

Article Commentary “A Warning from The United Kingdom: Renewable Energy May Not Suffice”

On November 4th, 2020, the UK utility, National Grid, forecasted a shortfall of 740 MW caused by a mass of cold, calm air that increased the demand for heating while reducing the available power generation from onshore and offshore wind farms from an intended average of 16.9 GW to 2.5 GW. Simultaneously, several natural gas and nuclear power plants in the UK were undergoing maintenance and, as a result, old coal-fired power plants typically out of service were fired-up to meet the demand. The journalist cautions against overreliance on intermittent power and the importance of a diversified energy mix.

For background, 37% of the UK’s electricity was produced from renewables in 2019, 41% from natural gas, 17% from nuclear and 2% from coal. Of the renewables, onshore/offshore wind account for 54% of the total renewable generation; 31% from bioenergy, 11% from solar and 5% from hydro. In total, wind and solar comprise 65% of renewables and thus 24% of the overall UK energy production.

The UK’s transition to cleaner power, predominantly through wind and solar, means that weather will increasingly affect both the supply and demand sides of the power equation.

Balancing the grid as renewable generation exceeds 20% of the overall production, and introduces volatility into energy markets, is a big problem that needs to be solved. In July 2020, a handful of the largest UK energy producers, including major suppliers Centrica and E.ON, sent an open letter calling on National Grid to accelerate the deployment of smart EV charging infrastructure, energy storage and other flexibility services to help balance the grid. There is going to be a tremendous need for financing resiliency improvements – an area to which Riverstone brings experience and alpha.

The following breakdown outlines four illustrative investment opportunities we have reviewed in 2020 that address energy transition intermittency:

Biomass (wood-pellets) – RCP/RCOI looked at an investment in April to complete the construction of a wood pellet production facility in Arkansas that had executed an offtake contract with Drax¹. Drax is a leading provider of power system electricity in the UK and provides 6% of the total UK electricity supply and 12% of the UK’s renewable electricity. Approximately two-thirds of electricity generated from biomass in the UK is produced from wood pellets.

Biogas – RCP/RCOI assessed assuming management of a diversified ~20 MW portfolio of waste-to-energy anaerobic digesters across the UK². Anaerobic digestion systems capture methane and allow the biogas to be used beneficially; biogas can be used to power engines and generators to produce heat and/or electricity or distributed through natural gas pipelines to be used in homes and businesses.

Lithium-ion battery storage – RCP/RCOI is actively evaluating battery storage and lithium production opportunities, a necessary solution to curtail the shortfalls of intermittent generation. Although expensive today, the capital flow rushing into renewable power generation/energy storage solutions is massive and is projected to eclipse \$250bn in 2021 and exceed \$650bn by 2030. As an example of the progress made to-date, in August 2020, the world’s largest battery of 250 MW was brought online in San Diego, California for the investor-owned utility PG&E.

Geothermal – RCP/RCOI is actively evaluating geothermal projects in Europe and the United States. Geothermal is a unique renewable energy source in that it can provide 24/7 baseload power and heating without the need for associated storage. The use of geothermal energy in Europe is expected to grow materially since this energy resource is generally abundant, low-carbon and non-intermittent.

We are seeing significant capital flows into renewable energy/storage and expect this trend to rapidly accelerate over the next decade. RCOI is well-positioned to participate in this growth and successfully deploy capital that optimizes and fortifies baseload and intermittent renewable power.

^{1,2} RCOI passed on this investment.