

## 2C NOW webinar

### Conclusion and Outlook

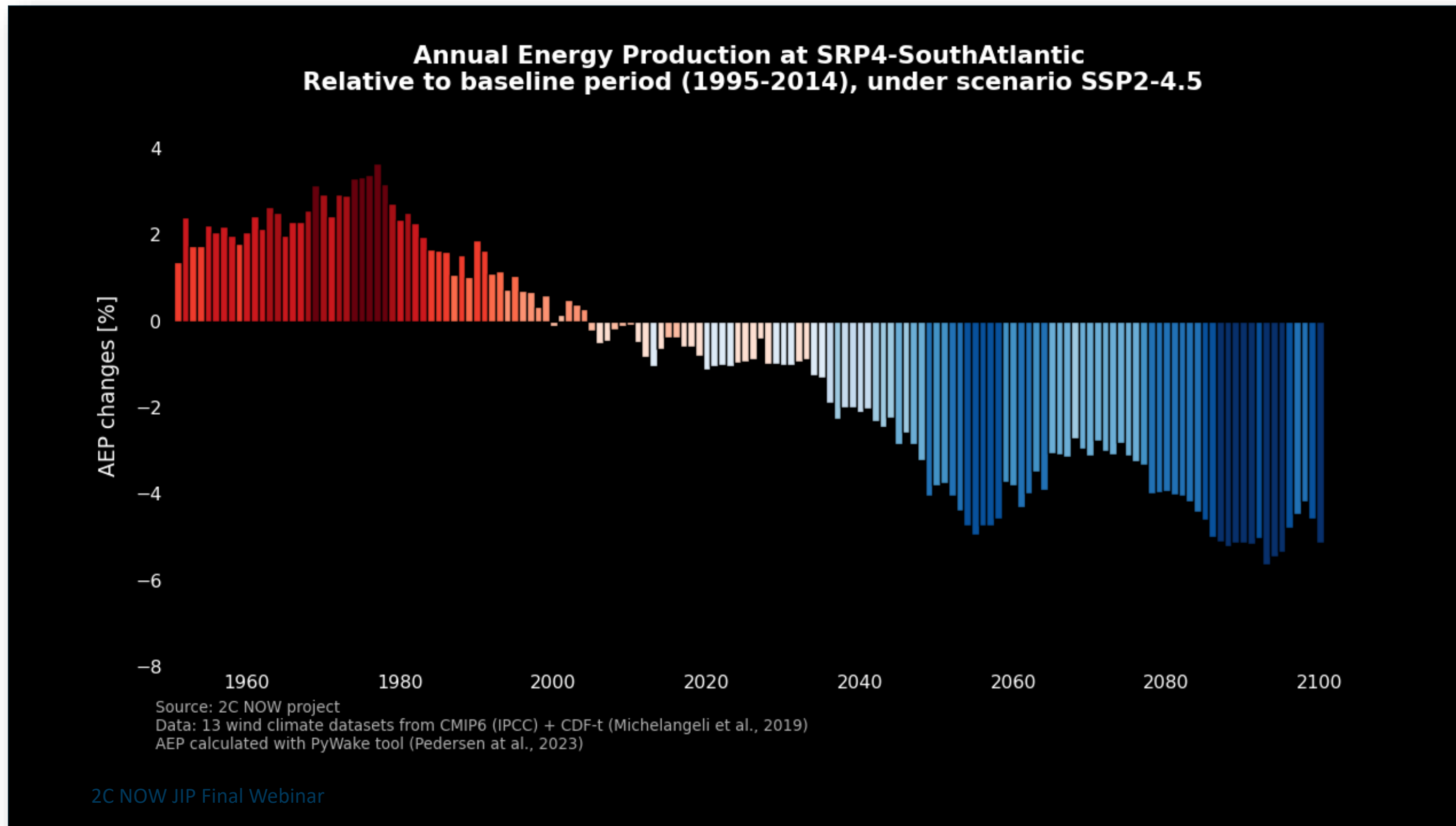


Laurent Dubus (RTE), Scientific Manager

		Mean conditions (future)	seafront	Extreme conditions (future)	seafront
Wind	2C NOW	<b>DECREASE</b> From -3% to -5% (SSP5-8.5 / Long-term future) Model uncertainties: -20% to +10%	Channel: - Atlantic: -- Med. Sea: --	<b>Less CONSENSUS</b> From -5% to +2% (SSP5-8.5 / Mid-term future) From 0% to +6% (SSP5-8.5 / Long-term future)	Channel: + Atlantic: - Med. Sea: -
	Literature	<i>DECREASE</i> (Carvalho et al., 2017 ; Carvalho et al., 2021, IPCC, 2023)		<i>INCREASE</i> (High winds : Weber et al., 2018 ; Carvalho et al., 2021) (North Sea: Larsen et al., 2023)	
Waves	2C NOW	<b>DECREASE</b> From 0% to -4% (SSP5-8.5 / Mid-term future) From -2% to -6% (SSP5-8.5 / Long-term future)	Channel: - Atlantic: -- Med. Sea: --	<b>INCREASE</b> from +2% to +15% (SSP1-2.6 / Long-term future) from +2% to +17% (SSP5-8.5 / Long-term future)	Channel: + Atlantic: ++ Med. Sea: +
