

Minutes of Meeting

Minutes of 2018 Annual Meeting in Huatulco, Mexico, 25 - 28 June 2018

Participants:

Javier de la Cruz (INEEL)	Lorand Szabo (UTCN). Online
Aidee Zamora (INEEL)	Timo Karlsson (VTT). Online
Jose Manuel Franco (INEEL)	Ferhat Bingol (IZTECH). Online
Ricardo Saldaña (INEEL)	Andres Zappa (INTI). Online
Sebastián Ramírez (UNISOLAR)	Felix Avia (CIEMAT)
Rafael Dorrego (UNISTMO)	Ignacio Cruz (CIEMAT). Online
Gabiel Usera (UdelaR)	Luis Arribas (CIEMAT)
Alexeis Fernandez (INTEC). Online	Carolina G ^a Barquero (CIEMAT). Online

Monday 25th June. Workshop at Universidad del Mar



Under the umbrella of the ERANet-LAC project “Small Wind Turbines Optimization and Market Promotion” (SWTOMP), a workshop on Small Wind Turbines was organized by the Instituto Nacional de Electricidad y Energías Limpias (INEEL) at Universidad del Mar, in Huatulco (Mexico).

In the opening session during Monday afternoon, the open ceremony took place, with representatives from Universidad del Istmo, Universidad del Mar, CEMIE, and Comisión Reguladora de la Energía. In Annex 1, the Agenda of the Workshop can be found.

After the opening session, there were four plenary sessions from the different partners of the SWTOMP Project. These sessions dealt with:

- Development of SWT during the last decades
- Some issues from renewable energy hybrid systems
- Measurement of the power curve for SWT
- Development, validation and application of a CFD based Wind Turbine simulation model.

The whole Workshop was conducted by Javier de la Cruz, from INEEL.

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Opening session and speakers at the Small Wind Turbine Workshop, in Huatulco

Tuesday 26th June. Workshop (morning) and SWTOMP meeting (afternoon)

During the morning, the last session of the Workshop took place. This session included 6 plenary talks from different players in Mexican SWT, coping with issues like experiences from the field of an installer, wind resource and economic assessments in Mexico, actions in the Mexican Centre for Innovation (CEMIE), local energy cluster activities and finally, a complete and interesting description of the Opportunities for small wind turbines in the new electricity market.

Finally Félix Avia from CIEMAT shared some remarks with the assistants in the closing ceremony. The presentations of the workshop will be available for download from the SWTOMP website:



Participants at the Small Wind Turbine Workshop, in Huatulco



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SWTOMP annual meeting

As this meeting started after lunch, because of the Workshop during the morning, only the partners present in Huatulco together with Alexeis Fernández, who joined via Skype, attended this part of the meeting. The agenda for the 2018 Annual Meeting can be found in Annex II.

- **WP1: Promotion of the potential market.** Félix Avia and Luis Arribas (CIEMAT)

The Task 1.1: Analysis of the market issues were addressed during this afternoon session:

- Association: The possibility of creating an association within the SWTOMP Project (which is included in the original proposal as a result: Network of associations) was discussed, concluding that, if so, it might be more viable to join efforts with other international working groups on SWT, like the IEA Task 27 and/or the CYTED REGEDIS.
- Sample survey form and results:
 - CIEMAT had suggested for review a three level sample survey form: Installation levels, Installer and National levels, in a descending order of detailed information.
 - INTI (J.P. Duzdevich) shared some on-line forms they have used for an already existing survey in Argentina
 - INEEL (A. Zamora) shared some of the results of a sample survey already performed in Mexico among 18 companies involved in SWT business.
 - UdelR (G. Usera) INTEC (A. Fernández) (and T. Karlsson from VTT on the next day) will share information as soon as they collect it.
 - The conclusion on this issue is that:
 - Sample survey form: there is not one, but some, that can be included in the deliverable of the Project.
 - Results: each country has a different situation on the results. Some harmonization has to be done in order to reach some common minimum information for each country, and then different options according to the situation in each country.

Specific WP1 skype conferences will continue to be held including this Task.

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Wednesday 27th June. Technical visit

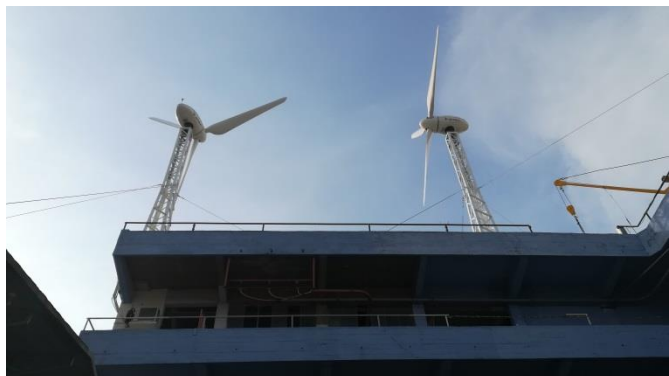
This day was devoted to different technical visits, being a Tour at CERTE (Centro Regional de Tecnología Eólica) the main one. There the active projects could be visited, including a 100m concrete tower and the foundation for the new 30 kW wind turbine which is being designed and constructed within the CEMIE Projects for SWT. This 30 kW SWT projects (P07 and P09) were presented by Isaac Hernández, from CIATEQ.



