

The image features a large industrial building at dusk, with its structure highlighted by glowing white outlines. The building has a long, low profile with a series of windows and a large white door. In the foreground, there is a paved area and a small landscaped area with plants. The background is a dark blue sky with faint icons: a gear, a recycling symbol, and a lightning bolt. The number '2020' is faintly visible in the upper right corner. The overall aesthetic is modern and technical.

# vesta

Climate Scenarios  
Physical Risks

## Scope

- This analysis is Vesta's first Climate Scenario exercise.
- The following Climate Scenario analysis, based on physical risks, is based on AR5 projections (fifth IPCC assessment report).
- It does not include Transition Scenarios; this analysis will be presented for 2024.



Vesta considers it highly important to identify the potential impact of climate changes on each our parks and assets, considering the future effects that are expected to occur as the result of global climate change.



To identify this impact, we conducted a vulnerability and risk analysis, which is crucial for identifying physical risks relating to these climate phenomena and for devising strategies and plans to better manage risk.



The method of analysis by scenario offers important tools for identifying possible solutions, allowing for the exploration of short-, medium- and long-term periods, in addition to distant global conditions (technology, public policy, demographic growth).



These tools sketch out a path of development that leads to a specific result. They do not pretend to offer a complete description of the future, but rather to highlight the salient aspects of a possible future and the key factors that will drive future development.

# Representative Concentration Pathways (RCP)

- **RCP 4.5:** assumes a relatively ambitious reduction of GHG emissions, rising toward 2040 and declining in subsequent years: assumes a rise in global temperature ranging from 1.5° to 2° C above preindustrial levels (TCFD, 2017).
- **RCP 8.5:** assumes unregulated GHG emissions, that is, without the application of emissions mitigation technologies or measures, and which result in an increase in temperature of around 4.3 °C by the year 2100 (Climate nexus, n.d).



# Current physical risk assessment

In this phase, the main physical risks that affect Vesta's assets today were identified, including both those that can be directly related to climate and that cannot. The categories assessed were as follows:

1. Electrical storms.
2. Hurricanes.
3. Snow.
4. Hail.
5. Wildfire.
6. Tropical cyclones.
7. Drought.
8. Flooding.
9. Heat waves.
10. Landslide susceptibility.\*
11. Earthquake\*\*
12. Volcanic activity (Popocatépetl) \*\*

The category marked with an (\*) is not considered directly related to climate, but a change in precipitation in certain sites increases the risk of landslide, sometimes known as landslip.

The last two categories (marked \*\*) cannot be related to climate, so for the purposes of this document it is assumed that the magnitude of their impact does not depend directly on hydrometeorological variables.

# Climate scenario analysis

Using IPCC models:



1

Assessment of two timelines : 2015-2039 and 2045-2069

2

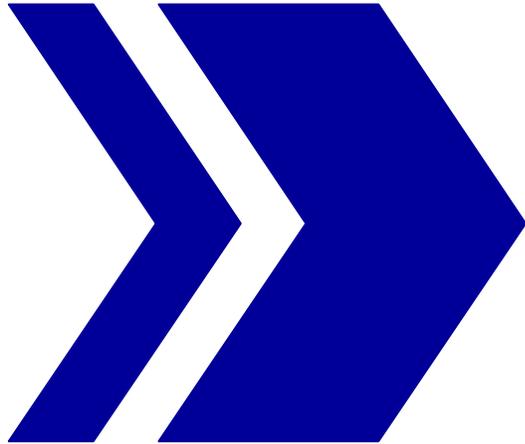
Assessment of 2 RCP: RCP 4.5 and RCP 8.5



**RCP 4.5** assumes a relatively ambitious reduction of GHG emissions, rising toward 2040 and declining in subsequent years: assumes that the rise in global temperature will range from 1.5° to 2° C above preindustrial levels

**RCP 8.5** assumes unregulated GHG emissions, that is, without the application of emissions mitigation technologies or measures, and which result in an increase in temperature of around 4.3 °C by the year 2100

1



Identify assets'  
geographic  
location

2



Regional climate assessment  
models in two periods (2015-  
2039 and 2045-2069) CNRM5-  
RM5  
UNAM (UNIATMOS), 2020

3



Identify potential hazards



Period	Scale	Average properties per category					
		Average temperature [°C]		Maximum temperature [°C]		Minimum temperature [°C]	
		RC P 4.5	RCP 8.5	RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5
2015 - 2039	-10- 4	5	0	0	0	12	18
	4 - 18	13	16	0	0	8	4
	18 - 32	4	7	22	22	2	0
	32 - 46	0	0	0	0	0	0
2045 - 2069	-10- 4	5	0	0	0	16	20
	4 - 18	13	11	0	0	6	2
	18 - 32	4	11	22	21	0	0
	32 - 46	0	0	0	1	0	0

