Introduction

To power each Google Cloud region and/or data center, Google uses electricity from the grid where the region is located.

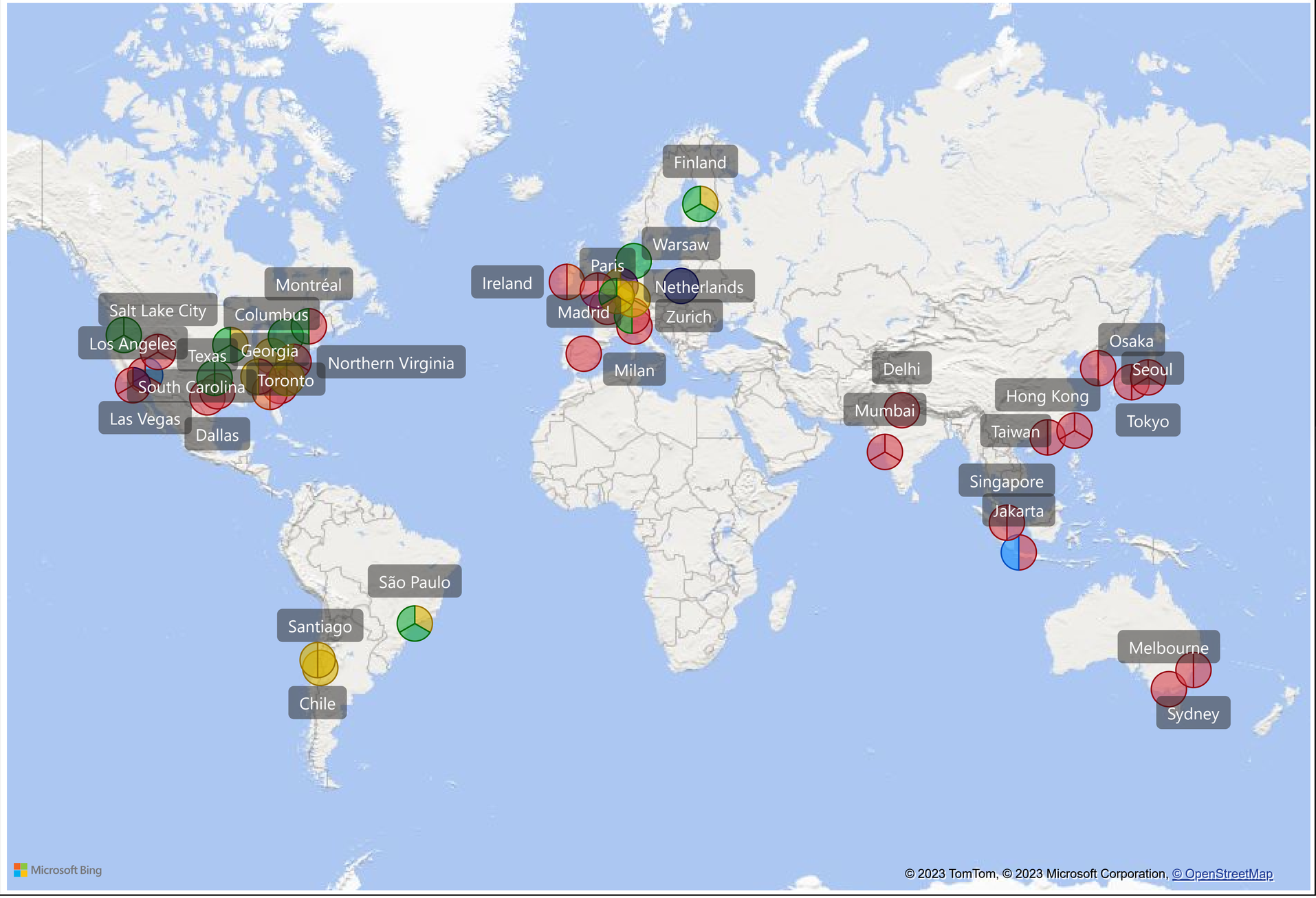
This electricity generates more or less carbon emissions (gCO2eq), depending on the type of power plants generating electricity for that grid and when we consume it.

