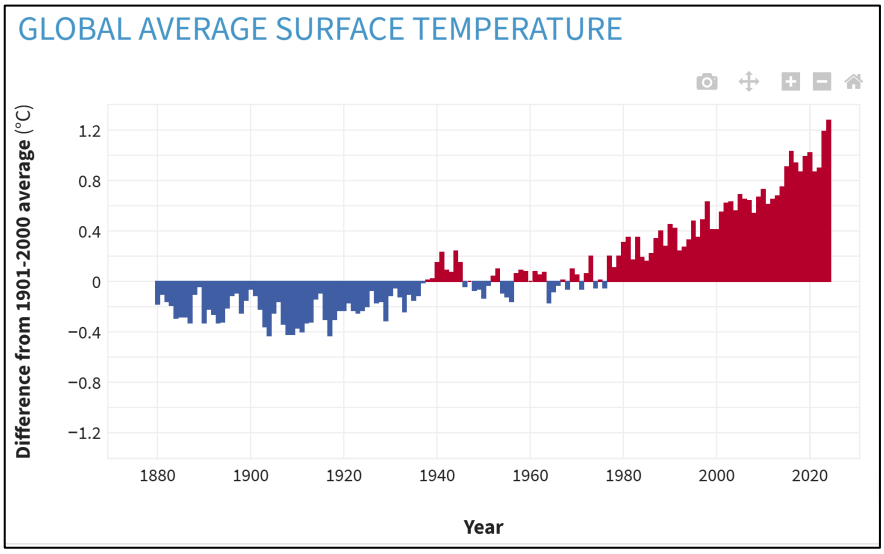
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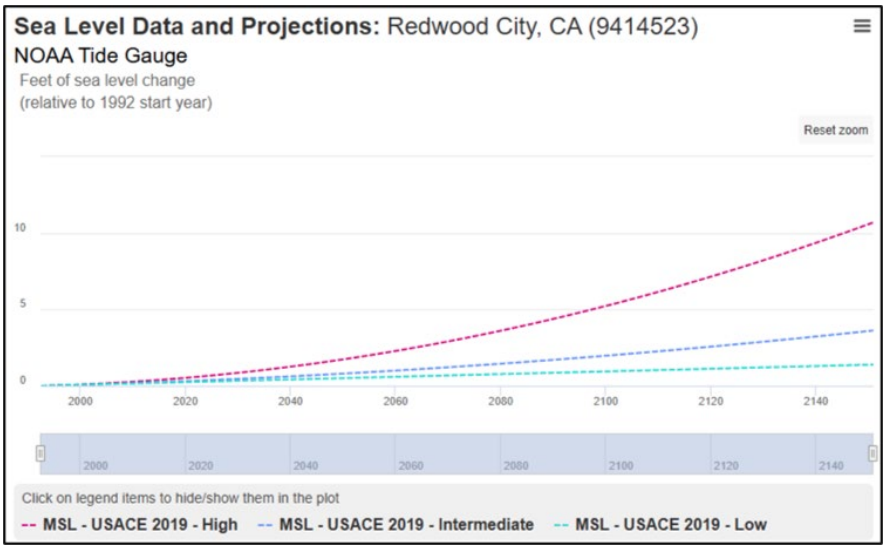
By John Benson

November 2026

1. Introduction

Your author has been part of the Energy Industry for his whole career (1975 until 2015), and I've written articles about this industry (mainly via Energy Central) since 2015. Thus, I am well aware that the Energy Industry is one of the primary emitters of the Greenhouse Gasses that cause anthropomorphic (human caused) climate-change, a.k.a. global warming. Global warming is in-turn, the main cause of sea-level rise. Below are two charts that show the history of these two human-caused climate-changes.[1]





[1] Rebecca Lindsey and LuAnn Dahlman, Climate.gov, https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature, May 29, 2025

Note that global temperature is a leading variable (that is, its rise it precedes sea-level rise and also drives sea-level rise). However also note that global climate models from the last two or three decades have been able to predict its secondary effect (like the melting of major ice-fields, mainly in Greenland and the Antarctic), thus our climatologist from the last four or five decades have been able to predict both rising variables rise, but it has been "An Inconvenient Truth" (sorry, Al)[2] for the greenhouse gas emitting industries. Also, an accurate estimate of the specific amount of sea-level rise has taken much of the last "four or five decades." See below.

