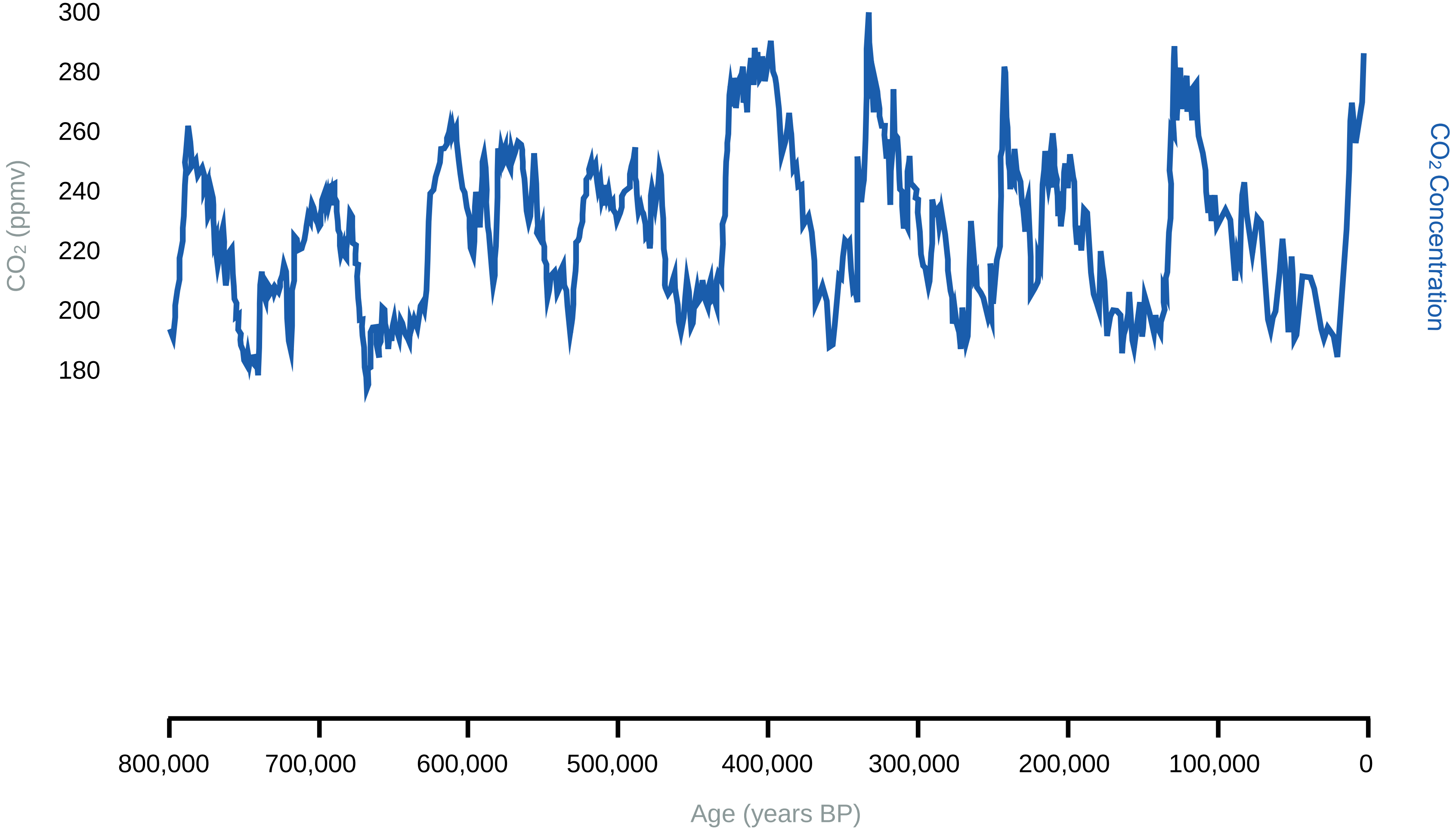
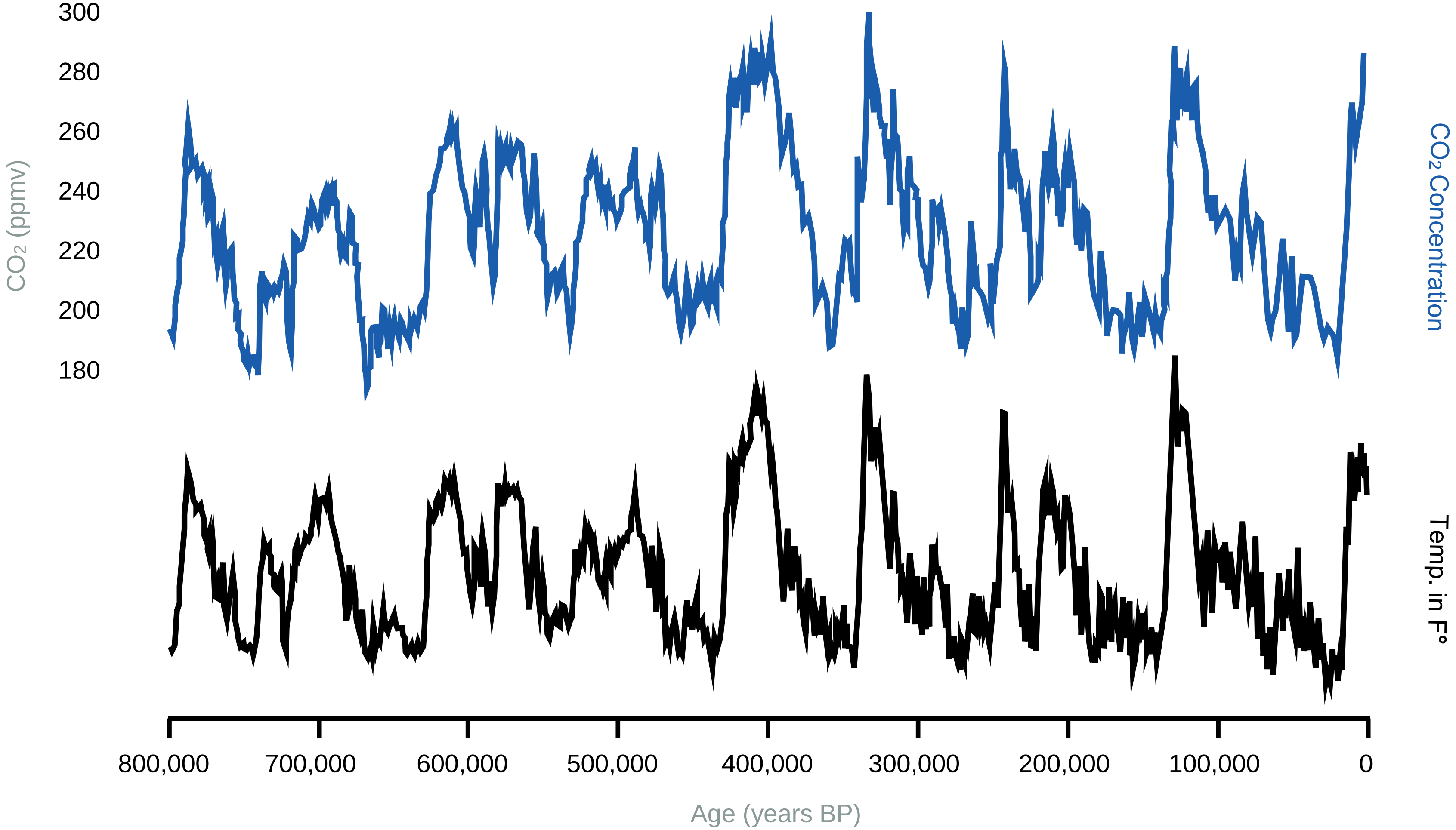
Shaping the Future of Business On Long Island
Solar and Wind Energy
Wednesday, May 11, 2011
NYS Small Business Development Center