In 2020, Google set a goal to match their energy consumption with carbon-free energy (CFE), every hour and in every region by 2030. As the company works towards 2030 goal of carbon-free energy consumption.

Here is the progress report on Carbon-Free energy consumption since 2019 to 2021 while we await 2022 report.

AKEEB QUADRI (Energy Expert)

Google Locations with CFE Consumption



From the map, the locations shaded red are performing poor since 2019 to 2021which means the Carbon-free energy (CFE) consumption is below 60%

The locations shaded yellow are those with CFE above 60% but below 80%.

The locations shaded green are those with CFE above 80%.

year

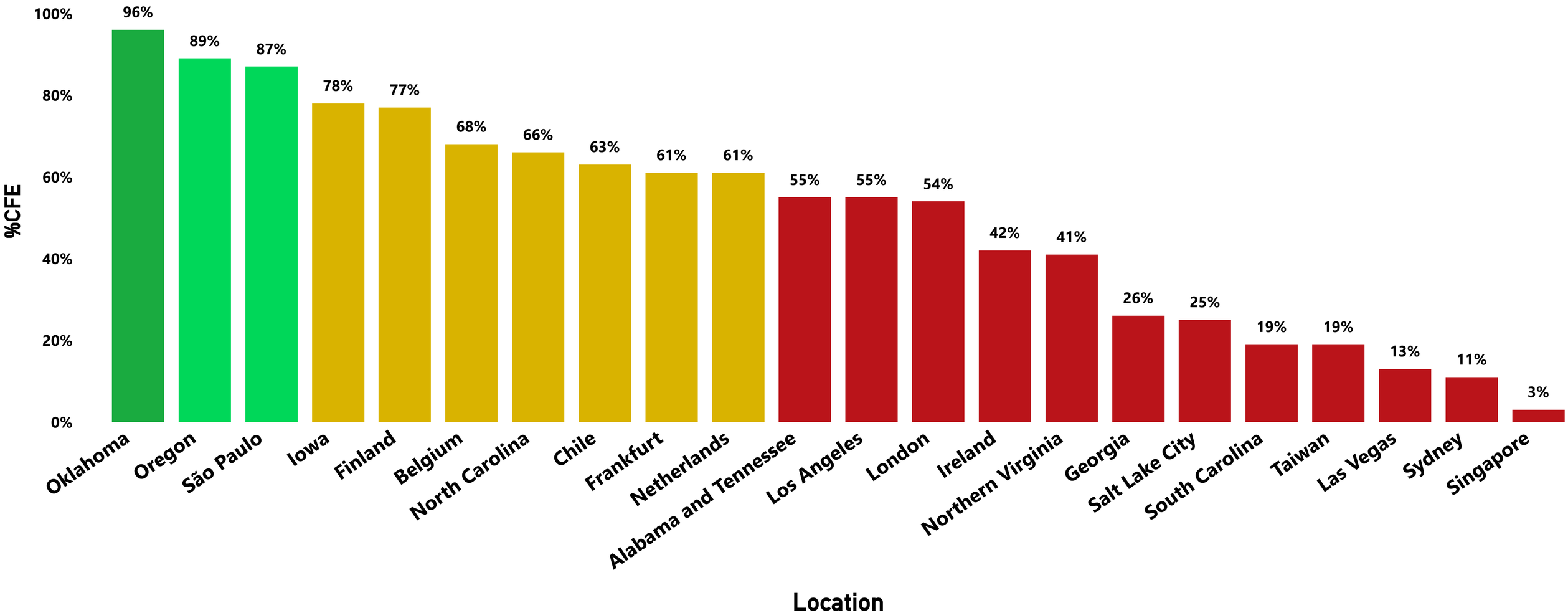
2019

Intro | CFE MAP | 2019 CFE | 2020 CFE | 2021 CFE | Conclusion

Oklahoma 96%

Any location with 90% and above Carbon-free energy consumption is considered to be getting closer to 2030 Goal

