

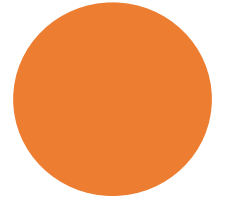
Welcome to District Cooling Summit @ COP28



EMPOWER
ENERGY
SOLUTIONS



INTERNATIONAL
DISTRICT ENERGY
ASSOCIATION



COP²⁸
UAE

ABOUT IDEA

Formed in 1909: 114th year

501 (c) 6 industry non-profit association; governed by 22 member board of directors

About 3000+ members – 28 nations

57% end-user systems, majority in North America:
48 states, 7 provinces

Urban utilities, public & private universities & colleges,
healthcare, pharma, airports, industry



Robert P. Thornton
President & CEO

An aerial photograph of Paris, France, centered on the Arc de Triomphe. The monument is a large, white, neoclassical archway standing in the middle of a circular roundabout. Surrounding the monument are dense, multi-story buildings with grey roofs, typical of Parisian architecture. Green trees and parks are interspersed among the buildings. The overall scene is a high-angle, wide-area view of the city.

Why District Cooling? Why Cities?

The Energy Challenge for Cities

In **1800**, 223 years ago, there was one (1) city on the planet with population over 1 million – London.

In **1920**, 120 years later, there were three (3) cities with population over 1 million. Global population hit 2 billion.

Today, there are over 512 cities with population over 1 million; 35 "mega-cities" with populations over 30 million.

By **2030**; projections call for 610 cities over 1 million people.

The Energy Challenge for Cities

In **2023**, about **4.4 billion** people live in urban areas; **56%** of world's **8.05 billion** population

By **2030**, urban area population will increase to **4.9 billion**; global population will reach **8.56 billion**

By **2050**, with urbanization and population growth, cities expected to surpass **6.0 billion**; global population **9.8 billion**

Source:

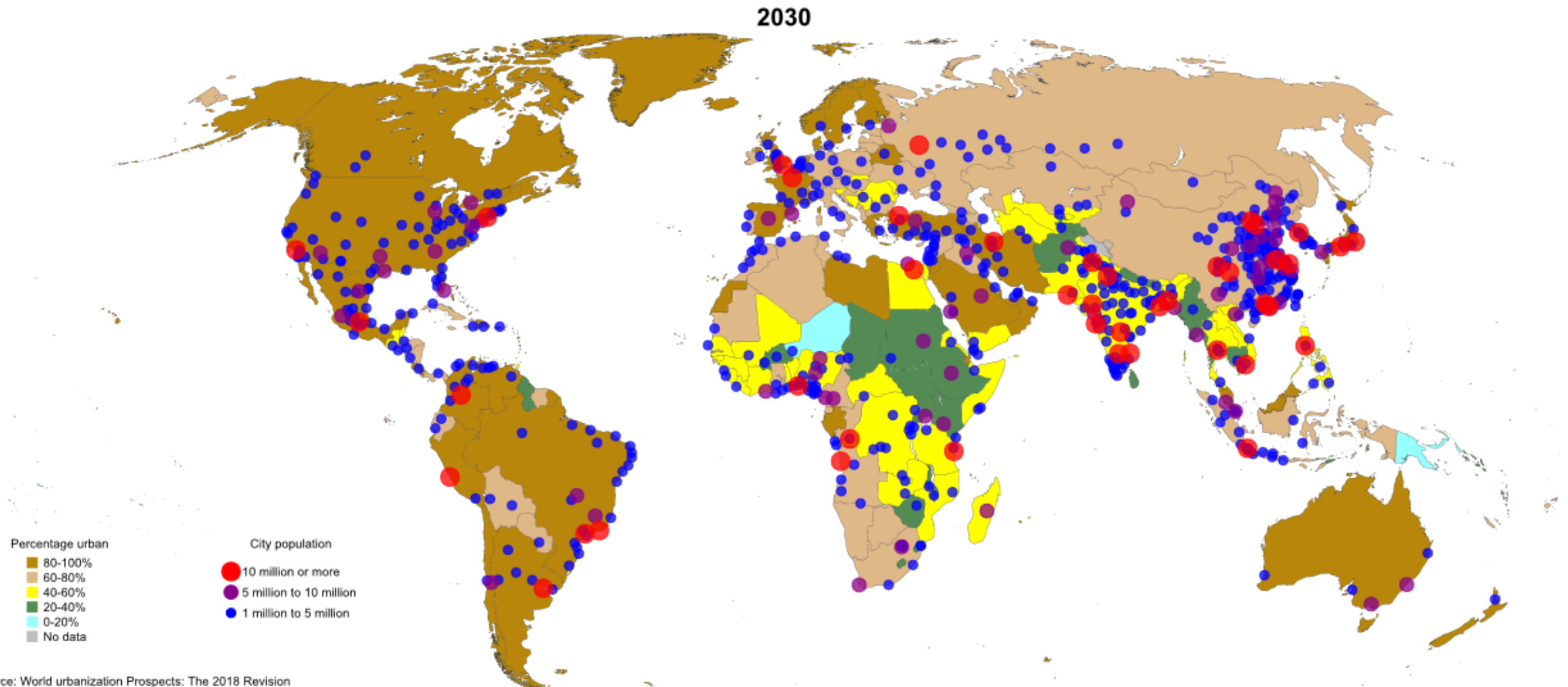
The Energy Challenge for Cities

Cities account for over 70 % of global energy use and nearly 50% of greenhouse gas emissions worldwide.

In several regions, heating and cooling of buildings can account for over 50% of local energy consumption.

In warmer climates and emerging economies, over 70% of electricity production may be used for cooling.

Percentage Urban Population by City & Urban Agglomeration by Size Class – Projected 2030



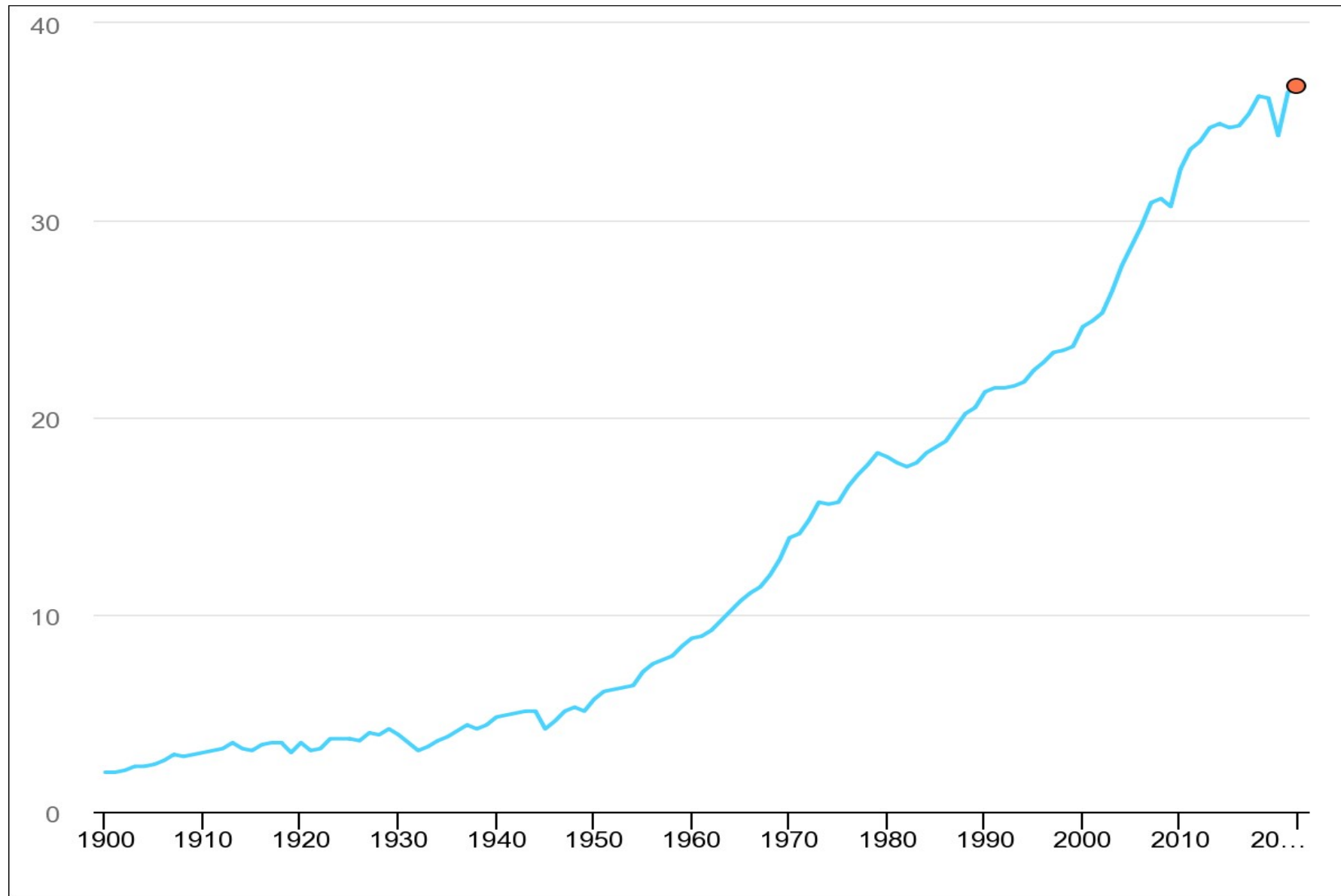
Data source: World urbanization Prospects: The 2018 Revision

