The role of additional wind in power generation boilers

Can electrical boilers and heat storage tanks improve wind power integration?
The large portion of the generation capacity from inflexible combined heat and power (CHP) is the major barrier for integrating this variable power source. This paper explores opportunities for increasing the flexibility of CHP units using electrical boilers and heat storage tanks for better integration of wind power.

Does wind power generation affect heat pump load?
Seasonally,as expected,both wind power generation and heat pump load are higher in winter than in summer. However,the seasonality of the heat pump load is stronger. The Pearson correlation coefficient for the hourly wind and heat pump electricity time series is 0.11. Fig. 5.

Why is wind power a major barrier to integrating inflexible combined heat & power?
Abstract: With the largest installed capacity in the world,wind power in China is experiencing a ~ 20% curtailment during operation. The large portion of the generation capacityfrom inflexible combined heat and power (CHP) is the major barrier for integrating this variable power source.

Do electrical boilers and heat storage tanks improve the flexibility of CHP units?
Our results show that both electrical boilers and heat storage tanks can improve the flexibility of CHP units: introducing electrical boilers is more effective at reducing wind curtailment,whereas heat storage tanks save more energy in the energy system as a whole,which reflect a different heating efficiency of the two solutions.

Do wind power and heat pump technology support the competitiveness of heat pumps?
At the same time,we find that the simultaneous expansion of wind power,the choice of system-friendly heat pump technology,and flexible heat pump operation with thermal storage could mitigate this rise in load cost and hence support the competitiveness of heat pumps.

Does heat pump flexibilization increase wind power value?
At 30% of wind power,its value decreases by up to 1 EUR/MWh. These results are counterintuitive against the background of previous studies finding that adding flexibility to the electricity system supports the integration of wind power. Fig. 10. The impact of heat pump flexibilization with thermal storage on the wind market value.

Contact us for free full report

Web: https://www.publishers-right.eu/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346