Technical visit to CERTE; and presentation of the 30 kW SWT Project.

After enjoying a delicious typical Mexican food (dressed with some conversations on the football world cup), the visit continued to the UNISTMO (Universidad del Istmo), where some students from the Master on Wind Energy showed the works they are carrying out on different areas (aerodynamics, power electronics, blade manufacturing, 3D simulations, etc.).

The last stop in our visit was an installation of two 20 kW SWT on the roof of an ice maker industry, guided by the company that made the installation. This uncommon SWT installation opened the discussion during the trip back to Huatulco.



Two 20 kW SWT on the roof of a building



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Thursday 28th June. Work Plan Discussion

Morning session: During the morning session, all the partners were present, either on-site or on-line.

- **WP2: Development of methodology for evaluation of wind resources for SWT.** Ferhat Bingol. (IZTECH)

The presentation of the progress and status of this WP2 was based on a PPT file. Task 2.1 started six months ago.

The final suggestions for collaboration involved two main topics:

- Share data: Mexico, Argentina, Uruguay, Finland and Spain agree to send data (WS, WD and WT production)
- Share SWT power curves: INTI and CIEMAT (at least) agree to send independently measured power curves.

G. Usera (UdelaR) shared some of the main remarks on the work they are carrying out with the simulation of the influence of a fence on the SWT performance.

- **WP0: Project Management.** Carolina García Barquero (CIEMAT)
 - Web page:
 - More activity is needed to keep it alive.
 - Information on the Workshop carried out in Huatulco will be shared within WP1.
 - Consortium Agreement: the only missing partner to sign the CA commits to have it signed shortly, so that it can be used by all the partners.
 - Annual Progress Report: the first Progress Report is pending for August 1st 2018. All the WP leaders are kindly requested to send some information to CIEMAT summarizing the status and progress of their WPs.
 - Next Project annual meeting: Argentina, Uruguay and Dominican Republic have offered to host next meeting. There was also a proposal to join next meeting with the REGEDIS meeting (where some of the SWTOMP partners are also involved), in order to optimize costs and efforts. It needs to be taken into account that, together with the SWTOMP annual meeting, a Workshop should take place, just like in Huatulco.



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- **WP3: Optimization of SWT.** Javier de la Cruz and Andres Zappa. (IIE & INTI)

- GENERATOR

- J. de la Cruz (INEEL) explained on a PPT presentation their proposal for a new radial flux generator, based on the use of ferrite instead of neodymium.
- L. Szabo (UTCLUJ) reported that, as they are in advance regarding other partners, they were not able to wait, and they decided to propose a less used but very promising construction, the hybrid synchronous generator having both permanent magnets and classical electromagnetic excitation. They designed and optimized the prototype, which is under construction and has to be put on the test bench till November.

- COLD CLIMATE

- T. Karlsson (VTT) shared some issues derived from the use of SWT in cold climates, such as the affections on batteries, power electronics, lubricants, etc. There was a discussion on detecting the presence of ice on the blades from the power curve. It is not yet clear that these issues could be included in the (Argentinian) design, but a report with recommendations on this will be delivered for the Project.

- MEXICAN DESIGN

- J. de la Cruz (INEEL) shared a PPT presentation showing the progress and status on their design. According to their planning, some doubts arise to be able to cope with their task on testing and certifying the prototype. There is a general consensus that certifying a prototype is not worthy, but a recommendation to test it in Mexico, with the help of other partners if necessary.

- ARGENTINIAN DESIGN

- J.P. Duzdevich and A. Zappa (INTI) showed some files from the Eolocat tests carried in INTI, which highlighted some of the operating problems that need to be addressed in the improved design. Future improvements also include the matching between the rotor and the generator through the inverter for grid-connected applications, and a new bench for generators testing.

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Afternoon session:

- **WP4: Standards.** Félix Avia and Ignacio Cruz (CIEMAT)

F. Avia commented the presentation sent by I. Cruz, on the actual status of standards and improving possibilities. This WP will start in year 2 and will take as inputs the outputs from WP3.

- **WP1: Promotion of the potential market.** Félix Avia and Luis Arribas (CIEMAT)

The *Task 1.3: Preparation of material for education* issues were addressed during this afternoon session:

- INTEC proposal: University oriented material, with an extended index shared with partners
- INTI approach: two public documents on SWT and installers.
- UdelAR document: a similar one to INTI.
- There was an open discussion on the target audience for these materials, with a (not-final) conclusion that there may be different materials, for different target audiences. However specific WP1 skype conferences will continue to be hold including this Task as well.

A final comment thanking INEEL, and in particular Javier de la Cruz and Aidee Zamora, for their excellent work in the organization both of the Workshop and the SWTOMP annual meeting in Mexico.



