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# UPWARDS

## Deliverable D1.1

### Kickoff meeting report

<b>WP</b>	1	Consortium Management
<b>Task</b>	1.1	Strategic and technical management

<b>Dissemination level<sup>1</sup></b>	PU	<b>Due delivery date</b>	31/05/2018
<b>Nature<sup>2</sup></b>	R	<b>Actual delivery date</b>	31/05/2018

<b>Lead beneficiary</b>	SINTEF
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Document Version	Date	Author	Comments <sup>3</sup>
1.0	31/05/2018	Trond Bergstrøm	

<sup>1</sup> Dissemination level: **PU** = Public, **PP** = Restricted to other programme participants (including the JU), **RE** = Restricted to a group specified by the consortium (including the JU), **CO** = Confidential, only for members of the consortium (including the JU)

<sup>2</sup> Nature of the deliverable: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

<sup>3</sup> Creation, modification, final version for evaluation, revised version following evaluation, final

## Deliverable abstract

This report is the Minutes of the kickoff meeting in Upwards in Brussels in April 2018.

## Deliverable Review

	Reviewer #1: /Coordinator			Reviewer #2:		
	Answer	Comments	Type*	Answer	Comments	Type*
1. Is the deliverable in accordance with						
(i) The Description of Work?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(ii) The international State of the Art?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Not applicable for this deliverable</i>	<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input type="checkbox"/> No	<i>Not applicable for this deliverable</i>	<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
2. Is the quality of the deliverable in a status						
(i) That allows it to be sent to European Commission?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(ii) That needs improvement of the writing by the originator of the deliverable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a
(iii) That needs further work by the Partners responsible for the deliverable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a

\* Type of comments: M = Major comment; m = minor comment; a = advice

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## 1. Introduction

During 25<sup>th</sup> and 26<sup>th</sup> of April 2018 the Kick-off meeting of the project UPWARDS (**Understanding of the Physics of Wind Turbine And Rotor Dynamics through an integrated Simulation framework**) took place in the premises of Mid-Norway European office in Brussels.

This project was granted under the call H2020-LCE-2017-RES-RIA-TwoStage, with a GA number 763990, and started officially on 1<sup>st</sup> of April 2018.

The kick-off meeting was held to introduce all partners and EC project officer(s), explain general and special objectives of the Work Packages, and define the next 6-12 months actions and activities.

The list of attendees of both days is attached as Annex I, and the general agenda is attached as Annex II of this document.

The objective of this document is to describe the meeting activities plus the actions agreed on during the Kick-off meeting of UPWARDS, which will be the basis for the work to be done during the next 6-12 months of the project.

## 2. Minutes of meeting

### 2.1. Day 1

25th April 2018 (Wednesday)

12:30-12:50 *Welcome and introduction (by coordinator Jon Samseth, SINTEF)*

The meeting started with a welcome greeting from the coordinator, and then a presentation of partner participants.

A brief presentation of each partner company/institution was given:

Partner No	Partner name	Short Name	Country	Organisation Type <sup>4</sup>
1 Coordinator	SINTEF AS	SINTEF	Norway	RTO
2	FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG EV	FRAUNHOFER (ITWM)	Germany	RTO
3	SAMTECH SA	SAMTECH	Belgium	LE (IN)
4	AWS TRUEPOWER SL	AWST	Spain	LE
5	WAGENINGEN UNIVERSITY	WU (WU-ENP)	Netherlands	HE

<sup>4</sup> Organisation Type: HE = Higher Education; LE = Large Enterprise; RTO = Research & Technological Organisation; SME = Small/Medium Enterprise

6	SIEMENS RENEWABLE ENERGY AS	GAMESA	SWP	Denmark	LE
7	AALBORG UNIVERSITET		AAU	Denmark	HE
8	SIEMENS SOFTWARE NV	INDUSTRY	SISW	Belgium	LE (IN)
9	UNIVERSIDAD NACIONAL DEL LITORAL		UNL	Argentina	HE
10	INSTITUT VON KARMAN DE DYNAMIQUE DES FLUIDES		IVKDF	Belgium	SME
11	WAVESTONE LUXEMBOURG SA		WAVESTONE (WS)	Luxembourg	LE

12:50 – 13:15 Project overview (by Jon Samseth)

The project coordinator (Jon Samseth, SINTEF), presented the overall objective of the project with an explanation of the 5 sub-objectives. He continued with description of the WPs structure, consortium (roles per partner), management structure, timeline and deliverables.