	Literature	<i>DECREASE</i> (Charles et al., 2012 ; Aarnes et al., 2017 ; Bricheno and Wolf, 2018; Chaigneau et al., 2023)		<i>NO CONSENSUS</i> (Aarnes et al., 2017 ; Bricheno and Wolf, 2018)	
Water Levels	2C NOW	<b>INCREASE</b> MSL : from +15 cm to +17 cm (SSP5-8.5 / Mid-term future)	Channel: ++ Atlantic: ++ Med. Sea: ++	<b>INCREASE</b> surges : from +5% to +20% (SSP5-8.5 / Mid-term future)	Channel: ++ Atlantic: + Med. Sea: +
	Literature	<i>INCREASE</i> (Vousdoukas et al., 2017)		<i>INCREASE</i> (Vousdoukas et al., 2017, IPCC, 2023)	

Main « trends », but higher uncertainties !

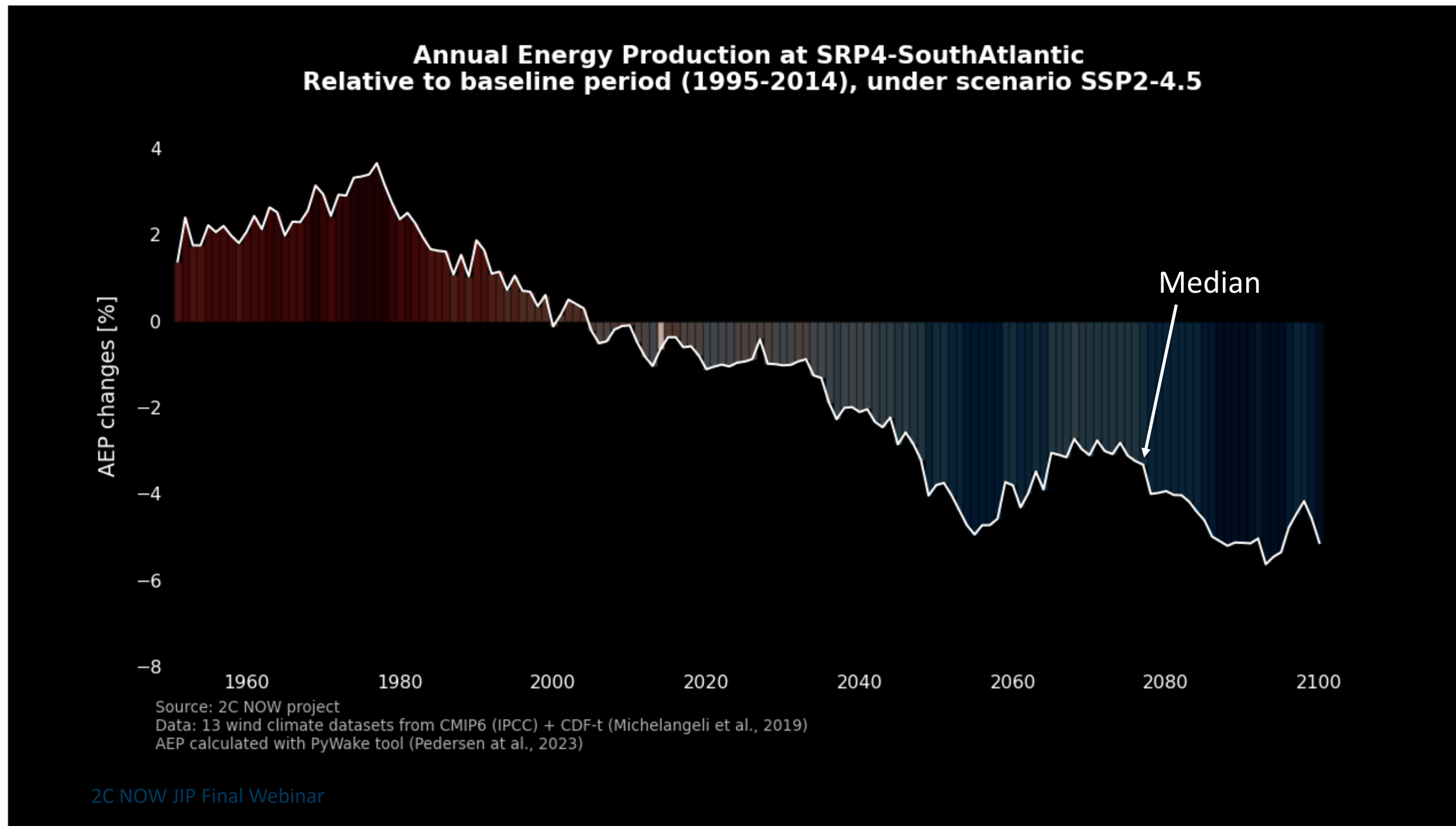
Fairly classic “Warming Stripes” graph showing the evolution of production, SSP2-4.5 scenario (~French TRACC)



