

## **P24 High-resolution WRF forecasts of low-level winds in the Columbia River Basin for wind energy applications**

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Under the auspices of the Department of Energy Wind Forecast Improvement Project, version 2 (WFIP2), a study of low-level flow kinematics and dynamics is planned for an area of intensive wind-power generation straddling the Columbia River east of the Cascade Range. The goal of this project is to improve short range (1–24 h) operational numerical weather prediction wind forecasts at wind-turbine-rotor heights, typically 30–160-m above ground level. Special instrumentation, including Doppler lidars, radar wind profilers, and instrumented towers, will be deployed for the field phase of the project, which is expected to run from late 2015 through 2016.

This preliminary study is aimed at qualitatively describing how the High Resolution Rapid Refresh (HRRR, 3-km horizontal grid spacing), the Rapid Refresh (RAP, 13-km grid spacing), and a WRF-ARW 750-m grid-spacing nest within the HRRR perform in weather situations that present particular challenges for forecasting low-level winds in the proposed experimental area. As such, this study will help establish a kind of qualitative performance baseline upon which we hope to improve, as well as giving us a greater appreciation of the particular challenges of high-resolution NWP in the experimental area.