He also highlighted the deliverables of the first 6 months of the project:

Deliverable ID	Deliverable Title	WP No	Lead beneficiary	Type <sup>5</sup>	Dissemination Level <sup>6</sup>	Due Date
D1.1	Kick-off meeting report	WP1	SINTEF	R	PU	M2
D1.2	Project Management Plan	WP1	SINTEF	R	PU	M2
D1.5	Innovation Management Plan	WP1	SINTEF	R	PU	M2
D8.1	UPWARDS website	WP8	Wavestone	DEC	PU	M3
D9.1	H – Requirement no. 1	WP9	SINTEF	ETHICS	CO	M4
D1.3	Risk management plan	WP1	SINTEF	R	PU	M6
D1.4	Data Management Plan	WP1	Fraunhofer	R	PU	M6
D2.1	Summary of simulation requirements	WP2	AWST	R	CO	M6
D8.2	Dissemination and communication plan	WP8	Wavestone	R	PU	M6

<sup>5</sup> Type of deliverable: **R** = Report; **DEC** = Websites, patent filings, videos, etc.; **DEM** = Demonstrator, pilot, prototype; **ETHICS** = Ethics requirement; **ORDP** = Open Research Data Pilot

<sup>6</sup> Dissemination level: **PU** = Public; **CO** = Confidential, only for members of the consortium (including the Commission Services)

*13:15 – 14:00 INEA: Expectations from UPWARDS, financial and legal issues (by Project Officers Paolo Tacconi and Dana Dutianu)*

The Project Officers (PO) of INEA (Innovation Networks Executive Agency) gave an overview of their role as monitoring actor of the project and the consortium and presented several advices about what to do and not to do during project execution.

EU defines the R&D policy, while INEA turns policy into action. They handle CEF programmes (infrastructure funding) and parts of H2020 on transport. Currently INEA handles 12 projects within wind energy spanning from research stage all the way to market uptake.