**Message:**  
The average Wind Energy Production could decrease in the coming years

Note: with standard NREL 15 MW turbine.

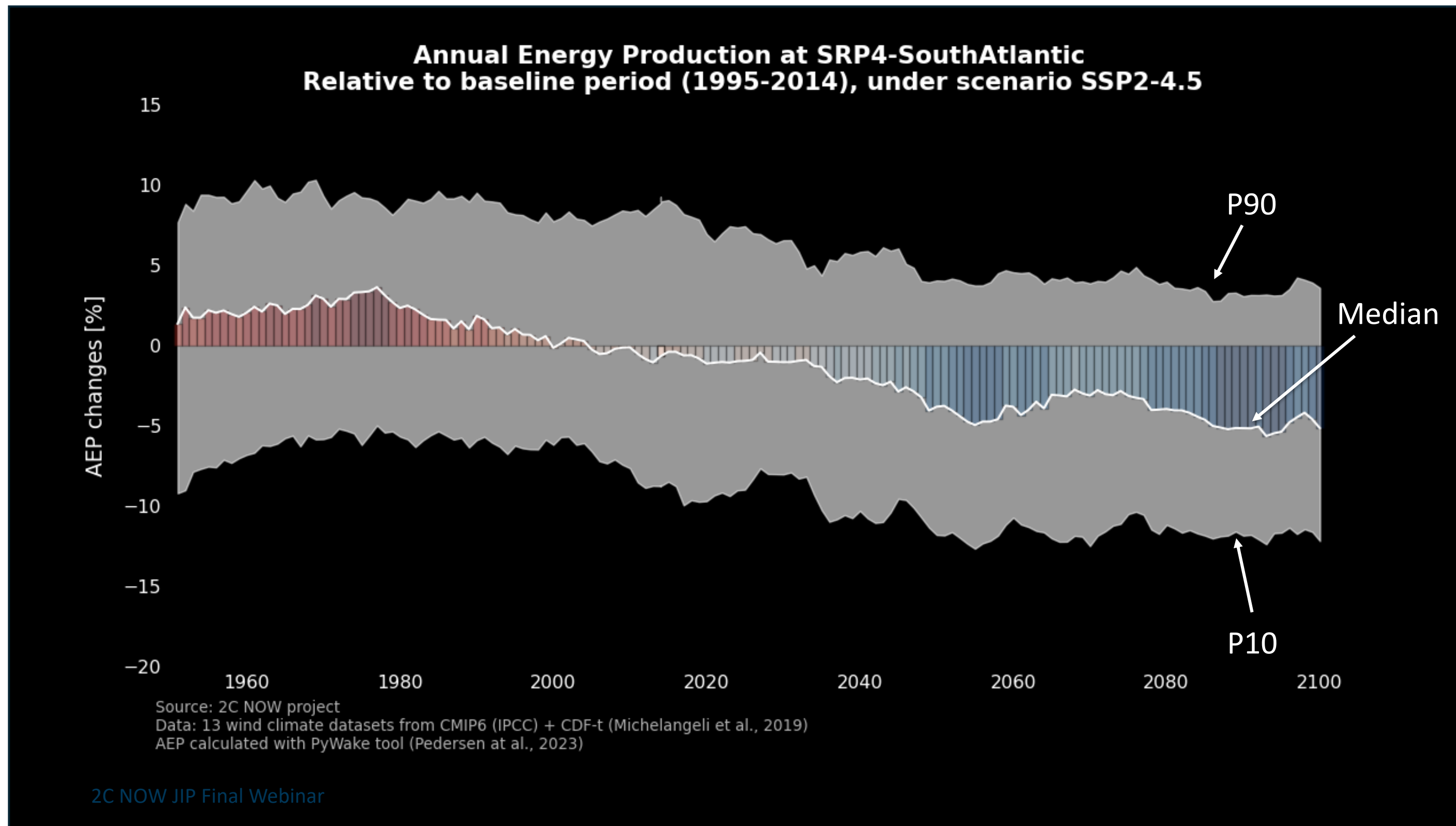
Except that what we are showing is just the **median** of the different (13) climate models!