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

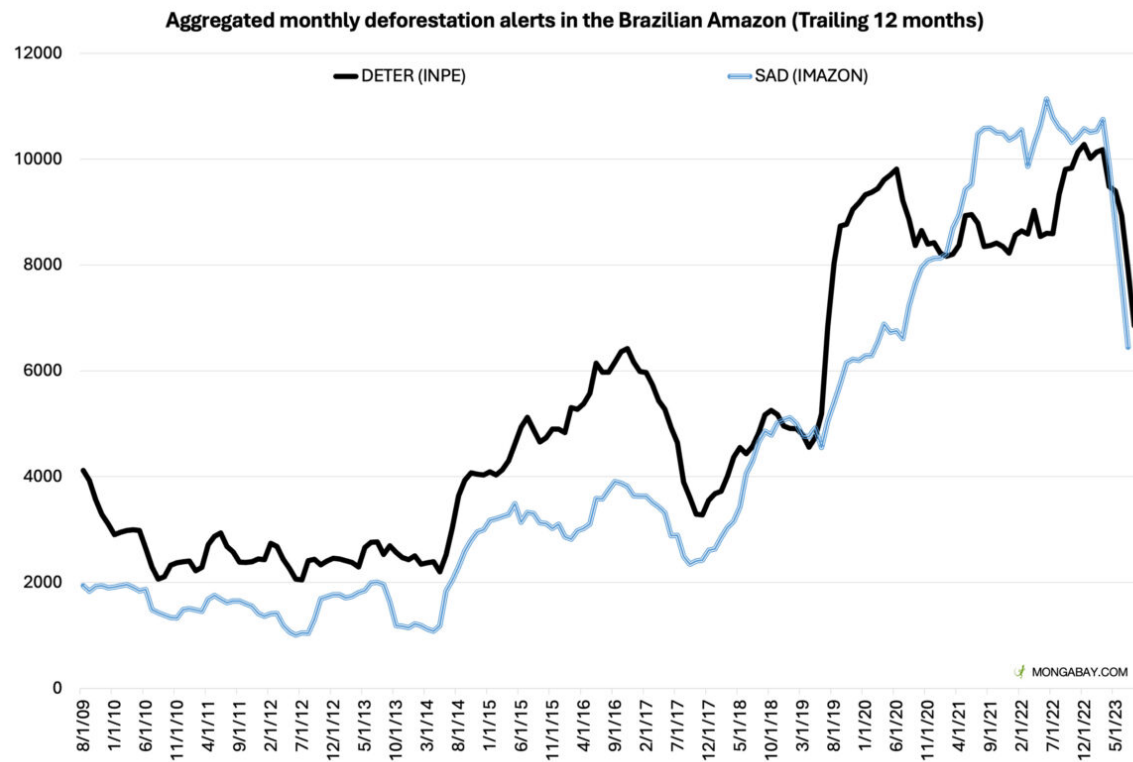
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UN Dept of Economic & Social Affairs
World Urbanization Prospect 2018