Period	Scale	Average properties per category	
		Precipitation [mm]	
		RCP 4.5	RCP 8.5
2015 - 2039	1-80	19	20
	81-160	2	1
	161-240	1	1
	241-320	0	0
	321-400	0	0
2045 -2069	401-900	0	0
	1-80	20	18
	81-160	1	2
	161-240	1	1
	241-320	0	0
	321-400	0	0
401-900	0	0	

# Results

## Average temperature

RCP 4.5

4 assets in zones with temperatures approaching 32°C

RCP 8.5

11 assets with temperatures approaching 32°C in the medium term

## Maximum temperature

RCP 4.5

22 assets in zones with temperatures approaching 32°C (25°C shift)

RCP 8.5

1 asset with temperatures approaching 40°C

## Minimum temperature

RCP 4.5

16 assets in zones with temperatures below 0°C in the medium term

RCP 8.5

20 assets with temperatures below 0°C

## Precipitation

RCP 4.5  
RCP 8.5

More than 87% of the portfolio is located in zones with low precipitation (1 to 80 mm/year)

# Results: Correlation with each risk category

Park	Scenario	Period	Correlation risks vs temperature and precipitation										
			Electric Storms (ES)	Hurricanes (H)	Snowfall (S)	Hail (H)	Fires (F)	Slope susceptibility (SS)	Tropical Cyclones (TC)	Drought (D)	Floods (F)	Heat waves (HW)	
Vesta Park Lago Este	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	High	Low	Medium	Very low	Very low	Very low	Very low	Very low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Medium
Vesta Park Tijuana III (El Florido)	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	High	Low	Very low	Very low	Very low	Very low	Low	Very low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
Vesta Park El Potrero	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	High	Low	Medium	Very low	Very low	Very low	Low	Very low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
Vesta Park La Mesa	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	High	Low	Very low	Very low	Very low	Very low	Low	Very low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
Vesta Park Alamar	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
Vesta Park Rosarito	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Medium

# Results: Correlation with each risk category



Park	Scenario	Period	Correlation risks vs temperature and precipitation									
			Electric Storms (ES)	Hurricanes (H)	Snowfall (S)	Hail (H)	Fires (F)	Slope susceptibility (SS)	Tropical Cyclones (TC)	Drought (D)	Floods (F)	Heat waves (HW)
Vesta Park Guadalupe	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Low	Medium	Low	Very low	Very low	Low	Very High
		2045 - 2069	Very low	Very low	Very low	Low	Medium	Low	Very low	Very low	Low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Low	Medium	Low	Very low	Very low	Low	Very High
		2045 - 2069	Very low	Very low	Very low	Low	Medium	Low	Very low	Very low	Low	Very High
Vesta Park Apodaca	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Low	Very High
		2045 - 2069	Very low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Low	Very High
		2045 - 2069	Very low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Low	Very High
Vesta Park Juárez Sur	RCP 4.5	2015 - 2039	Very low	Very low	Very High	Medium	Very low	Very low	Very low	Low	Low	Very High
		2045 - 2069	Very low	Very low	Very High	Medium	Very low	Very low	Very low	Low	Low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Very High	Medium	Very low	Very low	Very low	Low	Low	Very High
		2045 - 2069	Very low	Very low	Very High	Medium	Very low	Very low	Very low	Low	Low	Very High
Vesta Park Toluca I	RCP 4.5	2015 - 2039	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
	RCP 8.5	2015 - 2039	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
Vesta Park Toluca II	RCP 4.5	2015 - 2039	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
	RCP 8.5	2015 - 2039	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Medium	Very low	Very High	Very High	Very High	Very low	Very low	Very low	Very low	Very High
Vesta Park Puebla I	RCP 4.5	2015 - 2039	Medium	Very low	Very low	Low	Medium	Very low	Very low	Very low	Very low	Medium
		2045 - 2069	Medium	Very low	Very low	Low	Medium	Very low	Very low	Very low	Very low	Medium
	RCP 8.5	2015 - 2039	Medium	Very low	Very low	Low	Medium	Very low	Very low	Very low	Very low	Medium
		2045 - 2069	Medium	Very low	Very low	High	Very High	Very low	Very low	Very low	Very low	Very High