Yearly Google Carbon-Free Energy (CFE) Consumption (2019)



year

2020

Intro | CFE MAP | 2019 CFE | 2020 CFE | 2021 CFE | Conclusion

Finland 94%

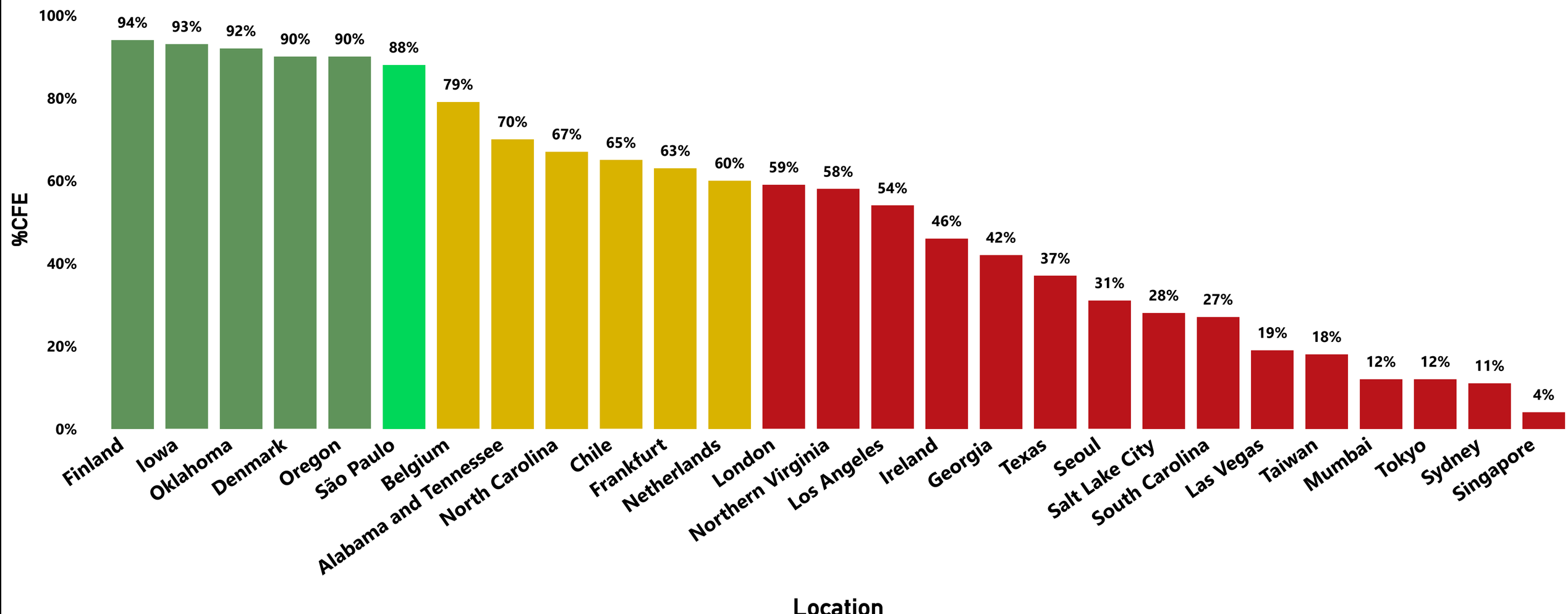
Iowa 93%

Oklahoma 92%

Denmark 90%

Oregon 90%

Yearly Google Carbon-Free Energy (CFE) Consumption (2020)