=> Now let's add the **uncertainties** (envelope p10/p90 of the 13 models) ..

Note: with standard NREL 15 MW turbine.

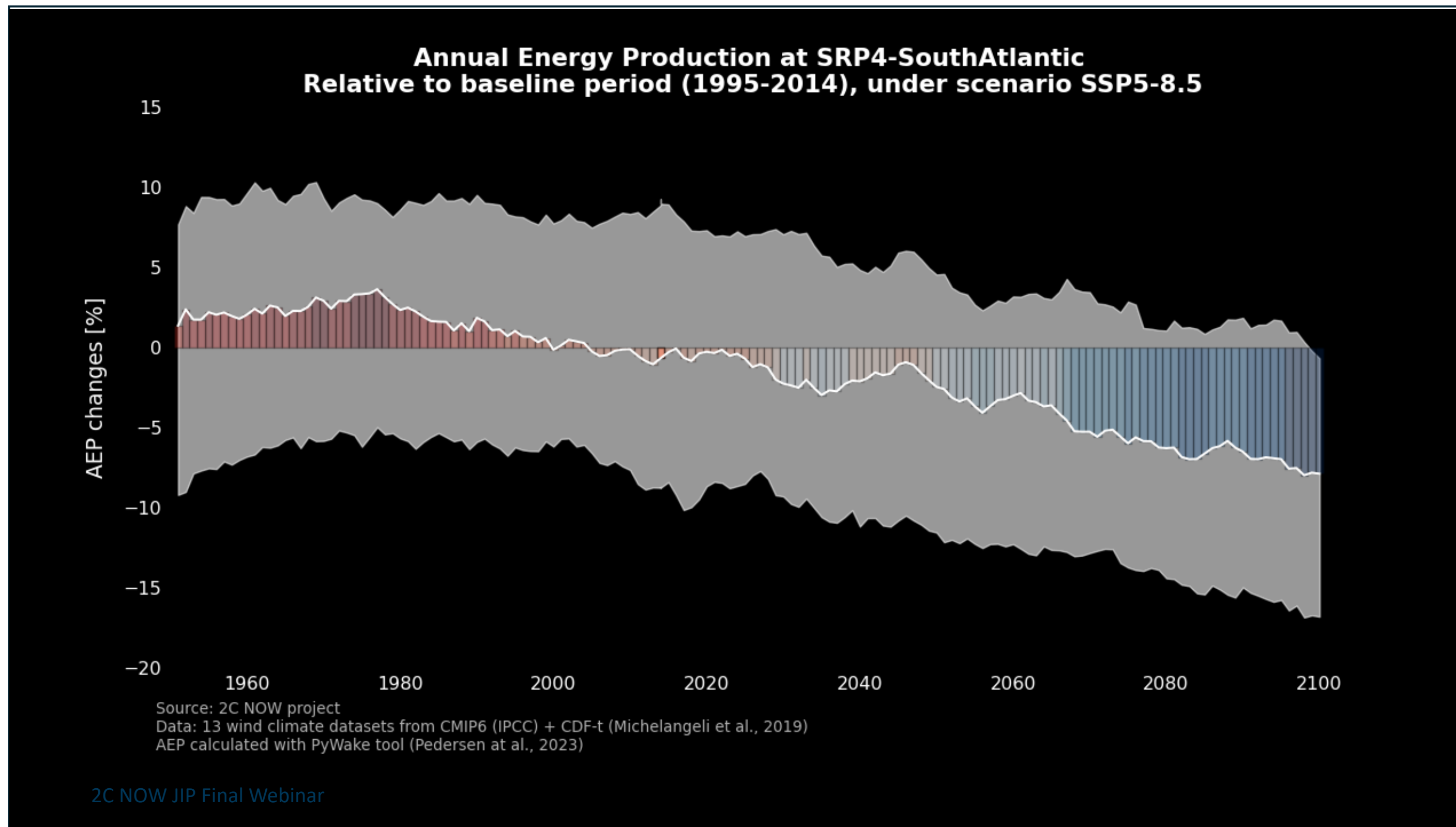
Here's what we finally get:



**Message:**  
The evolution of Wind Energy Production is associated with important **model uncertainty**

Note: with standard NREL 15 MW turbine.

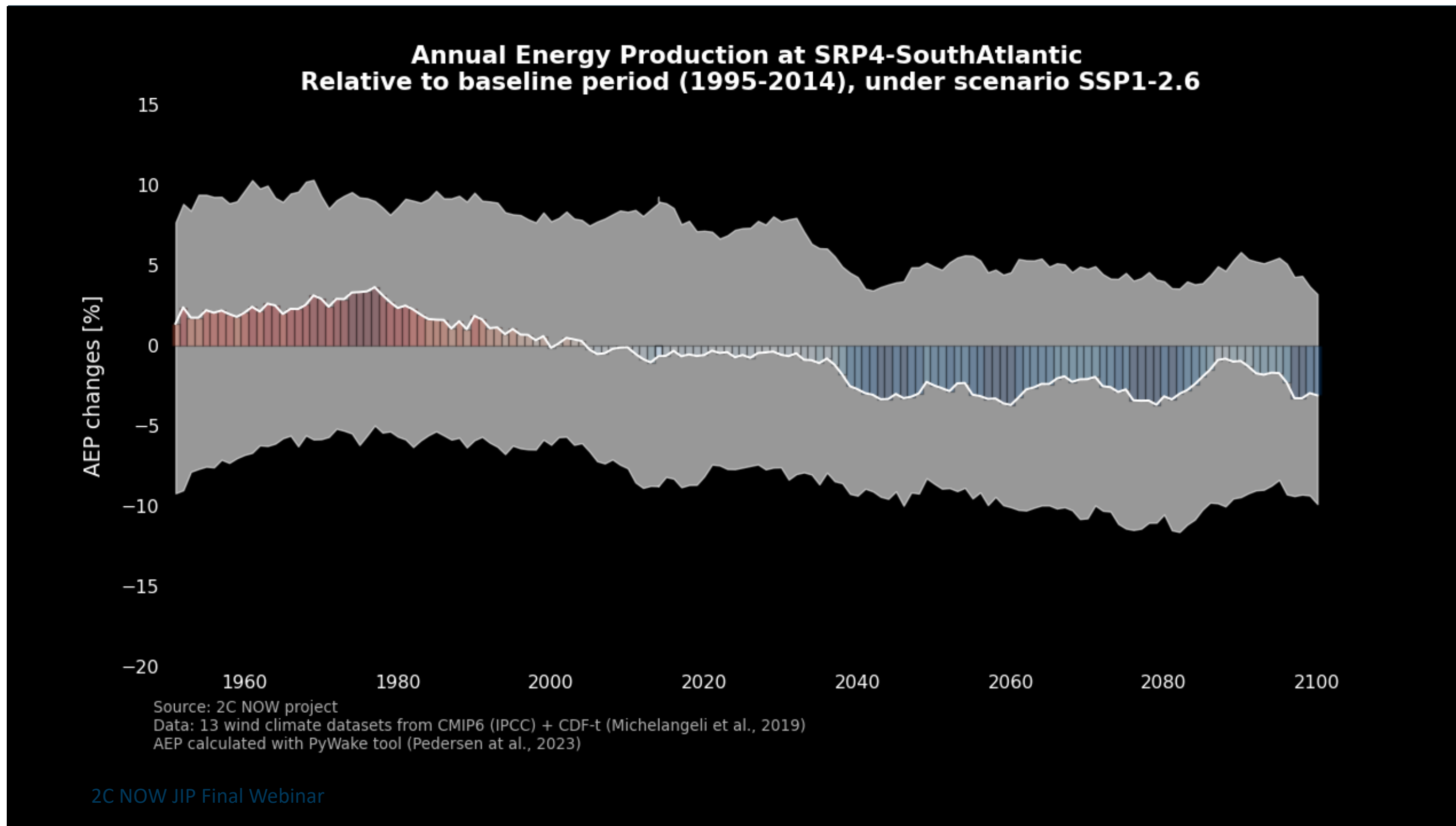
Under the most pessimistic projection scenario:



**Message:**  
It would be much **worse** if the emissions went off the rails.

Note: with standard NREL 15 MW turbine.