SWTOMP annual meeting in Huatulco, Mexico.



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ANNEX I: WORKSHOP AGENDA



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SWTOMP project

The main objective of the SWTOMP project is the promotion, development and implementation of the utilization of small and medium size wind turbines for isolated applications and their connection to weak grids, including the optimization of small/medium scale wind turbines to harness local wind regimes and regional infrastructure requirements.

Organization committee

- Javier de la Cruz, INEEL
- Victor I. Moreno, UNISTMO
- Jaime Agredano, INEEL
- Carolina García, CIEMAT
- Javier Lagunas, INEEL
- Juan M. Ramirez, CINVESTAV
- Luis Arribas, CIEMAT
- Aideé Zamora, INEEL

Workshop Small Wind Turbines

Institutions

- CIEMAT
- Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
- INEEL
- Instituto Nacional de Electricidad y Energías Limpias
- Instituto Tecnológico de Santo Domingo
- INTI
- Instituto Nacional de Tecnología Industrial
- IZTECH
- Izmir Institute of Technology
- UdeLAR
- Universidad de la República
- UTCN
- Universitatea Tehnica din Cluj-Napoca
- VTT
- Technical Research Centre of Finland Ltd -Finland

Increasing awareness of the potential of small/medium wind turbines

June 25-27, 2018
Huatulco, México

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General program		
Location: UMAR Campus Huatulco, km 250, carretera México 200. Monday 25th June		
Time	Conference	
14:00-15:00	Registration	
15:00-15:20	Open ceremony	
15:20-16:00	Plenary session 1: Development of the small wind energy in the last 30 years	
16:00-17:40	Plenary session 2: Renewable hybrid systems	
17:40-18:20	Coffee-break	
18:20-19:00	Plenary session 3: Measurement of the power curve of small wind turbines	
19:00-19:40	Plenary session 4: Development, validation and application of a CFD based Wind Turbine simulation model	
Tuesday 26 th June		
Time	Conference	Speaker
08:30-09:00	Registration and coffee	
9:00-9:40	Plenary session 5: Experiences on small wind energy in Mexico, Challenges and opportunities	Sebastian Ramirez, GRUPO INSOLAR
9:40-10:20	Plenary session 6: Wind maps for small wind turbines in Mexico	Ricardo Saldaña, INEEL
10:20-11:00	Plenary session 7: Economic assessment of SWT projects in Mexico	Aideé Zamora, INEEL
11:00-11:20	Coffee-break	
11:20-12:00	Plenary session 8: Actions of the Mexican Center of Innovation in Wind Energy	José M. Franco, CEMIE-Eólico
12:00-12:40	Plenary session 9: Oaxaca's Energy Cluster Presentation	Luis A. Calderón, Clúster de Energía Oaxaca
12:40-13:20	Plenary session 10: Opportunities for small wind turbines in the new electricity market. Applicable regulatory framework	Marcelino Madrigal, CRE
13:20-13:40	Closing ceremony	

Technical visit	
LOCATION: Centro Regional de Tecnología Eólica (CERTE): Carretera Panamericana Federal número 185 km 243+300, tramo Juchitán – La Ventosa. Wednesday 27th June	
Time	Conference
8:00-11:00	Huatulco-Istmo
11:30-13:00	Tour at CERTE
13:00-15:00	Lunch
15:00-18:00	Istmo-Huatulco





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ANNEX II: 2018 SWTOMP MEETING AGENDA



AGENDA
SWTOMP PROJECT
2018 Annual Meeting
 Huatulco, (Oaxaca). México
 June 26 and 28, 2018

1st Day (26 June): Consortium Meeting

16:00 Welcome to the meeting

Luis Arribas, CIEMAT

16:10 WP1: Promotion of the potential market (part I)

- Task 1.1: Analysis of the market, led by Félix Avia and Luis Arribas - CIEMAT

Coffee took place during the meeting

- Discussion on the agenda for second day of the Consortium meeting

20:00 Dinner at the "El Mexicano" restaurant

2nd Day (28 June): Consortium meeting

08:00 WP2: Development of methodology for evaluation of wind resources for SWT

Led by Ferhat Bingol - IZTECH, and Gabriel Usera - UdelaR

09:00 WP0: Project Management

Led by Carolina García Barquero – CIEMAT

09:30 WP3: Optimization of SWT (part I)

- Generator, led by Javier de la Cruz – INEEL
- Cold climate issues, led by Timo Karlsson - VTT

11:00 Coffee break

11:30 WP3: Optimization of SWT (part II)

- Mexican design, led by Javier de la Cruz – INEEL
- Argentinian design, led by Juan Pablo Duzdevich – INTI

13:00-15:00 Lunch

15:00 WP4: Standards

- Led by Félix Avia - CIEMAT

15:30 WP1: Promotion of the potential market (part II).

- Task 1.3: Preparation of material for education, led by Félix Avia and Luis Arribas - CIEMAT

18:00 End of the meeting and congratulations to hosts

21:00 Dinner at the Kasbah restaurant