

IMPACT OF HIGH DISTRIBUTED ENERGY RESOURCES

Executive Summary



Finding #1

The increase in DER penetration led to decreased use of thermal generation. However, results show that DERs did not replace the need for thermal generation entirely because of operational and reliability requirements.

Finding #3

Localized voltage profiles tend to shift (usually upward) when DER penetration increases in a localized area.

Finding #2

High penetration of DERs resulted in an excess of generation in the middle of the day. As a result, commercial solar and wind were curtailed.

This assessment identifies potential reliability risks associated with a high penetration of distributed energy resources in the Western Interconnection.

WECC recommends that electric utilities monitor DER penetration in their respective systems and collect DER data in these systems to adequately monitor, assess, and plan for emerging reliability risks.

WHAT ARE DISTRIBUTED ENERGY RESOURCES?

Distributed energy resources (DER) are sources of power on the system that are smaller than a typical power plant and spread out across a potentially wide area. Predominantly, these are rooftop solar panels installed on commercial and residential buildings. The number of these energy resources is increasing substantially in some regions in the West.

WHY DOES THIS MATTER?

As DERs become more widely used, they begin displacing other generation sources at the grid level. This change in the makeup of the system at the distribution level could lead to impacts at the grid level if not adequately studied and assessed during system planning.

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