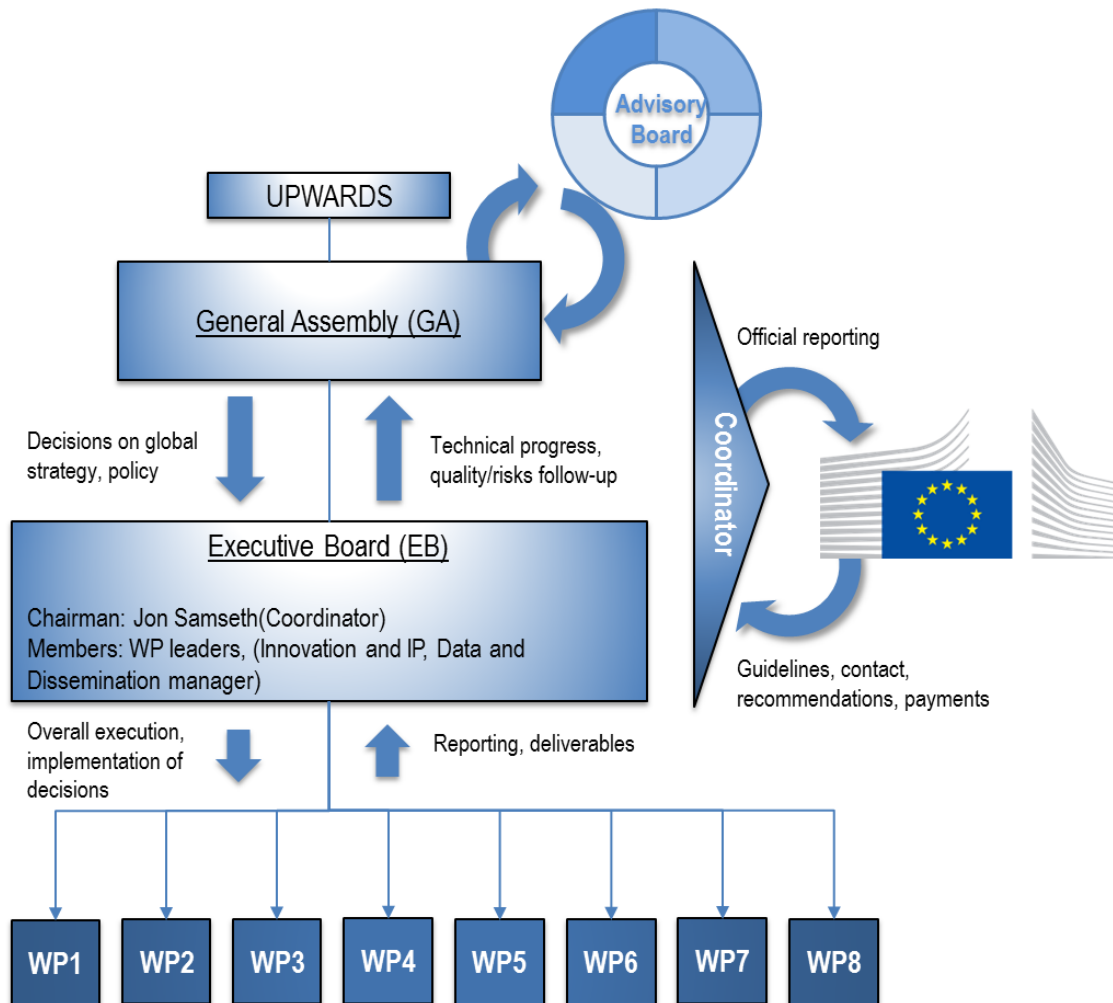
The master governing document reference is the Grant Agreement (GA) that specifies the conditions for the projects and the tasks to be performed and deliverables to be made. Guidance on the GA is given in the H2020 Annotated Model Grant Agreement and the H2020 Online Manual on the Participant Portal.

Information and advices given:

- Know your GA! (when in doubt, everything is explained there)
- For the final report (unlike progress report) the review happens before the final report. Therefore, consortium must provide a draft of the final report beforehand to get review done.
- Deliverables marked as public are published automatically, attention must therefore be paid as to dissemination classification of information. Also, quality and form of the deliverable provided is important as in case of public information. This is the public facing side of the project (“this is like a business card for a project”).
- H2020 allows a certain amount of budget flexibility (for a given partner on direct costs, vs travelling vs other budgets).
- If an amendment initiation process is started consult the PO in the preparation to make sure the amendment will pass before clicking the amendment button.
- Project should be continuously monitored on progress.
- Reporting should include impact considerations and stakeholder response.
- Recommend to take contact in advance with PO.
- Document activities!

*14:30 – 15:00 Project administrative routines (SINTEF)*

Jens Kjær Jørgensen explained the management structure of the UPWARDS project as outlined in the figure below:



The partners are welcome to give input to the Project Management Plan. Internal reporting will be performed every 6 months. Routines for handling deliverables will be decided and templates for deliverables (reports and minutes) together with presentations will be defined.

The review meeting with PO after periodic reporting will be carried out with the whole consortium.

A point brought up on IT policies of partners on data security regarding data sharing platforms:

- For project documents
- For project data

#### *15:00 – 17:00 WP2-WP7 presentations*

The work package leaders presented and overview of their WP's with objectives, deliverables, milestones and timelines.