Under the most optimistic projection scenario:

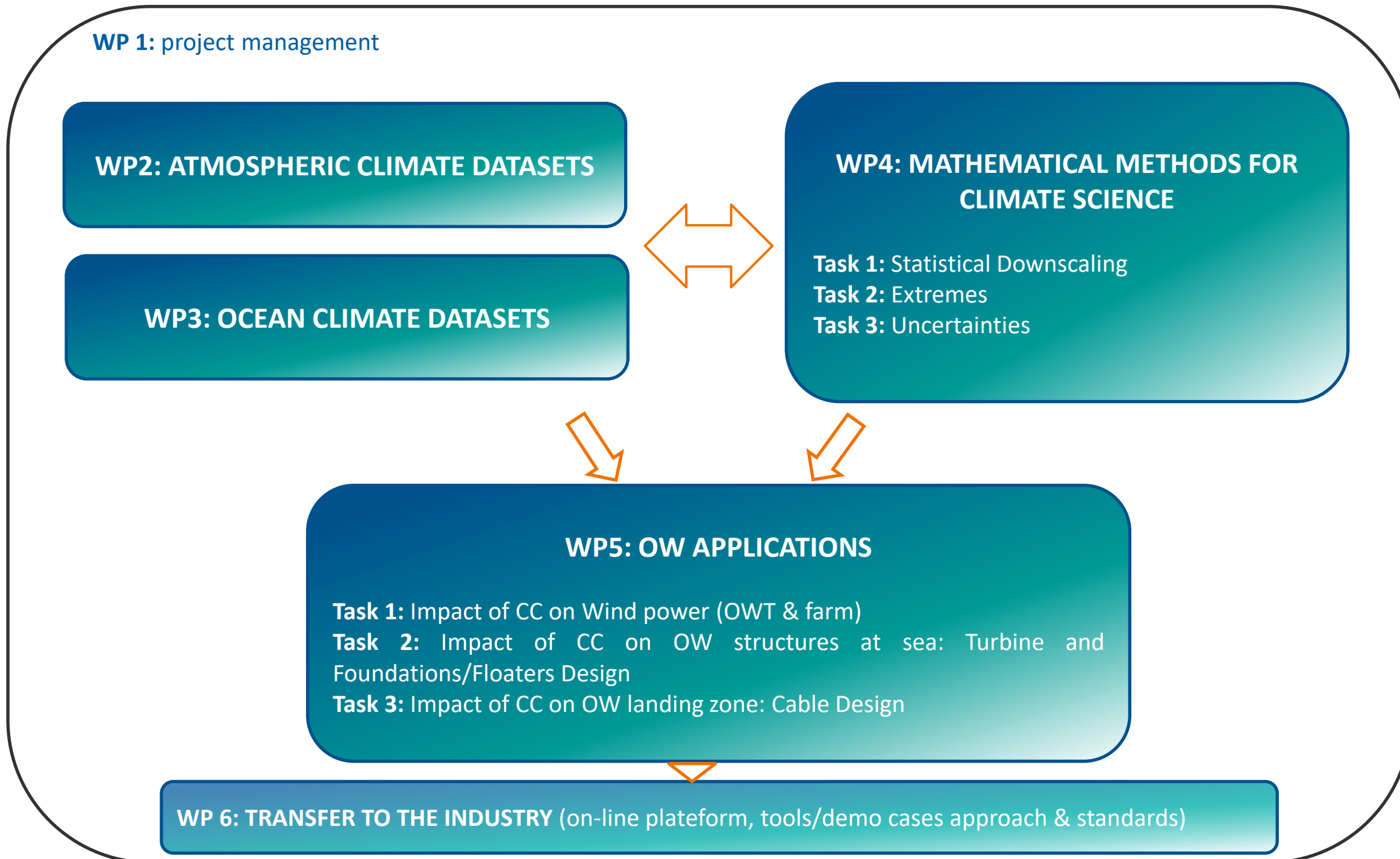


**Message:**

...And much more **favorable** in the event of reduced emissions and a *successful* decarbonization trajectory!

Note: with standard NREL 15 MW turbine.

## 2 MORE



**Opportunity to still join the consortium!**