



COASTAL RISK CONSULTING

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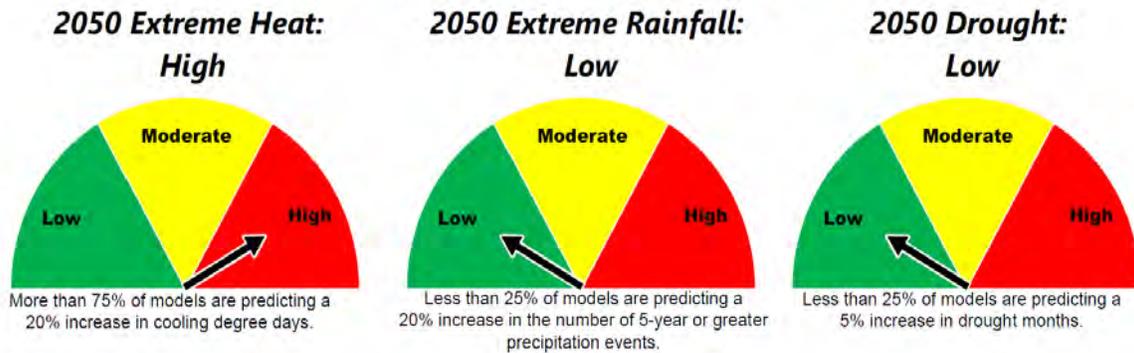
844-SEA-RISE (732-7473)



CONFIDENTIAL

RISKFOOTPRINT™ AND PRI/TCFD SCENARIO REPORTING

Future Climate Change Impacts



Here is how the RiskFootprint™ 3 Climate Change Impact Meters (2050) relate to the PRI/TCFD scenario analyses, generally:

The RiskFootprint™ Climate Meters are created from a meta-analysis of >30 climate studies using RCPs. The meters combine both scenarios that PRI/TCFD are interested in - below RCP 2 and greater than RCP 4. The RiskFootprint™ meters represent planning tools for considerations regarding the future climate projections that must be considered by facility owners and investors. They provide the starting point for developing action plans at 5-year, 10-year, and 15-year planning horizons. They provide an initial filter to determine if facilities are prepared for the environmental impacts of climate change within multiple scenarios.

The level of risk indicated on each meter provides an indication of how planning needs to occur. HIGH ratings indicate an immediate need to start preparing for potential impacts to properties. The specific areas of concerns for each meter are as follows.

Future Extreme Precipitation Risks -

A HIGH level on the meter projects that the facility will have impacts to the physical structure as well as potential water infiltration into basement and foundation zones. Planning, maintenance, and operational plans should be put in place within the next five years to effectively upgrade the facility against these 1-in-5 year or greater events. Then a plan that is 10-15 years out should be put in place for replacing systems and increasing capacity once the large increases are projected after 2030. The lower levels on the meters do not mean to ignore these actions, but rather the 5-year plan should be developed and be put in reserve in case the projections are moving to the actual case.

Future Extreme Heat Risks –

As with precipitation, 5-year and then 10-15-year plans should be developed as soon as possible. However, this requires additional considerations for energy availability, potential opportunities to integrate alternative energy, and possibly considering the sale of an asset, if the risk of energy availability is too great. This also requires an identification of potential hazardous impacts on workers who are exposed to increasing temperatures. This means two implementation plans - one for the building, physical equipment, and energy impacts and one for human asset exposure.

Future Risk of Drought –

This meter indicates to a company that planning needs to occur if the facilities are at risk for water availability – either irrigation for landscaping and/or potable water supplies.

As with all of the environmental risk scores and quantifications in the RiskFootprint™ Dashboard, they are products of screening level models. Thus, they are meant to be the beginning of proper due diligence evaluations, not the end. The RiskFootprint™ portfolio scoring and reports must also be put into the proper context by factoring in: (1) all of the physical hazards; (2) the specific property/building and its unique strengths and vulnerabilities; (3) the people and companies involved and their financial strength (and insurance coverages); and (4) the resilience of the community in which the property is located (or lack thereof).

Resilient Analytics Climate Risk Projections (<https://resilient-analytics.com/>) - In order to make future climate risk projections more actionable and relevant to building owners/operators/investors, Resilient Analytics has developed a proprietary, building component and engineering-based, climate risk assessment methodology that combines engineering guidelines with IPCC-approved climate models. The dataset used in this process is generated through peer-reviewed and published methodologies and is based on the latest climate projections, current engineering approaches, and the latest Department of Energy models.

2050 Extreme Heat

This meter indicates extreme heat risks related to the increase in energy requirements to cool buildings from 2021 to 2050. This methodology employs an annual analysis of LOCA-downscaled projected temperatures resulting in increased cooling requirements compared with historical averages. The projected cooling degree days generate an increase in cooling energy demand at the local site. Cooling degree days measure how much (in degrees), and for how long (in days), outside air temperature is higher than 65°F. For example, on a day when the average outdoor temperature is 85° F, reducing the indoor temperature to 65°F would require 20 degrees of cooling multiplied by 1 day, or 20 cooling degree days. The number of cooling degree days is one input for estimating future demand for energy to maintain comfortable indoor environments.

2050 Extreme Rainfall

This meter indicates extreme rainfall risk from 2021 to 2050 related to heavy rainfall and localized flooding from events that produce more rain than a once-in-five-year rain event. As the projected number of precipitation events increases, the risk of façade and roof damage and localized flooding increases. This methodology employs an annual analysis of LOCA downscaled projected rainfall events focusing on events resulting in a minimum of a once-in-five-year flood risk, compared with historical localized flood events.

2050 Risk of Drought

This methodology employs a model related to deviations from the historical average of drought months and precipitation levels based on the Standard Precipitation. Increased drought could place a building at risk for increased water costs and reduced water availability. The Index is derived from daily LOCA-downscaled precipitation projections to determine 12-month averages and projected risk levels.

RESILIENT ANALYTICS SOURCES:

LOCA (Localized Constructed Analogs) is a statistical downscaling technique that uses historical data to add improved fine scale detail to global climate models. LOCA was used to downscale 32 global climate models from the CMIP5 archive at a 1/16th degree spatial resolution, from Central Mexico through Southern Canada.

Sources: Loca.ucsd.edu

ASHRAE Climate Zone Definitions – [Determining-ASHRAE-Climate-Zones](#)