similarly, milestone four, the operational version of the 3D immersive tool, is key for the interaction with stakeholders in the pilot cases and integrates all results from WP1, WP2 and WP4 for the pilot cases. The final milestone, the full draft of recommendations and best practices is expected to be reached a few months before the end of the project. This milestone consolidates the lessons learned from the modelling, the



pilot cases and the interaction with further stakeholders. Reaching this milestone also means that we have managed to achieve our project goals on time and still have a few months left to refine dissemination materials and let stakeholders contribute to the final version of the recommendations and best practices report. An overview of the milestones is provided in table 2.

Table 2: Milestones

No	Milestone Name	Work Package No	Lead Beneficiary	Means of Verification	Due Date (month)
1	Communication and dissemination plan is completed	WP6	8-DEEP BLUE	The plan is completed and accepted by all partners	6
2	Beta version of spatially explicit analysis is ready	WP2, WP1	4-BOKU	Full set of data from WP1 and WP2 is ready to be integrated in WP4 and WP5	12
3	Web-GIS interactive forum	WP5	6-NAZKA	The first fully functional version of the tool is ready to be used by stakeholders	18
4	3D immersive tool	WP5	4-BOKU	The tool is ready to be used at the pilot cases workshops	24
5	Draft of recommendations and good practices	WP4	14-ETH	The document is ready to be reviewed by partners and stakeholders	32

2.3 Identified bottlenecks

Potential bottlenecks are correlated to the milestones. Delays in completing the development of data, algorithms and assessments of WP1 and WP2 would delay the development of the tools. In the same way if the tools are not completed, we cannot proceed as expected with the pilot cases. Delays with the pilot cases would lead to issues in completing the analyses in WP4 and the delivery of recommendations and best practices. The plan of having beta versions of the deliverables in WP1 and WP2 as well as the Web-GIS tool should minimize the risk of getting into these bottlenecks. The work of the Executive Board, the work package leaders, and the continuous interaction between partners should avoid that WIMBY's progress is delayed by bottlenecks.



2.4 Critical risks

A set of critical risks and mitigation measures have been identified for WIMBY. These are listed in table 3.

Table 3: Critical risks

No.	Description	Work Package No(s)	Proposed Mitigation Measures
1	Tasks/results not delivered as desired within estimated resources	WP2, WP7, WP4, WP1, WP5, WP6, WP3	Solid implementation (Project Handbook) plan will be developed from the very beginning of the project, with specific strategies (quality and monitoring) that ensure minimum deviations. Monthly meetings of SC will allow contingency plans to be developed in time, before the risk materialises. The Coordinator's and Consortium's extensive experience in project implementation ensures smooth and quality delivery
2	Partner leaving the consortium	WP2, WP7, WP4, WP1, WP5, WP6, WP3	Most of the partners have a long history of cooperation with each other and the bottom-up proposal drafting phase has tightened the working relationships between them. In the unlikely event of a partner leaving WIMBY the Advisory Board and Consortium network will be activated to find a replacement.
3	Budget allocation does not match resource demands	WP2, WP7, WP4, WP1, WP5, WP6, WP3	The Project Coordinator will monitor expenses and immediately report potential constraints to the consortium. Expenses will be adapted to minimise costs (e.g. reducing travel costs via setting up virtual instead of in-person meetings, etc.)
4	Withdrawal of a pilot case	WP3	Pilot case leaders guarantee access to data and provide knowledge via the already well-established networks to local stakeholders. Withdrawal of a pilot case is considered unlikely, as pilot case leaders are WIMBY partners and have confirmed key stakeholders' interest and willingness to participate in the proposal writing stage. For the Portuguese and Styrian cases, the selection of individual pilots to test the methodology and tools is part of their task, and they have a large list of potential pilot





			cases at disposal. Furthermore, alternative pilot cases have been identified and considered in the proposal phase and excluded due to similarities or overlaps with selected case studies, but these can be reintroduced if necessary (e.g. Greek Public Power Corporation S.A. has signed an Lol and is a member of the advisory board).
5	Unavailable or limited data	WP2, WP4, WP1, WP3	Access and availability of critical information for the successful completion of relevant tasks (WP1-4) has been reviewed prior to proposal submission, also through other projects where consortium partners are involved. Should critical information not be accessible, activities would be undertaken with publicly available datasets only. In the case of missing stakeholder input, the project partners would revert to alternative stakeholder groups.
6	Impact of COVID on meetings	WP2, WP7, WP4, WP1, WP5, WP6, WP3	It might be that in-person meetings (consortium, stakeholders) won't be safely possible until well into the project duration. To mitigate this risk, the coordinator and partners (a) have invested in state-of-the-art video conferencing hardware and software, (b) have fall-back plans for online-only stakeholder engagement and communication, c) ensured that all tasks but the workshops using the 3D immersive tool can be executed fully remotely. For these particular cases hybrid format meetings with support mainly from the pilot case leaders (minor travel requirements) will be organised. These are planned in summer months when experience, of the last two years, has shown that at least small gatherings are allowed and can be safely conducted.
7	Insufficient stakeholder engagement	WP6, WP3	It is essential that stakeholders choose to partake in the project for each pilot case and for the process of co-creation, validation and active use of the Web-GIS interactive forum. The partners will develop a stakeholder engagement plan specifically for this purpose. It will be an internal living document resulting from the activities of T4.1, T4.2 and T4.3, in close collaboration with all partners under WP6 guidance. For each pilot case, the





			partners conducting the workshops will use tailored communication material designed by DBL to reach the targeted stakeholders and rely on the assistance from the pilot cases leaders and their collaboration network that includes, among others, local (planning) authorities and wind power project developers.
8	Software and data quality issues, data quality issues	WP2, WP4, WP1, WP5	Many large modelling approaches suffer from software and data quality issues, as they do not follow a well-defined software development process. We apply the software engineering principle of agile software development with rapid prototyping to achieve short cycles in software development, with extensive automated verification. Our models and tools will range from rather simple, stylized ones and progress to full scale models at the end of the project. The paradigm of agile software development also aims at achieving a diffusion of information among the model developers, thus allowing us to handle unplanned changes in the project team, and preventing a centralisation of important knowledge. Additionally, we will make our software products open source in order to be open to peer-review – and thus to allow extensions from software developers, who are not part of the project team.



3. CONCLUSIONS

WIMBY is a fast-paced project that requires the interaction and coordinated work of 16 partners and potentially hundreds of stakeholders. Multiple mechanisms have been put in place by the consortium to ensure that deliverables are completed on time, bottlenecks and risks are minimized and aims are achieved. This deliverable set the basis to manage the project and details on the managerial structures and procedures will be provided in the project handbook.





REFERENCES

WIMBY D7.1 Project handbook