# Results: Correlation with each risk category



Park	Scenario	Period	Correlation risks vs temperature and precipitation										
			Electric Storms (ES)	Hurricanes (H)	Snowfall (S)	Hail (H)	Fires (F)	Slope susceptibility (SS)	Tropical Cyclones (TC)	Drought (D)	Floods (F)	Heat waves (HW)	
Vesta Park Tlaxcala I	RCP 4.5	2015 - 2039	Low	Very low	Very low	High	Very High	Very low	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Low	Very low	Very low	High	Very High	Very low	Very low	Very low	Very low	Very low	Very High
	RCP 8.5	2015 - 2039	Low	Very low	Very low	High	Very High	Very low	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Low	Very low	Very low	High	Very High	Very low	Very low	Very low	Very low	Very low	Very High
Vesta Park Aeroespacial Querétaro	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
Vesta Park Querétaro	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Very low	Very low	Medium
Vesta Park San Luis Potosí	RCP 4.5	2015 - 2039	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Low	Very low	Medium
		2045 - 2069	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Low	Very low	Medium
	RCP 8.5	2015 - 2039	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Low	Very low	Medium
		2045 - 2069	Low	Very low	Very low	Very low	Very low	Very low	Low	Very low	Low	Very low	Medium
Vesta Park Aguascalientes I	RCP 4.5	2015 - 2039	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Very low	Low	Low	Very low	Very low	Very low	Very low	Very low	Very High
	RCP 8.5	2015 - 2039	Very low	Very low	Very low	Low	Low	Very low	Very low	Very low	Very low	Very low	Very High
		2045 - 2069	Very low	Very low	Very low	Low	Low	Very low	Very low	Very low	Very low	Very low	Very High
Vesta Park Guanajuato I (Puerto Interior)	RCP 4.5	2015 - 2039	Medium	Very low	Very low	Very low	Low	Very low	Very low	Very low	Low	Medium	Medium
		2045 - 2069	Medium	Very low	Very low	Very low	Low	Very low	Very low	Very low	Low	Medium	Medium
	RCP 8.5	2015 - 2039	Medium	Very low	Very low	Very low	Low	Very low	Very low	Very low	Low	Medium	Medium
		2045 - 2069	Medium	Very low	Very low	Very low	Low	Very low	Very low	Very low	Low	Medium	Medium
Vesta Park Guadalajara	RCP 4.5	2015 - 2039	Low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Medium	Medium
		2045 - 2069	Low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Medium	Medium
	RCP 8.5	2015 - 2039	Low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Medium	Medium
		2045 - 2069	Low	Very low	Very low	Low	Very low	Very low	Very low	Very low	Very low	Medium	Medium

# Results: Correlation with each risk category

Park	Scenario	Period	Correlation risks vs temperature and precipitation										
			Electric Storms (ES)	Hurricanes (H)	Snowfall (S)	Hail (H)	Fires (F)	Slope susceptibility (SS)	Tropical Cyclones (TC)	Drought (D)	Floods (F)	Heat waves (HW)	
Headquarters CDMX	RCP 4.5	2015 - 2039	Medium	Very low	Medium	Medium	Medium	Medium	Medium	Very low	Very low	Very low	Medium
		2045 - 2069	Medium	Very low	Medium	Medium	Medium	Medium	Medium	Very low	Very low	Very low	Medium
	RCP 8.5	2015 - 2039	Medium	Very low	Medium	Medium	Medium	Medium	Medium	Very low	Very low	Very low	Medium
		2045 - 2069	Medium	Very low	Medium	Medium	Medium	Medium	Medium	Very low	Very low	Very low	Medium
Headquarters Tijuana	RCP 4.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Medium	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Medium	Very low	Very low	Very low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Low	Very low	Very low	Very low	Medium	Very low	Very low	Very low	Medium
		2045 - 2069	Very low	Very low	Low	Very low	Very low	Very low	Medium	Very low	Very low	Very low	Medium
Headquarters Ciudad Juárez	RCP 4.5	2015 - 2039	Very low	Very low	Very High	Medium	Very low	Medium	Medium	Very low	Low	Low	Very High
		2045 - 2069	Very low	Very low	Medium	Very low	Very low	Medium	Medium	Very low	Low	Low	Medium
	RCP 8.5	2015 - 2039	Very low	Very low	Very High	Medium	Very low	Medium	Medium	Very low	Low	Low	Very High
		2045 - 2069	Very low	Very low	Very High	Medium	Very low	Medium	Medium	Very low	Low	Low	Very High

# Future impacts

## Rise in temperature

- Increases the severity of hydrometeorological phenomena (increased impact)
- Main categories of impact
  - Heat waves, wildfires, snow, hail, tropical cyclones, hurricanes\*

## Change in precipitation

- Affects a region's water resources and availability of raw materials.
- Main categories of impact
  - Drought\*, flooding\*, electrical storms, landslide susceptibility (indirect).

## Calculation of financial impact

- More severe and frequent hydrometeorological phenomena will entail greater economic investment in repairs.
- Adopt preventive approach.

# Conclusions

- Heat waves are one of the main risks to consider, because they have an influence in 100% of our assets, with a HIGH level of impact.
- The risks of snowfall, hail and wildfire at the Toluca I and II parks will rise, making this a key focus of concern.
- The risk of snowfall to assets in Chihuahua (Ciudad Juárez) is classified as VERY HIGH, so planning of preventive actions should begin.
- In parks in Guanajuato and Guadalajara, the risk of flooding is considered MEDIUM, so this may warrant significant attention in the future, without exceeding its impact.

## Next steps

1. Strengthen this Analysis of Climate Scenarios with Physical Risks based on AR6 and incorporating RCP 2.6.
2. Introduce a methodology for analyzing Transition Risk Scenarios.
3. Strengthen the matrix of physical and transition risks according to Vesta's core business and properties, their geographic location and climate scenarios.
4. Incorporate the economic value of the impact and mitigation by risk.
5. Develop resilience strategies (prevention, mitigation and remediation).

vesta