1970s–1980s: Climate models began linking greenhouse gas concentrations to global temperature changes, using simplified radiative-forcing calculations and early general circulation models. These early studies could estimate equilibrium climate sensitivity (ECS) — the long-term warming for a doubling of CO_2 — but uncertainties were large.[3]

Mid-1990s: The IPCC Third Assessment Report (1990) and subsequent national/international studies began producing scenario-based projections of both temperature and sea-level rise. For example, Tulane University research shows that mid-1990s climate projections of sea-level rise were "strikingly accurate" when compared to satellite-measured trends since the 1990s

These projections were based on the same GHG–warming–sea-level chain of reasoning still used today, though with much coarser models.

2. The Main Challenge

Currently (even in late 1926 as I'm writing this), greenhouse gasses are being emitted by a huge number of diverse industries. I recently started reading a book that provided much information about this.[4] This Book, The Carbon Wave, covers much of the human-side of our response to global warming. Much of the text below uses excerpts from this book.

The introduction to this book is a chronology of the process to pass major legislation in the U.S. to address human-caused climate change. I've excerpted this text below.

This book is a story of a group of people who worked through our democracy to create one big carbon wave – passing the largest climate law in American history. It begins in 2018, when young activists started pushing for a "Green New Deal." The next year, more than two dozen Democrats ran for the presidential nomination amid the public's growing attention to climate. By the time President Joe Biden won the 2020 election, climate action was firmly on the agenda. Over the next 20 months, Congress and the White House worked on a bill, as activists pushed them relentlessly.

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[2] See 2006, "An Inconvenient Truth," https://www.imdb.com/title/tt0497116

[3] The Intergovernmental Panel on Climate Change, https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-9/ Chapter 9: Ocean, Cryosphere and Sea Level Change

[4] Leah C. Stokes, "The Carbon Wave," The MIT Press, 2026, The Carbon Wave: A Story of Democracy, Parenthood, and the Race to Protect Our Planet, Blackstone Publishing, https://www.amazon.com/s?k=leah+stokes+the+carbon+wave&language=English&adgrpid=134470531775311 7&gb=2&hvadid=84044375871305&hvbmt=bp&hvdev=c&hvexpln=0&hvlocphy=86839&hvnetw=o&hvocijid=6553149574581397726--&hvqmt=p&hvtargid=kwd-84045333757385%3Aloc-190&hydadcr=15750_13748505_2445737&mcid=deff80165a9334d89747d45f90fe99d1&tag=mh0b-20&ref=pd_sl_t2h1h6mwh_p

In August 2022, President Biden finally signed the Inflation Reduction Act into law, with north of $400 billion in climate investments. The truth is, thousands of people created this carbon wave-some working for decades to envision a federal climate law. We built on the momentum they created, growing the wave even bigger. There were dozens of people in the White House, hundreds of congressional staffers, and endless climate and environmental justice organizations. There were journalists and activists and civil servants. As much as I want to tell all their stories, no single book could chronicle all of this work.

Instead, this book follows a few dozen people who worked closely for years, forming one part of the much larger carbon wave. Adrian Deveny started as a Senate staffer in 2010 with the goal of passing a climate law. He joined Majority Leader Chuck Schumer's team a decade later, becoming his chief negotiator on climate. Sonia Aggarwal honed her technical expertise in nonprofits, before joining the Biden administration in its first days. She worked on the bill with her colleagues in the White House climate office. Sam Ricketts started as a junior staffer in Congress in 2009, where he watched a landmark climate bill pass the House of Representatives, only to flame out in the Senate. That failure compelled him to spend the next decade trying to finish the job. Throughout the first two years of the Biden administration, Ricketts and I worked in partnership with hundreds of advocates pushing for this giant bill. To braid together our stories, the narrative moves between the Senate, the White House, and outside of government, jumping back and forth in time.[5]

As we lived this story, the stakes felt high. We were fighting for the planet and everyone who lived on it. Then Adrian, Sonia, Sam, and I had children, and that feeling only intensified. As we stared down the possibility that Congress might waste another decade, we worried about the broken world we could be leaving our kids.