Climate Crisis = Economic Opportunity

Gordian Raacke
Executive Director
Renewable Energy Long Island (reLI)
www.RenewableEnergyLongIsland.org



Source: National Climatic Data Center/NOAA



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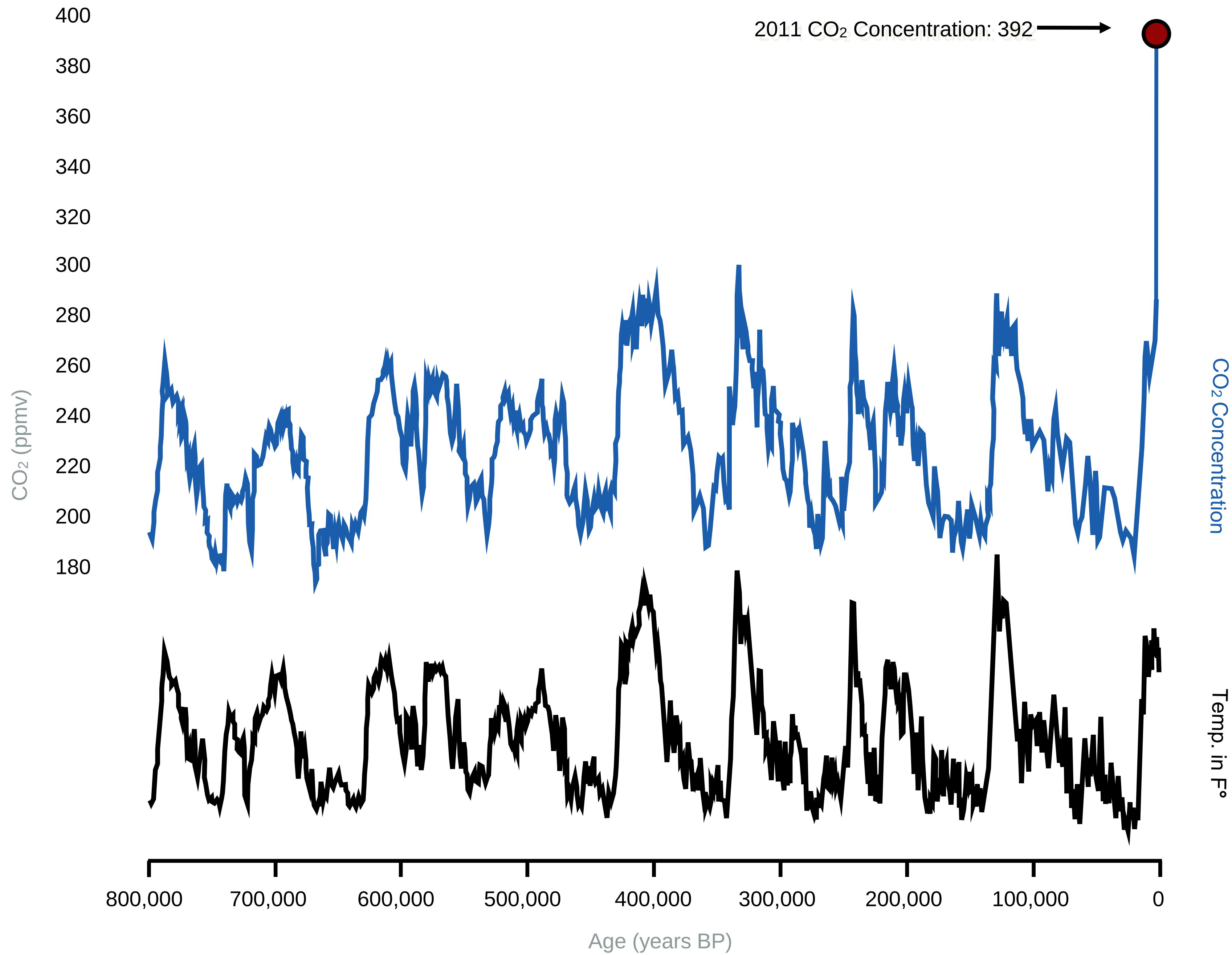

