

Variable renewable energy integration: status around the world

H. Holttinen; A. Groom; E. Kennedy; D. Woodfin; L.A. Nobrega Barroso; A.G. Orths; K. Ogimoto; C. Wang; R. A. Moreno Vieyra; K. Parks; T. Ackermann

Abstract-

Variable Renewable Energy (VRE), i.e., wind and solar photovoltaics (PVs), is being installed in rapidly increasing amounts around the world. Growth in VRE is being spurred by ambitious zero-carbon targets set by countries and individual states across the globe. The European Union approved a carbon neutrality target for 2050 in 2019. Japan's newly appointed prime minister announced the same target in 2020, and the Chinese government set goals to peak carbon emissions before 2030 and become carbon neutral by 2060.

Index Terms- Photovoltaic systems , Renewable energy sources , Wind power generation , Government , Hydroelectric power generation , Europe , Carbon dioxide

Due to copyright restriction we cannot distribute this content on the web. However, clicking on the next link, authors will be able to distribute to you the full version of the paper:

[Request full paper to the authors](#)

If your institution has an electronic subscription to IEEE Power and Energy Magazine, you can download the paper from the journal website:

[Access to the Journal website](#)

Citation:

Holttinen, H.; Groom, A.; Kennedy, E.; Woodfin, D.; Barroso, L.A.; Orths, A.G.; Ogimoto, K.; Wang, C.; Moreno, R.; Parks, K.; Ackermann, T. "Variable renewable energy integration: status around the world", IEEE Power and Energy Magazine, vol.19, no.6, pp.86-96, November, 2021.