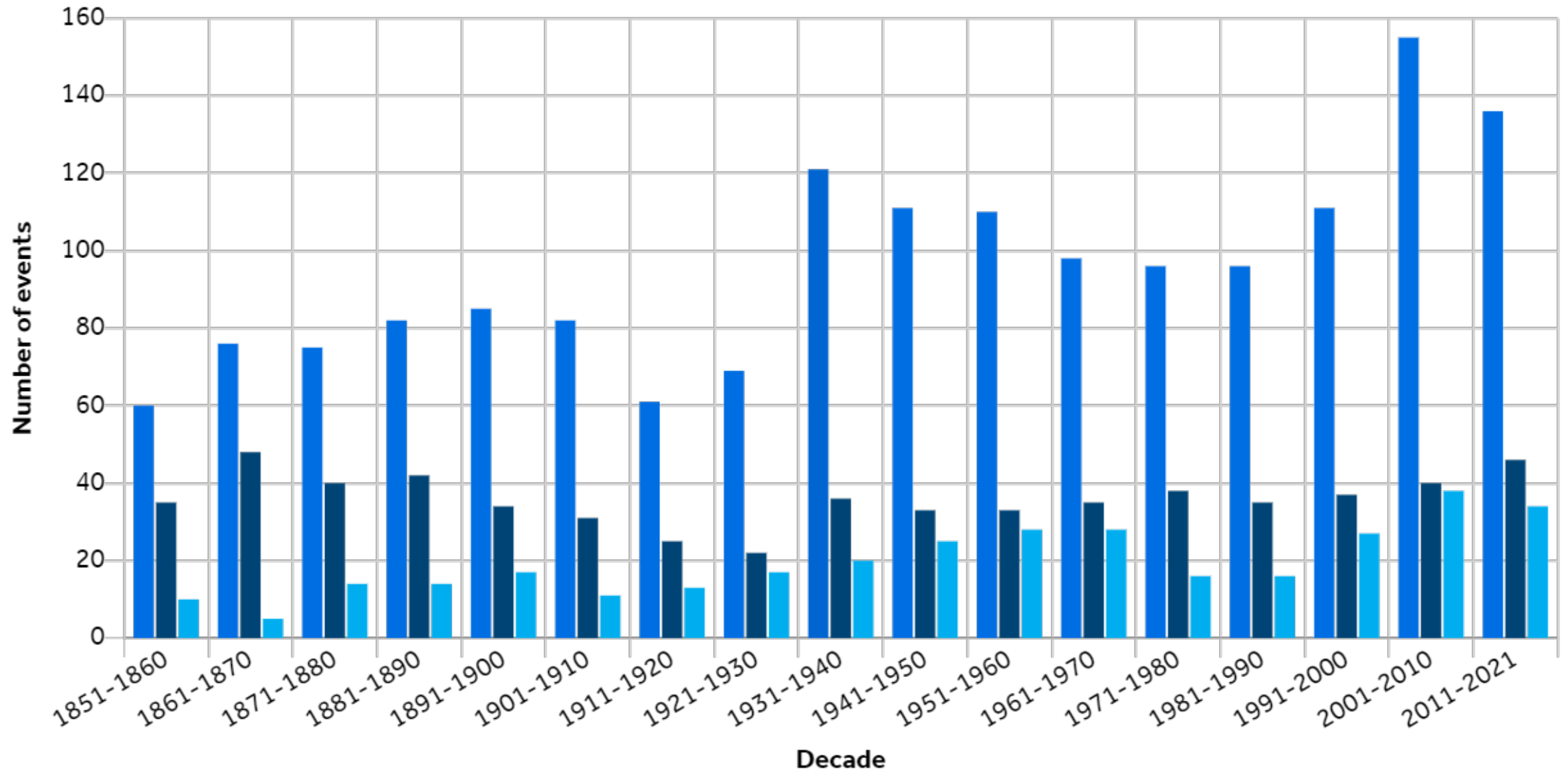
Global CO2 emissions from energy combustion and industrial processes, 1900-2022, International Energy Agency, March 2023



Deforestation also contributes to GHG emissions



Frequency of storms are increasing, 'major hurricanes' the fastest, up 3.4x



<https://www.cib.barclays/our-insights/extreme-weather/How-US-Utilities-Approach-Extreme-Weather.html>