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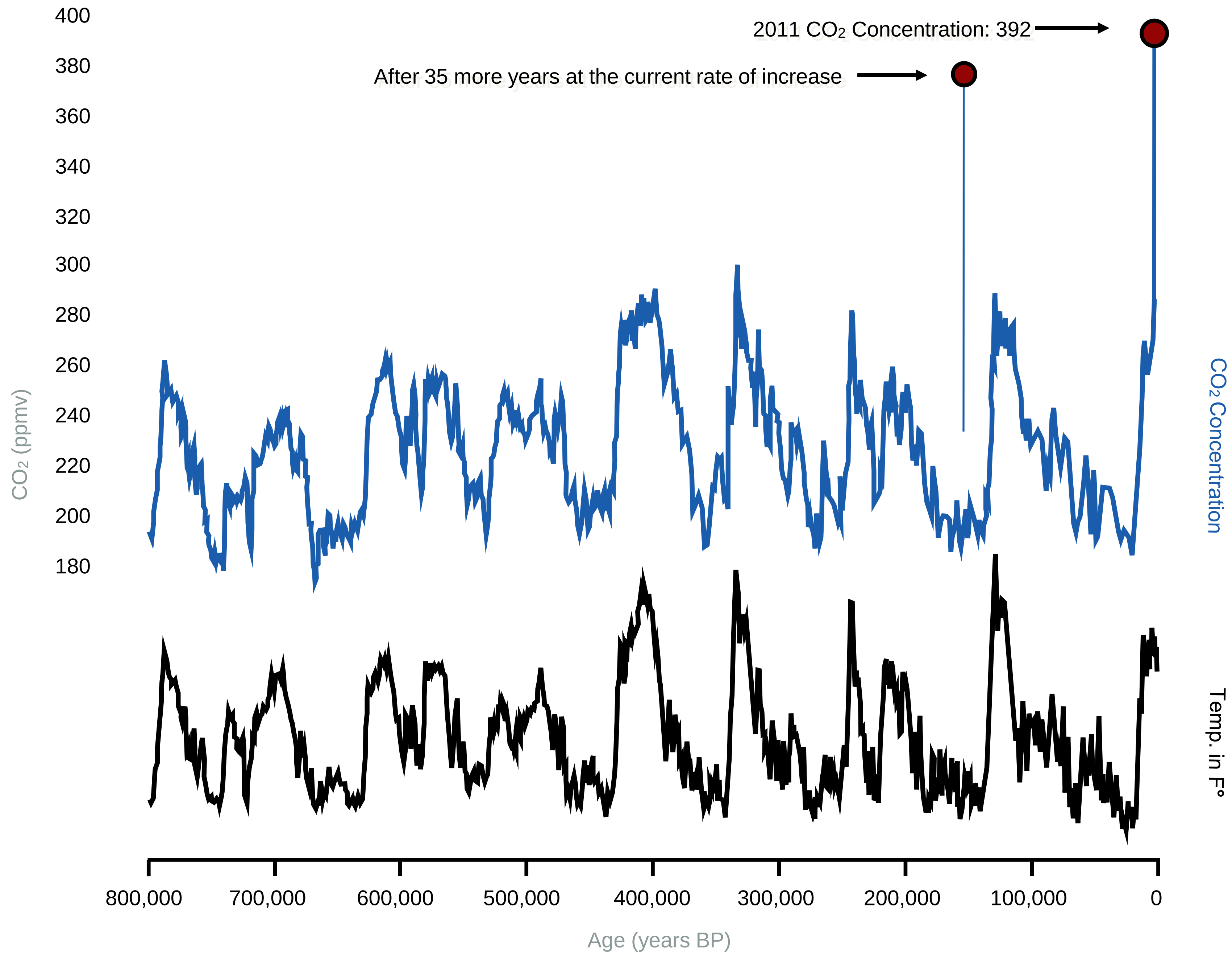
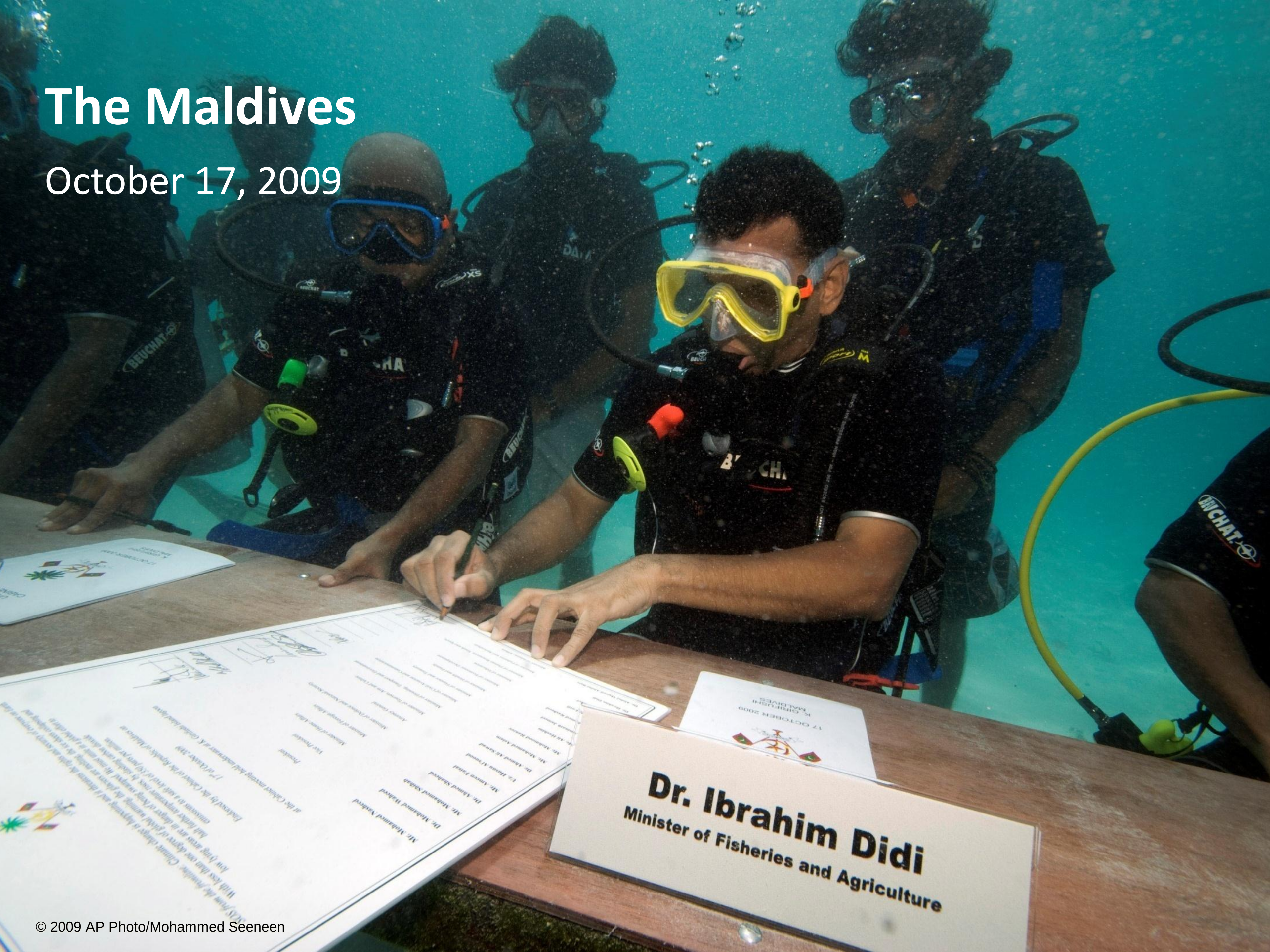