WP No	WP Title	WP Leader	Comments
WP2	Atmospheric model	Jose Vidal, AWST	- Open question with respect to T2.2 on simulation resolution
WP3	Wind-Structure-Mechanisms-Control Interactions	Frederic Cugnon, SAMTECH	- Both deliverables D3.1 and D3.2 is due at M12 - There is a discrepancy for D3.5 between proposal and GA declaration
WP4	Flow and acoustic simulations	Christophe Schram, IVKDF	- Low-CPU tools for WT noise prediction based on Reynolds-averaged Navier-Stokes - Brooks-Pope-Marcolini method is an archaic method for modelling and we are still using it, it's far too simple - The approach that will be taken is to generate statistically meaningful turbulence based on the assumption that it will generate statistically meaningful noise
WP5	Material failure models	Esben Lindgaard, AAU	There are 2 failure groups that will be considered: - Delamination (interlaminar failure) - Fatigue driven (intralaminar failure)
WP6	Integrated system simulation and knowledge extraction	Andreas Wirsén, ITWM	- Develop the HPC simulation tools that will be used - Will facilitate running the complete simulation of all models in the same environment
WP7	Public participation	Mattijs Smits, WU  (Helena Solman)	- To perform research on stakeholder perspectives and issues - To provide feedback based on research to the consortium to integrate input into design and implementation if possible - To engage stakeholders as necessary in order to educate on wind turbines and promote the project

## 2.2. Day 2

26<sup>th</sup> April 2018 (Thursday)

09:00 – 09:30 *Financial reporting (SINTEF)*

Financial officer Anu Schei gave a brief overview regarding budget and financial issues:

- No subcontracting in the budget
- Commission will provide 53.3 % in pre-financing
- Commission will keep 5 % of pre-financing lump sum for the Guarantee Fund
- As stated in the Consortium Agreement (CA), Project Coordinator (PC) will provide a portion of the pre-financing immediately, then after the specified period the PC will provide the rest
- There are 3 reporting periods: RP1: M1-M18; RP2: M19-M36; and RP3: M37-M48.
- Each financial report has individual financial statements and explanation of the use of resources
- Minor adjustment of budget between partners is acceptable for PO as long as proper tracking is maintained



09:30 – 10:00 WP8: Dissemination, external communication and exploitation (by Wavestone)

WP Leader Alejandro Simon de Dios presented the objectives of WP8.

Items to be mentioned:

- Dissemination activity is distinct from communication activity
- Regarding dissemination: once you disseminate results for promotion, for example data, they must also be automatically published
- ORDP set as a deliverable for WP8; to be clarified with respect to Data Management Plan
- For T8.3: the External Expert Advisory Board (EEAB) - will be tricky to get them involved and make them attend events and meetings since they don't have direct benefit
- Task 8.4: not just about commercial exploitation of current project results, but also include other applications of the technology and tools and promote standardization
- Regarding sharing project information among consortium Microsoft Sharepoint not to be considered. Wavestone to come up with a suggestion for organizing project information sharing.

A discussion about the Data Management Plan came up:

- What kind of data is generated, size, resolution, and type
- Which data will be public or not; sharing platform may differ
- Should there be version control of the data?

10:30 – 12:00 WP group planning meetings

i) WP2

- Each partner to make a recommendation for data needed for the 2.3 MW and 15 MW turbine (to be coordinated with WP6)
- ITWM says that WP6 addresses the above point for 15 MW case
  - The virtual prototype should be completely defined or declared by M12, but the sooner the better. Jens suggest doing this ASAP by making a basic version and then improve later.
  - All the CAD data needs to be collected in the first draft for T6.1

ii) WP3/WP4

- Input: CAD of wind turbine
- Need an API for coupling different models
- Coarse mesh for mechanical system, while applying a finer mesh for the fluid (acoustic) calculations
- Progressively improved coupling between mechanical and fluid systems
- Meandering effects to be captured

iii) WP5

- Should keep things as simple as possible otherwise the characterization will explode so 1 fabric to use for laminates
  - When we are doing the laminate plans for the plates then we can add other variations
  - For sub structure demonstrator the information needed is on fatigue and failure. Do not need to characterize the more advanced phenomena because once the location of failure initiation is identified it won't be necessary to include the highly specialized models.
  - Need to determine which substructure to model
- Siemens to define and manufacture the test machine (300-400kW)
  - Details to be clarified between Siemens and SAMTECH
- Concerning model and development of the model:

- Next meeting (in September): all partners present their state of the art and software and capabilities and progress made so far
- Setup webinars in end of May/beginning of June where Samtech and AAU are presented the models
- It is important to understand the state of the art of each partner, so we know where we are relative to each other and how we proceed to improve together
- Concerns regarding different solvers: monolithic vs. implicit
- SAMTECH: Who defines the drivetrain and the tower?
- Siemens: We need to incorporate the lead time needed for manufacture of the test specimens, it is a function of the size and number of the specimens

#### iv) WP6

- Concerning practice for sharing/sending data
  - SIEMENS suggest everyone agrees to send data in one format, but then up to the receiver to convert if needed
  - ITWM recommend standardizing on one single format to avoid multiple formats and increased data stream size
- On T6.1 (linking all models): a questionnaire will be sent out about data (time resolution, spatial resolution, input, output, value ranges, format/file type, ...) to establish linkage of SW
- ITWM to collect SW tools so they can be installed and run on FH cluster (Linux). They want executable libraries, no need for source code.
- On T6.2:
  - High fidelity model as input and focus on effects that are of interest
  - Error metric and error propagation to be made in order to track error introduced by the process
  - There are 2 ways to do Model Order Reduction (MOR):
    - Have the real equation and go from there
    - If only input and output available, apply the black box method
- On T6.5:
  - The size influences the physical phenomena that will appear
  - Need to model drive train to get the dynamic behavior of the results
  - As discussed in WP3 there will be a progressively improved coupling
  - Proposes a workshop dedicated to presentation of tools

#### v) WP7

- Two case studies considered:
  - Offshore: Lillgrund
  - Onshore: to be determined
- Stakeholder involvement
  - Wavestone and WP7 leader to setup call
  - Need to go through some case examples to determine which parties will be affected and how to determine who will do what and how to manage such cases
- Noise and shadow flicker were major issues brought up: How can this be integrated?
- Among factors identified - some are site specific and some are turbine specific:
  - We should consider how to use this data with respect to site location/planning

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### 3. Summary of Actions

#### SINTEF

- Executive board calls to be held every 2 to 3 months
- Confirm date for next General Assembly
- Decision on work practice for sharing and sending data needs to be confirmed
- Logo for the project to be defined

- Call for next meeting in Denmark (Ålborg) in September: date to be fixed

#### WAVESTONE

- Website due for M3
- Dissemination and Communication plan due for M6
- Work out templates for minutes and reports
- Setup call with WP7 leader to clarify Stakeholder engagement roles and responsibilities
- Setup call with Fraunhofer to clarify on Data Management Plan

#### AWST

- Summary of simulation requirements due M6

#### SAMTECH

- Resolve discrepancy for due dates for D3.2 and D3.5

#### IVKDF

- Share excel file with WP4 work plan with other WPLs

#### AAU

- Manufacture and test machine definition and manufacture workload to be clarified between Siemens and SAMTECH (T5.5)
- Lead time needs to be incorporated for the manufacture of the test machine
- Hold a meeting a skype meeting in the beginning of summer
- Hold a meeting so all the partners can present their state of the art and software capabilities, progress made so far and the modelling plan ← Date to be confirmed (pushed back in September to happen during next General Assembly?)
- Discussion must take place to:
- Have confirmation of who defines (needed as input for Siemens)
- Clarify outputs needed from Siemens to run simulation of defined turbine
- Integrate timing needed for Siemens to provide these outputs
- Summary of simulation requirements due M6

#### ITWM

- Fraunhofer to collect other partners SW tools and demo files. **Deadline to be specified.**

#### SIEMENS/SAMTECH

- To arrange bilateral discussions on the extent of the physical description of the drivetrain. **To happen ASAP.**

## 4. Annexes

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### ANNEX I: LIST OF ATTENDEES

### ANNEX II: AGENDA OF THE MEETING