Super Storm Sandy, Oct 30, 2012 New York City



Near West Kelowna, British Columbia, CA Aug 18 2023 Time Photos of the Year

It's Always Fire Season Now



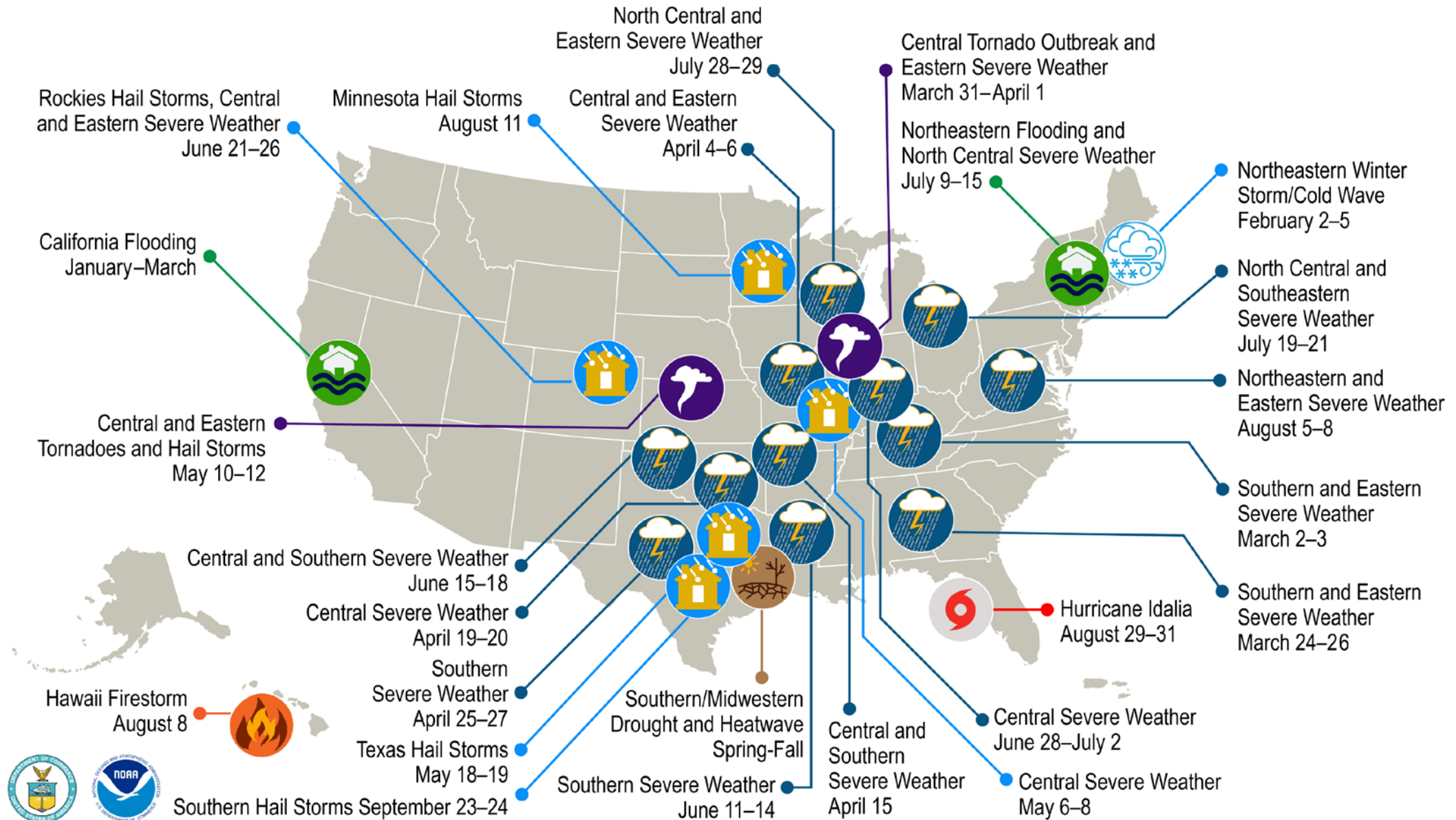
'Blizzard of the century': Death toll rises as Buffalo digs out



Brutal heat wave makes Texas among the hottest places on Earth

Texas's nighttime temperatures are a symptom of a new, more dangerous kind of heat wave

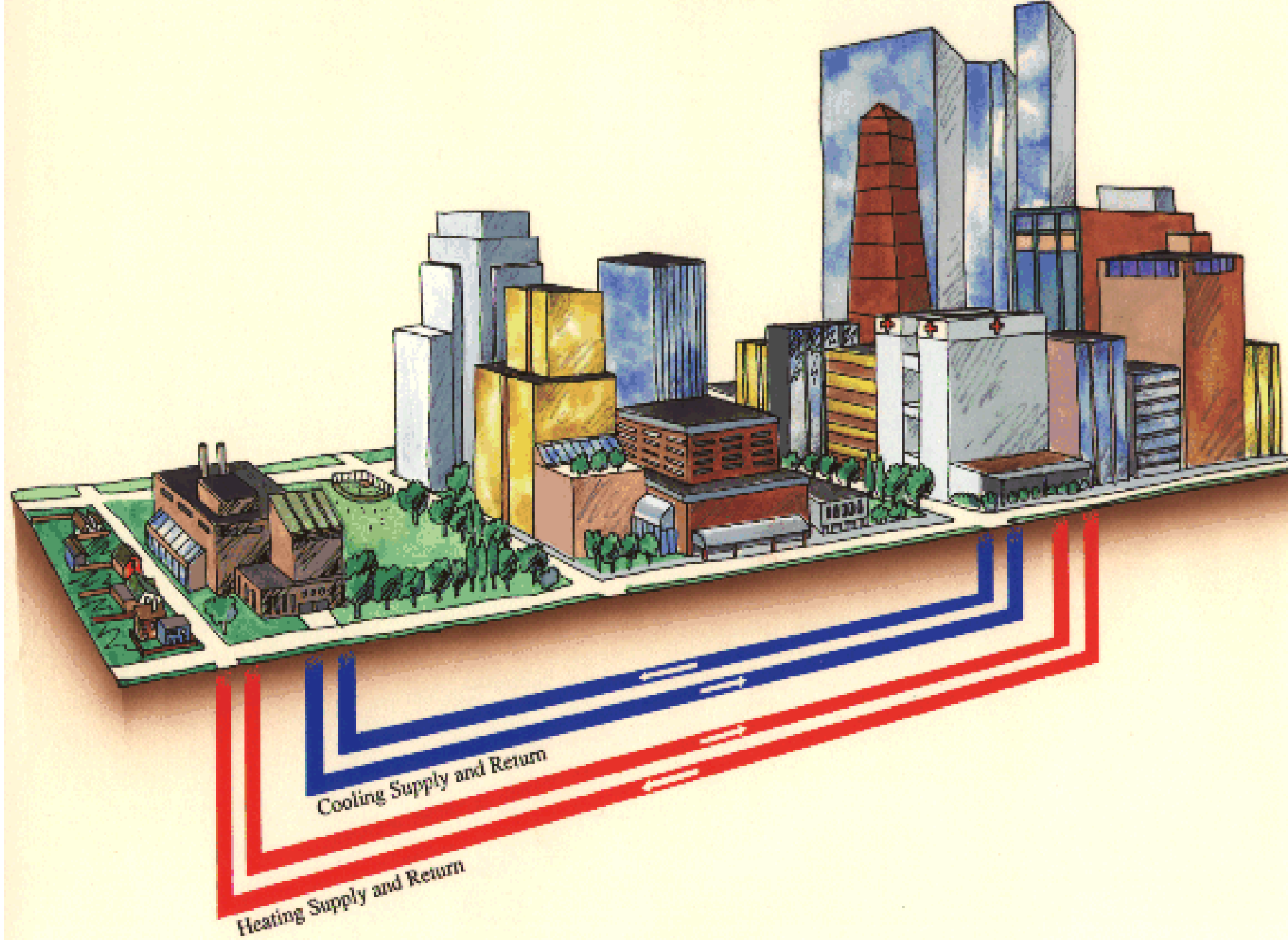
U.S. 2023 Billion-Dollar Weather and Climate Disasters