Source: National Climatic Data Center/NOAA

The Maldives

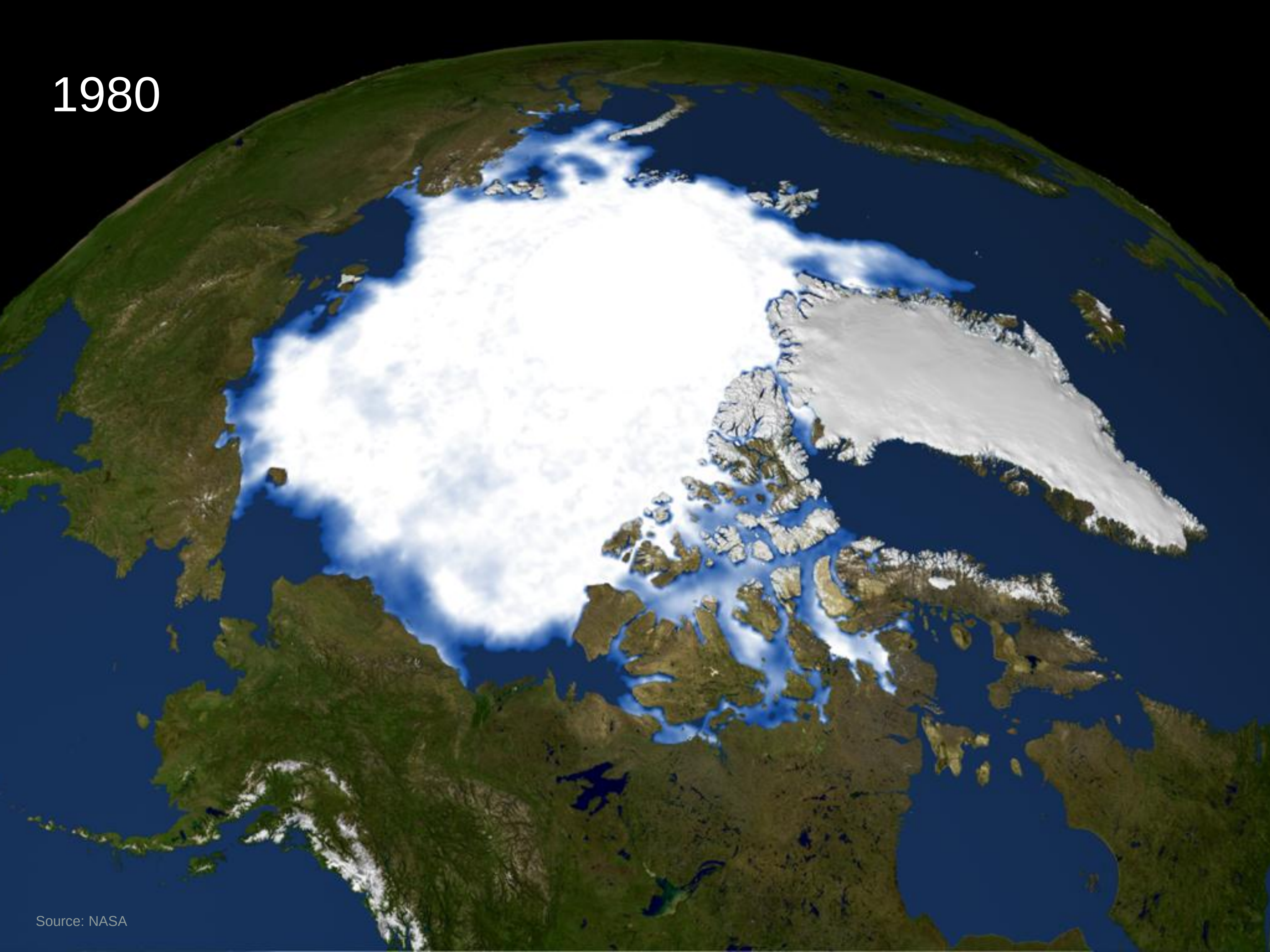
October 17, 2009

