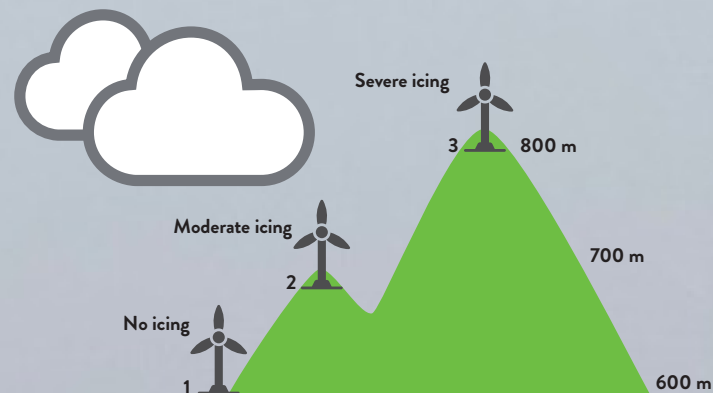


TYPES OF ICE ACCUMULATION AND ASSOCIATED PROPERTIES, RELATED WEATHER CONDITIONS

IN-CLOUD ICING

Occurs when super-cooled water droplets in the cloud, come in contact with an object, such as a turbine blade, that has a temperature below freezing.



- Turbines are shrouded in the clouds - Some turbines could be impacted and others not
- Most common type of icing
- High accumulation rates possible
- Most severe in elevated locations
- Can result in turbines being out of service for many days

In-cloud icing can result in a glaze or rime type of ice accumulation.

PRECIPITATION BASED ICING

A glaze type of icing that is generally clear in color and has the highest density of the icing types.



Freezing drizzle/rain

Occurs when supercooled water droplets freeze to the surface of an object, such as a turbine blade, with a temperature below freezing.



Wet snow

Made up of partially melted snow crystals which can stick to the blades and freeze upon contact.

Rate of accumulation is dependent on the following:

- Wet bulb temperature
- Wind speed / stronger winds = more ice
- Rate of precipitation



FREEZING FOG/MIST

Super-cooled, tiny water droplets, come in contact, with a turbine blade that has a surface temperature below freezing.

- Usually results in light ice accumulation
- Often not well forecasted
- Prolonged events can occur lasting more than a day