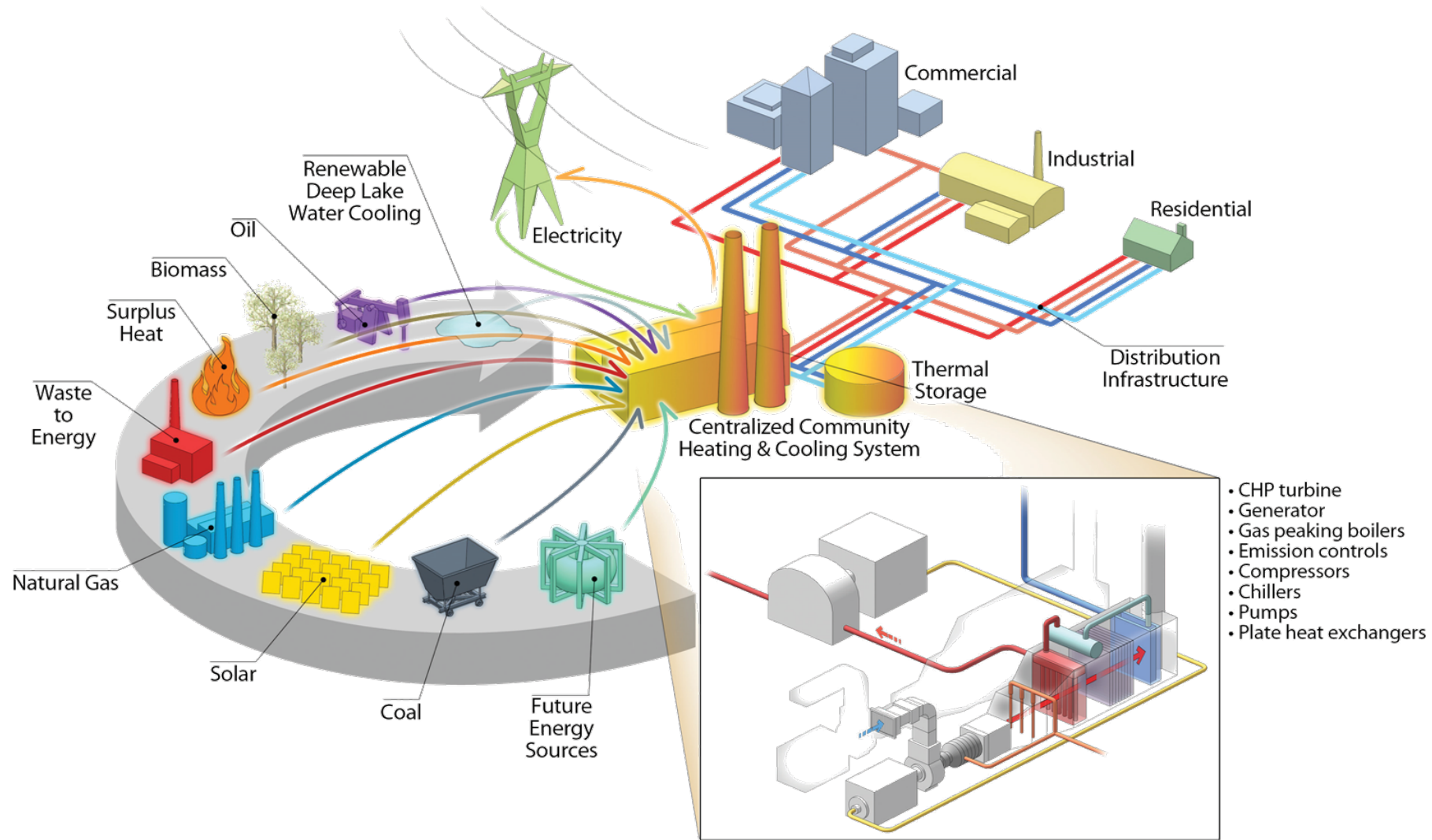
This map denotes the approximate location for each of the **25 separate billion-dollar weather and climate disasters** that impacted the United States through October 2023.