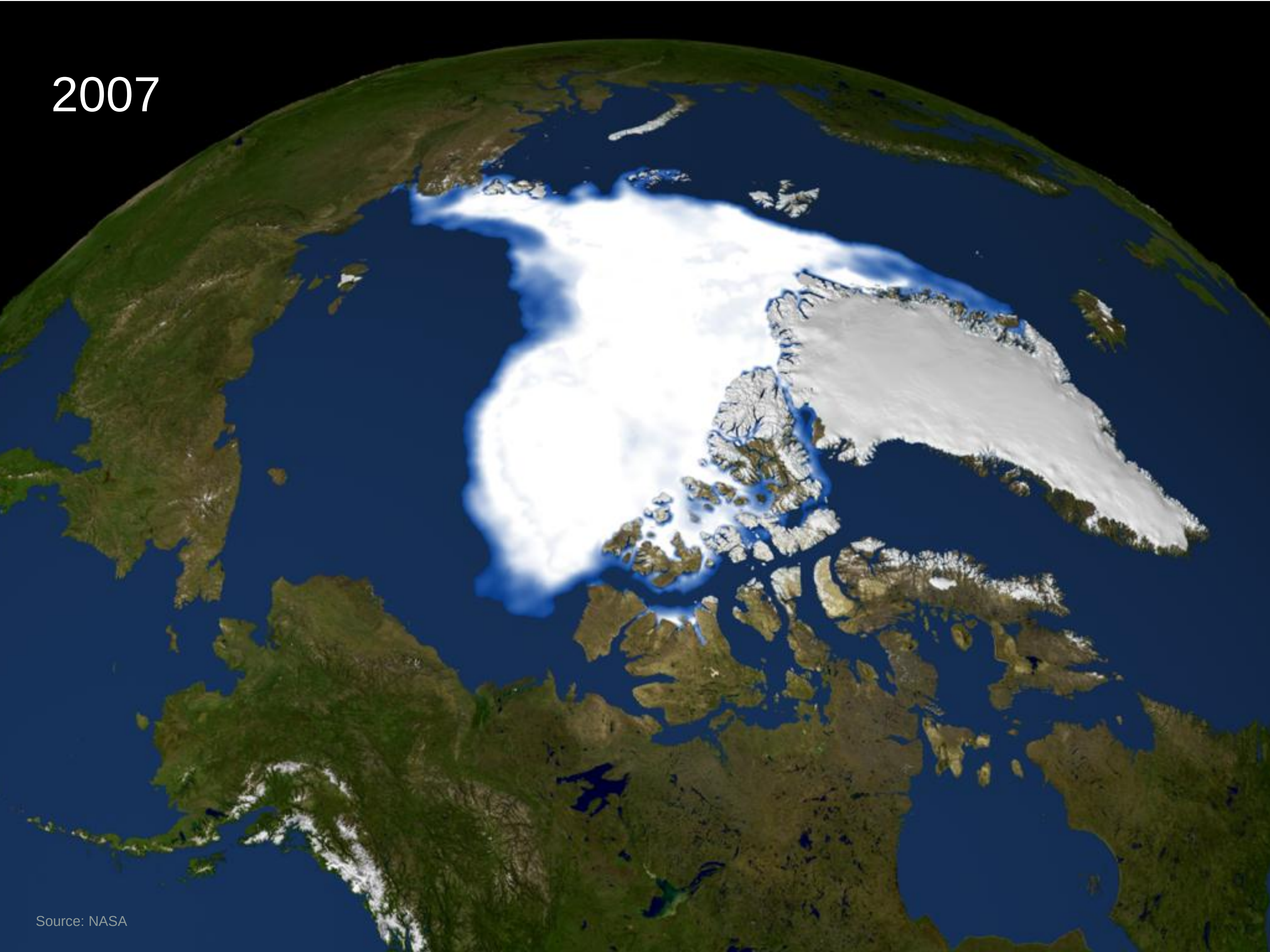


Avoiding Tipping Points

- Limit warming to 2^{o} C (3.6^{o} F)