year

2021

Intro | CFE MAP | 2019 CFE | 2020 CFE | 2021 CFE | Conclusion

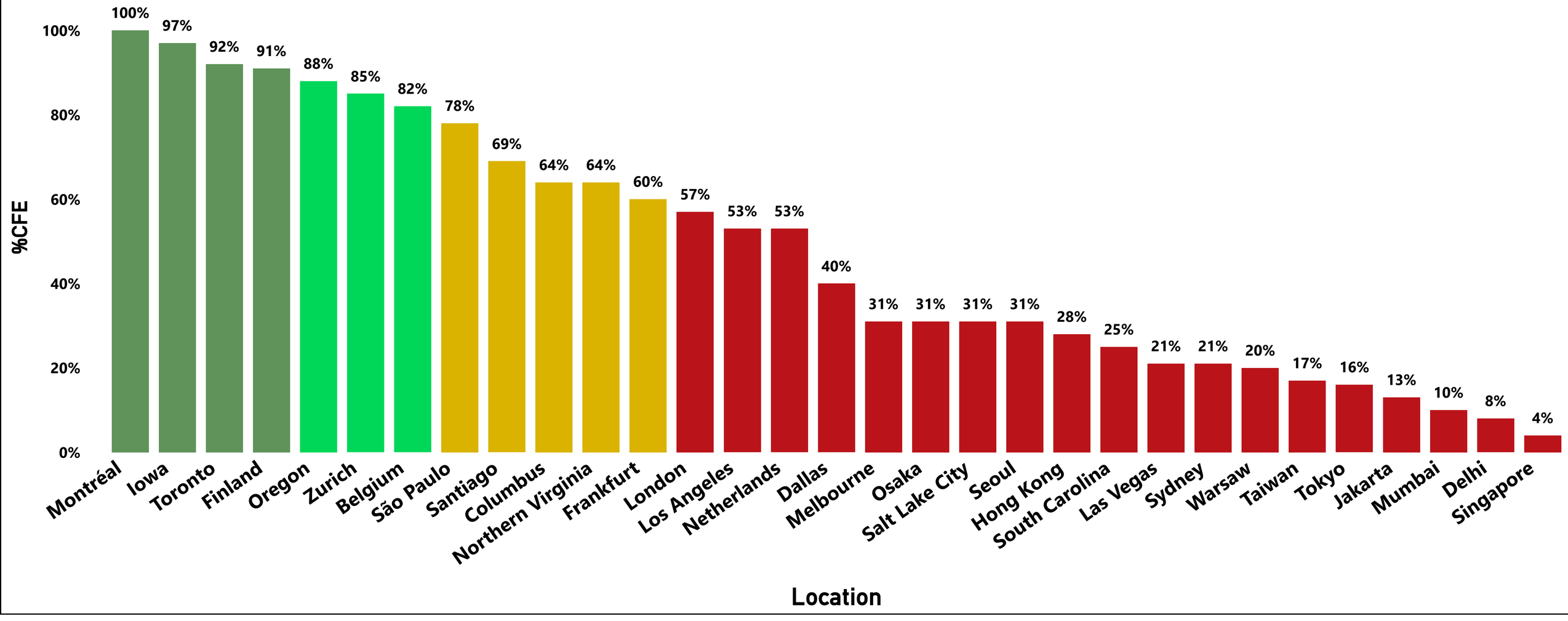
Montréal 100%

Iowa 97%

Toronto 92%

Finland 91%

Yearly Google Carbon-Free Energy (CFE) Consumption (2021)



Conclusion

From the report and Visualization, Google is actually progressing towards carbon-free energy consumption by 2030.

In 2019 only one location entered green zone but from 2020, many locations entered green zones majorly from USA, which is a positive result for Google.

Considering the 2030 goal by Google, which is to consume Carbon-free energy, many locations are in yellow and red zones with majorities fall within UK, Europe and Asia. Google locations in the USA will definitely achieve the goal before 2030, not only USA but Google wants same results to spread across all locations before 2030.

Recommendation

Since Google has achieved the Carbon-free energy consumption in 98% of her locations in the US, same thing can be replicated in other regions. This will definitely position google as a carbon-free emission company before 2030.

AKEEB QUADRI (Energy Expert)