

IEA WIND TCP Task 25

Design and Operation of Energy Systems
with Large amounts of Variable generation



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IEA Wind TEM"113 Net Zero Systems
8th April, 2024

IEA Wind Task 25 in a nutshell

- Started in 2006, now 16 countries + WindEurope participate to provide an international forum for exchange of knowledge
- State-of-the-art: review and analyze the results so far (Oct 2021)
- Formulate guidelines- Recommended Practices for Wind/PV Integration Studies (RP Ed.2 July 2018)
- Fact sheets and integration study time series (wind, solar, load...)

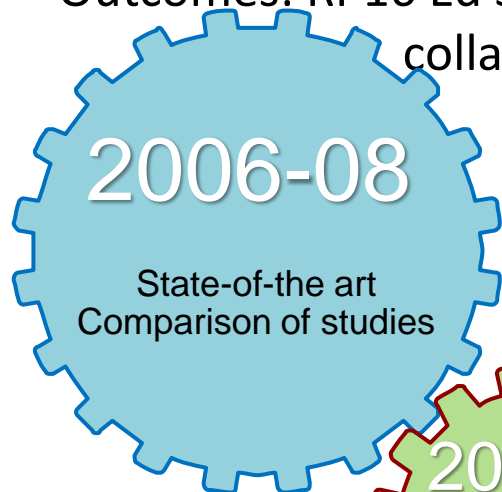
<https://iea-wind.org/task25/>

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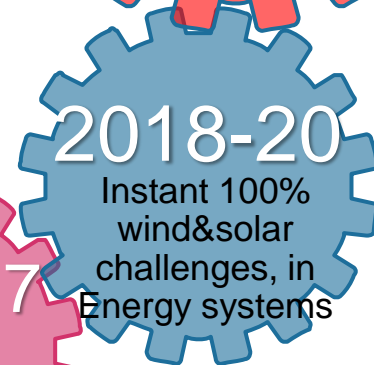
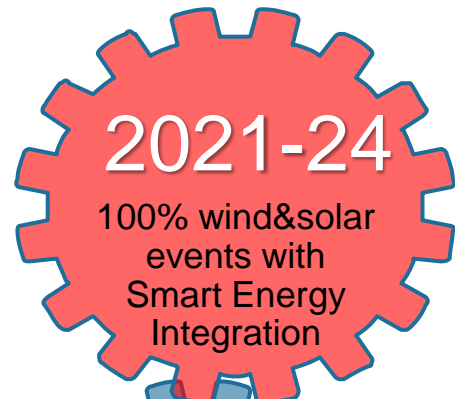
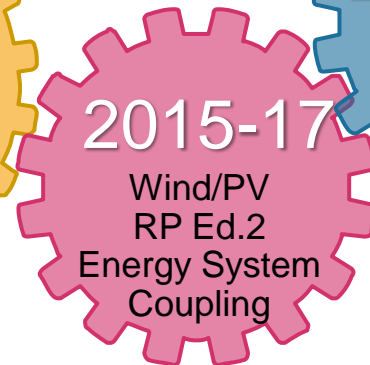


Task Objectives & Expected Results

- Objectives: recommend methodology to assess the impact of wind (and solar) power on energy systems, **and mitigation**
- Outcomes: RP16 Ed 3 / articles /fact sheets / bibliography / + collaboration: IEA Paris, **Inter-TCP, G-PST**



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Task 25 WPs and Topics

WP1: Coordination and dissemination (leader: N.Helistö, VTT/ H.Holttinen, Recognis)

WP6: Inter-TCP collaboration (leader: H.Holttinen, Recognis)



WP2: **Long-term planning challenge**: How to design/develop power and energy systems (leader: B.Frew, NREL /N. Helistö, VTT)



WP3: **Balancing challenge**: Operational or short-term planning issues (leader: D.Flynn, UCD /J. Kiviluoma, VTT)



WP4: **Stability challenge** (leader: N.Cutululis, DTU/N. Helistö, VTT)



WP5: **Market design issues** (leader: M.Korpås, NTNU/H. Holttinen, Recognis)

Participants and estimated value of collaboration

Country	Participant	Subject	National effort	Related effort	Total effort	Total effort/year
		Work package	Person-month	Person-month	Person-month	Person-month
Canada	Uni Vic, Uni Laval	WP 2, 3, 4, 5	4	96	100	25
China	SGERI	WP 2, 3	2	0	2	0.5
Denmark	DTU, Energinet	WP 2, 3, 4, 5	12	96	108	27
Finland	VTT, Recognis	WP 2, 3, 4, 5	16	189	205	51
France	EDF, MINES ParisTech, RTE	WP 2, 3, 4, 5	4	0	4	1
Germany	Fraunhofer IEE, FfE	WP 2, 3, 4, 5	7	504	511	128
Ireland	UCD (& SEAI)	WP 2, 3, 4, 5	6	120	126	31
Italy	Terna	WP 2, 3, 4, 5	4	215	219	55
Japan	CRIEPI, Kyoto Uni	WP 2, 3, 4	10	8	18	4
The NL	TU Delft, TNO	WP 2, 3, 4, 5	7	276	283	71
Norway	NTNU, Sintef	WP 2, 3, 4, 5	4	508	512	128
Portugal	LNEG, INESC TEC	WP 2, 3, 4, 5	18	200	218	54
Spain	UCLM, Comillas	WP 2, 3, 4, 5	6	76	82	20
Sweden	KTH	WP 2, 3, 4, 5	8	212	220	55
UK	Imperial College, OREC	WP 2, 3, 4, 5	2	144	146	36
USA	NREL, ESIG (& USDoE)	WP 2, 3, 4, 5	46	301	347	87
WindEurope	Wind Energy Association	WP 2, 3, 5	6	0	6	1

- 17 countries, 31 institutes
- Observers in meetings:
Tasks 50, 51;
IEA, IRENA,
Ampacimon,
Vattenfall,
TSOs (FI, IE, SP,
MX, UR)

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