Source: NASA


1980
Source: NASA



Source: NASA

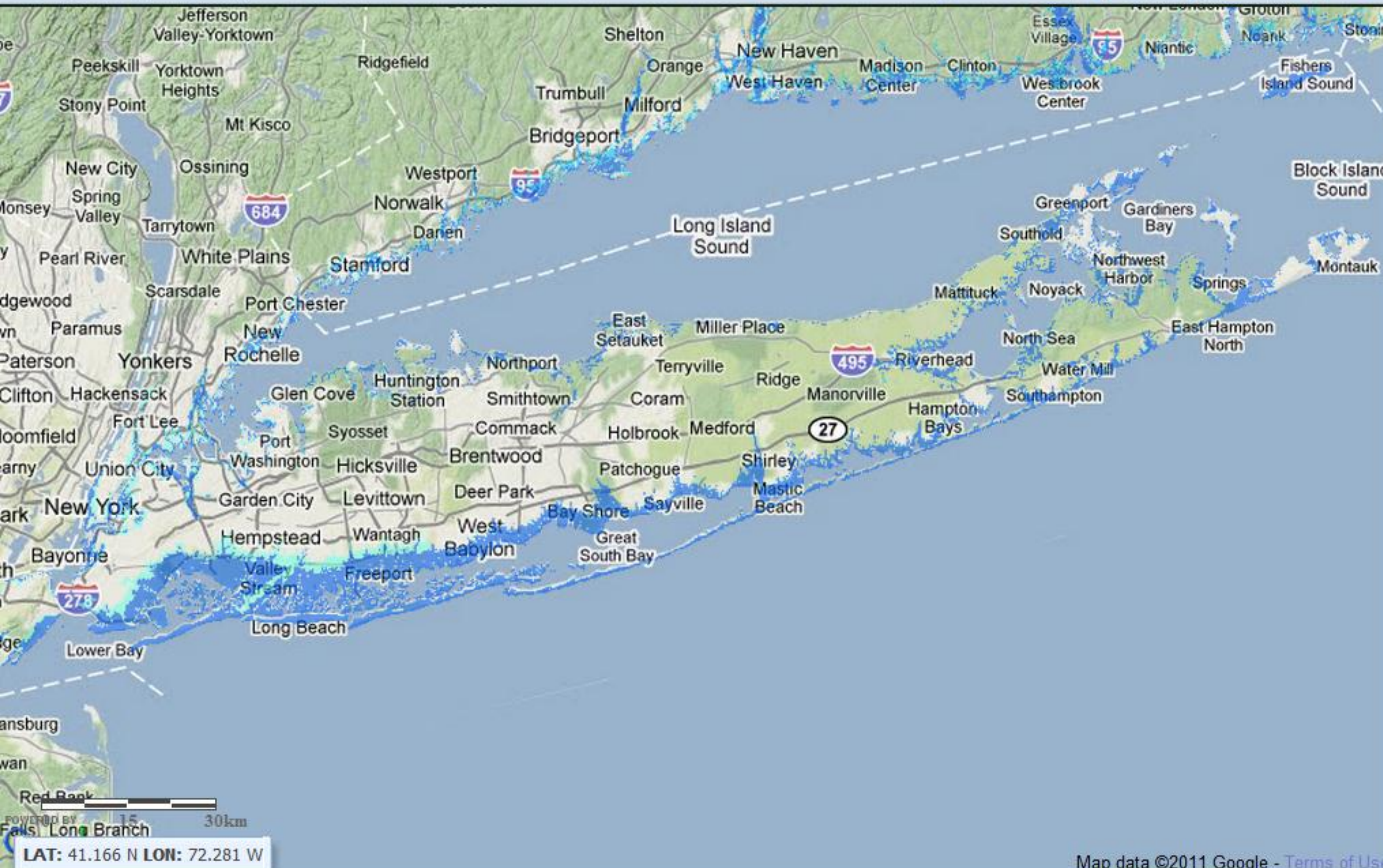
Greenland Seasonal Ice Melt

Source: NASA/GSFC

Coastal Resilience Long Island Sound

The Nature Conservancy — Protecting nature. Preserving life. | The University of Southern Mississippi | marine map

Map Layers | Legend | Change to Split View | Flood Scenarios | Guide | Background