PARADIGM *SHIFT*



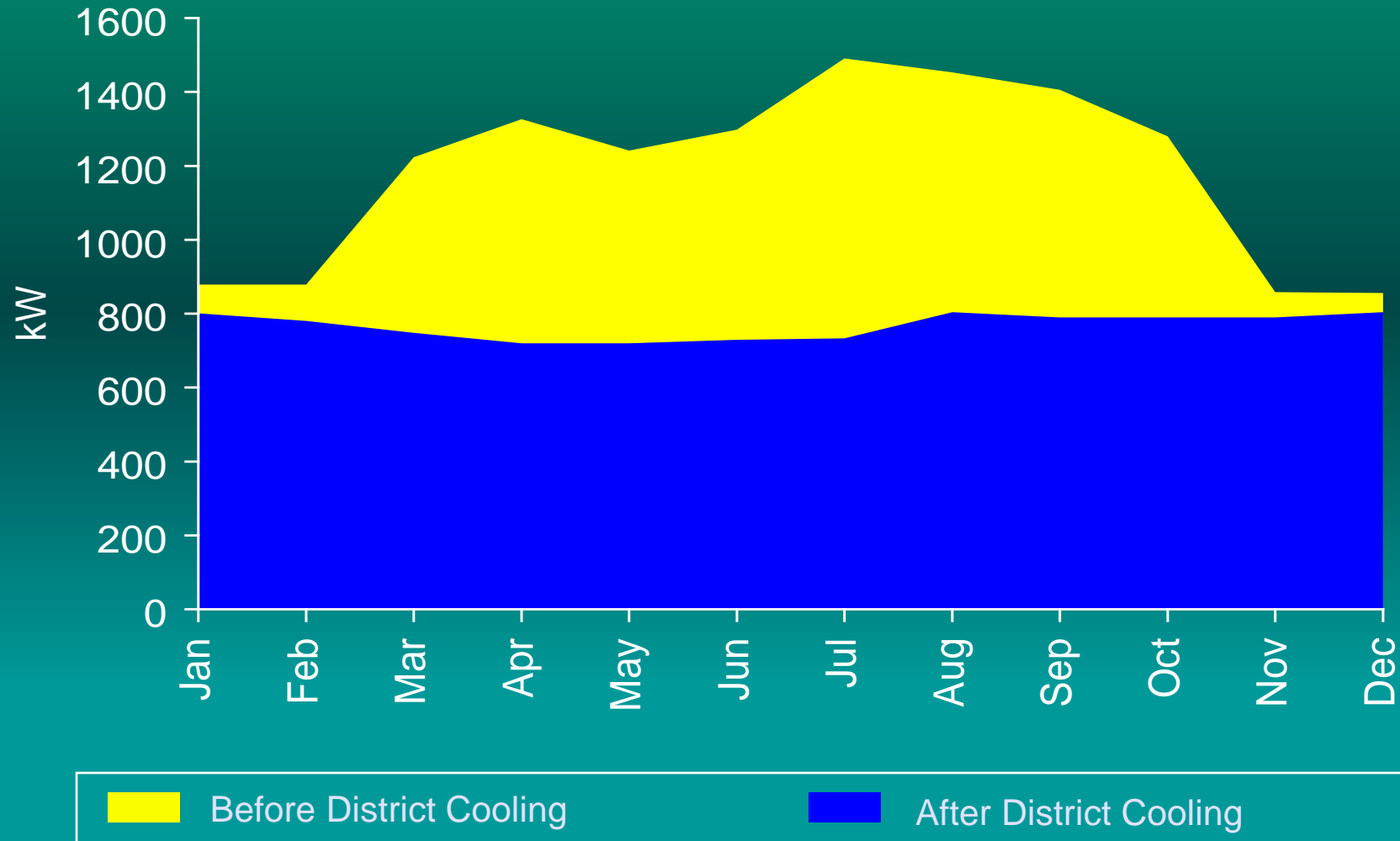
Future Proofing a More Resilient City



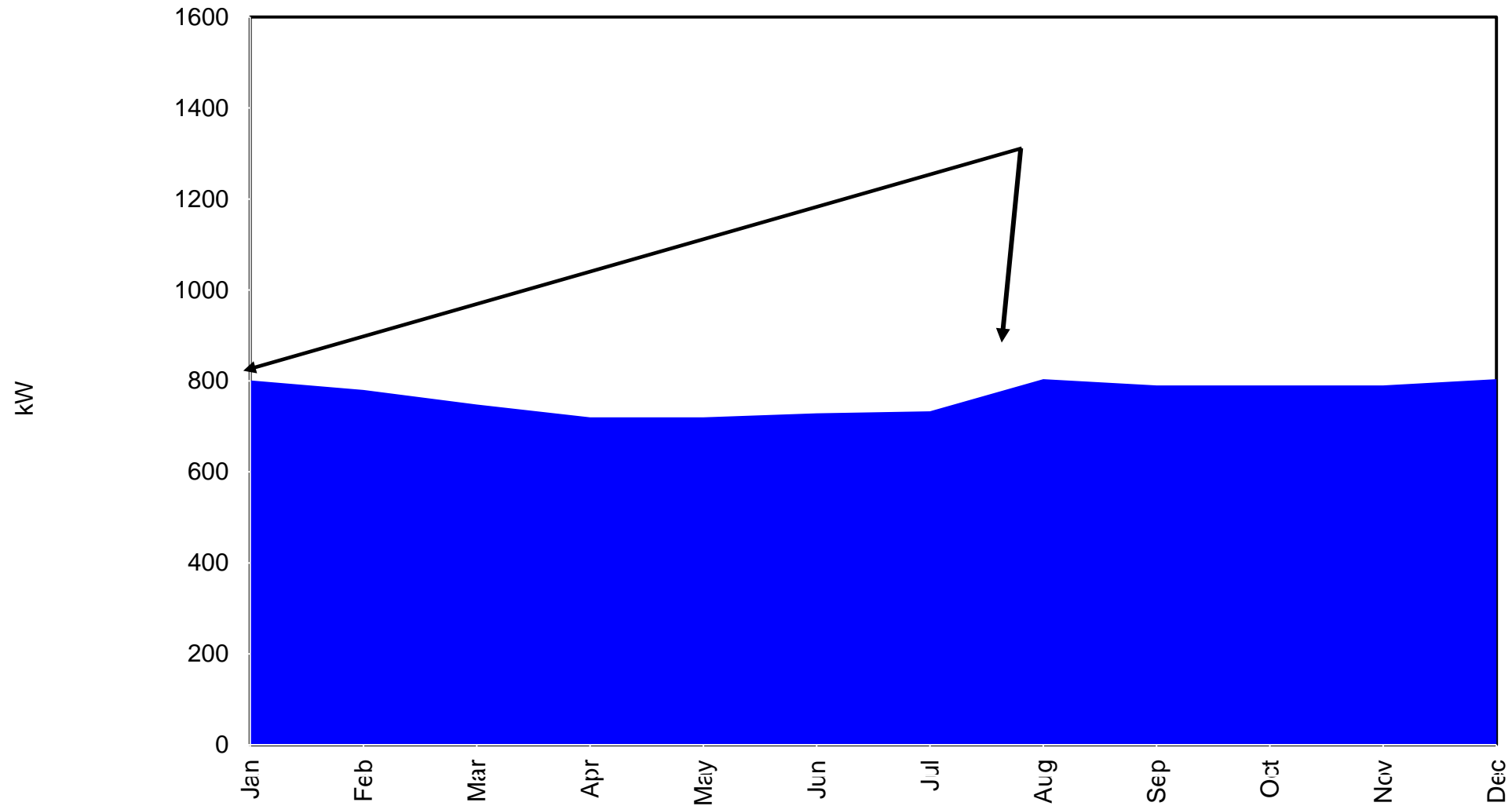
Commercial Office Building

Cleveland, OH

Electric Demand (kW)



What District Cooling Leaves Behind



Building Electricity Demand (KwD) reduced 50%, now varies < 2% from January to August

Generating Value in Real Estate

Where would you rather live/work/own?



With District Cooling



Without District Cooling

*“Never doubt that a small group of thoughtful,
committed citizens can change the world.
Indeed, it's the only thing that ever has.”*

Margaret Mead