The main characters in this book are not politicians. They are staffers, activists, and scientists. In telling their personal stories alongside their work, I aim to show that flawed, busy people can change the world. This book is also a love letter to democracy, even when it, too, is flawed. It's our democracy that creates space for this activism, allowing us to join with others to change society. By unpacking the blow-by-blows of how this climate law was made, I hope to demystify the process and encourage more people to get involved in shaping local, state, and even federal laws. Everyone can help create carbon waves that move us away from fossil fuels.

For more than three years, this massive climate law rippled out across society. When this story began in 2018, fossil fuels made up the majority of new electricity being added to the grid. After the law passed, 96 percent of new additions were clean energy. It also spurred a renaissance in clean manufacturing, with $170 billion of private investment pouring into making solar panels, electric vehicles, batteries, and other clean technologies in the United States. Millions of American families used the law's incentives to stick solar on their roof. In 2022, heat pumps outsold gas furnaces for the first time, and over four million were installed in 2024. This was real progress, and a lot of it could not be easily reversed.

[5] Note that the reference 4 author, Leah Stokes, was an active participant in passing the Inflation Reduction Act, including the "Green New Deal" parts of it. Other participants, mentioned in this paper and Leah worked as a tightly-bound team. See the highlighted text above for Leah's take on this.

After Donald Trump won the 2024 presidential election, it was clear the climate law and our democracy were under attack. Within days of his inauguration in January 2025, the executive orders targeting clean energy began. In a repeat of his first term, Trump started to hollow out agencies- though this time, he did it on steroids, firing thousands of federal workers and incentivizing tens of thousands to quit. With Republicans controlling both the House and Senate, Congress quickly focused on repealing the climate law. Yet strangely, even though not a single Republican voted for it in 2022, over a dozen rallied to defend parts of it from repeal. The final package gutted most of Biden's climate investments, but not all of them. When Trump signed his bill into law on July 4, 2025, it was a dark day.

Even as I watched so much of this progress under attack, I remained hopeful. During the three years the law was in full effect, solar costs fell dramatically. Plus, Republicans had left federal support for batteries in place: given a few more years, they would similarly fall in cost. With artificial intelligence and electrification driving new electricity demand, and gas plants facing years-long backlogs for equipment, I knew solar and batteries would continue to get built. If people kept pushing, clean energy would be inevitable.

Progress doesn't move in a straight line, much as we might hope, and even as the sand in the hourglass runs short. But this story is not just a work of history: it's a reminder that we can and must join together to tackle the climate crisis. The choices we make now will determine our future. The majority of the American public wants climate action-they have for decades. We must keep pushing our governments, corporations, and communities to act. We can break the cycle and refuse to pass our dirty energy system to yet another generation.

Climate change is not our destiny. Together we can change the future.

Final Author's Comment: The above text just summarizes the intro to reference 4. I have been slowly reading later sections of this book, and it is an interesting book indeed. The author of this book, Leah C. Stokes, is also one of the main characters of this book, and actually lived the contents. There are many other characters, that were/are also real people. As I go deeper into this book, much of the story takes place in Washington DC in the halls of our (U.S.) federal government, and involves leaders from our recent history that are still on the stage today (like Biden and Trump). I believe the story / stories it tells are honest ones, even though they are not always pretty: honest stories, are not pretty, they are a mixture of good and bad, admirable and ugly.

As I delve deeper into this book, I may spin some other papers out of it. Also, if any readers are serious readers that enjoy reading serious narratives (like I do), this book (reference 4 on page 2) is already highly recommended.