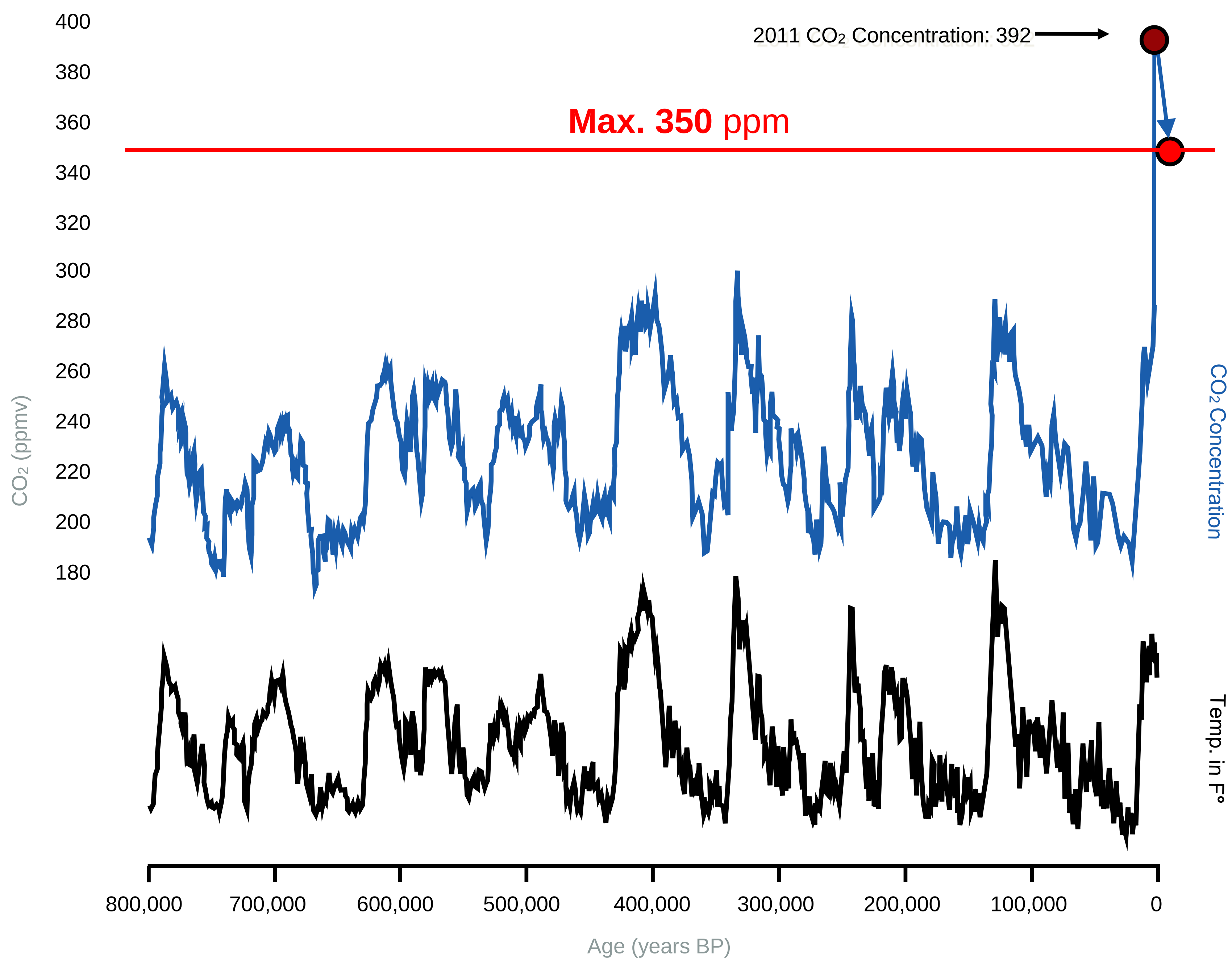


The Nature Conservancy | Coastal Resilience | Legal Disclosure

Projected Sea Level Rise 2100

- IPCC 2007: ~~7 – 23 inches~~
- AMAP 2011: **35 – 63 inches**

* Arctic Monitoring and Assessment Programme



Source: National Climatic Data Center/NOAA

NYS Executive Order No. 24

80 x 50

“It shall be a goal of the State of New York to reduce current greenhouse gas emissions from all sources within the State eighty percent (80%) below levels emitted in the year nineteen hundred ninety (1990) by the year two-thousand fifty (2050).”

The Great Transition

reLI
renewable energy
Long Island

100% Renewable Energy

Existing Plans & Studies

Organization	%	Sector and Area	Target Date
Repower America	100 %	Electricity U.S.	2020
Beyond Zero Emissions	100 %	E/T/H/C* Australia	2020
Price Waterhouse Coopers	100 %	Electricity Euro/N. Africa	2050
SRU** Germany	100 %	Electricity Germany	2050
EREC/Greenpeace	100 %	E/T/H/C Europe	2050
WWF/Enerfys	100 %	E/T/H/C World	2050
Jacobson/Delucchi	100 %	E/T/H/C World	2030/50

*E/T/H/C = Electricity, Transport, Heat/Cool
**German Advisory Council on the Environment

100% Renewable Energy

Jacobson/Delucchi 2010

- 100% renewable world energy feasible by 2030
- Variable resources can reliably match demand
- Adequate availability of raw materials
- Additional land footprint/spacing 0.41%/0.59%
- Cost similar to today's energy costs
- Barriers are social/political, *not* tech/economic

www.stanford.edu/group/efmh/jacobson/Articles/I/JDEnPolicyPt1.pdf

Jacobson/Delucchi U.S. #s

• 590,000	Wind Turbines (5 MW)
• 110,000	Wave Devices (0.75 MW)
• 830	Geothermal Plants (100 MW)
• 140	Hydroelectric plants (1,300 MW)
• 7,600	Tidal Turbines (1 MW)
• 265 million	Rooftop PV Systems (3 kW)
• 6,200	Centralized PV Plants (300 MW)
• 7,600	Concentrated Solar Plants (300 MW)
100%	Renewable Energy for the U.S.

How many RE systems on LI?

• 150,000	Residential PV Arrays (6.7 kW)
• 5,000	Commercial PV Arrays (100 kW)
• 25	Centralized PV Farms (50 MW)
• 75,000	Solar Hot Water Systems (64 sqft)
• 500	Small Wind Turbines (50 kW)
• 125	Wind Turbines (2 MW)
• 200	Offshore Wind Turbines (5 MW)
• 0.50	Off-Island Hydro Facilities (1,200 MW)
• 278	Off-Island Wind Turbines (3.6 MW)
100%	Renewable Electricity for Long Island

Global Market Growth

PhotoVoltaics

- 16.6 GW of PV added in 2010 (7.2 GW 2009)
- 40 GW total installed PV capacity YE 2010
- 130 – 200 GW by 2015

Wind

- 36 GW of Wind added in 2010 (22.5% growth)
- 200 GW total installed capacity YE 2010
- 450 GW by 2015
- 1,000 GW by 2020

Thank You

Gordian Raacke

Executive Director
Renewable Energy Long Island (reLI)
62 Newtown Ln, East Hampton, NY 11937
www.RenewableEnergyLI.org
Gordian@RenewableEnergyLI.org
631-329-8888