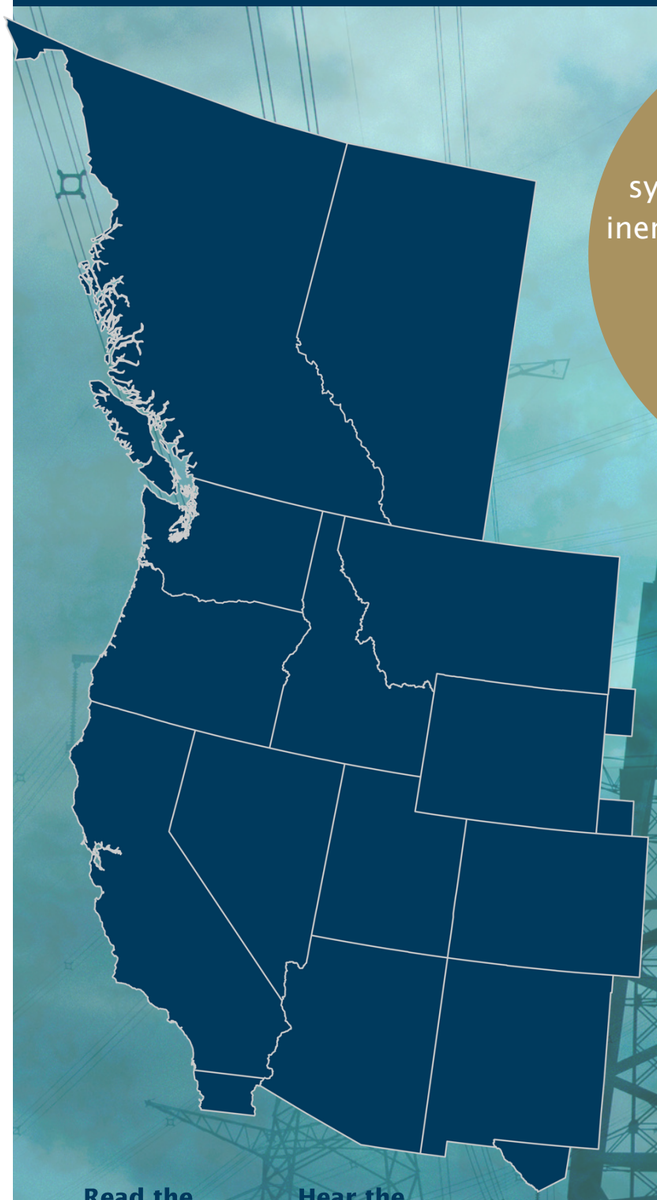
CHANGES IN SYSTEM INERTIA

Executive Summary



Finding #1

Under light load system conditions and low inertia, a standard generation disturbance could potentially initiate load shedding due to low system frequency

Finding #2

The rate at which system frequency declines during generation disturbances is increasing due to reduced system inertia

Finding #3

Localized voltage instability was seen due to reduced levels of conventional generators

How much system inertia is needed for the reliability of the Western Interconnection?

WECC recommends that entities involved with system planning and operations closely monitor system inertia under all conditions and address any potential reliability issues.

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WHAT IS SYSTEM INERTIA?

In power systems, inertia is the energy stored in large rotating generators and some industrial motors, which tend to remain rotating. This stored energy could be particularly valuable if a large power plant were to fail, since it can temporarily make up for the power lost when a generator fails.

WHY DOES THIS MATTER?

System inertia matters because the Western Interconnection is experiencing a shift from conventional resources to wind and solar generation resources, which do not inherently provide inertia to the system. This could result in system instability or loss of load under certain conditions.