

# Stopping Climate Chaos

## 100 Percent Renewable Energy by 2035

The threat of climate chaos from global warming is real. Today, global average temperatures are 1 degree Celsius (°C) higher than before the Industrial Revolution.<sup>1</sup> This warming has led to dramatic, planet-wide ecological and climatic changes. In 2014, the Intergovernmental Panel on Climate Change (IPCC) reported that, “recent climate changes have had widespread impacts on human and natural systems,” including more-frequent violent storms, droughts, floods, acidifying and rapidly warming oceans, and altered growing seasons.<sup>2</sup>



These changes affect everyone. In 2015, delegates to the Paris meeting of the United Nations Framework Convention on Climate Change agreed that preventing the planet from warming 1.5°C above pre-industrial levels “would significantly reduce the risks and impacts of climate change.”<sup>3</sup> This will require aggressive action to reverse our dependence on fossil fuels and to achieve 100 percent clean energy worldwide. Protecting the planet and our ability to live on it requires transforming how we meet our energy needs.

### A Call to Action: Warming Above 1.5°C Is Too Dangerous

The past century of burning dirty fossil fuels for energy and transportation has spewed heat-trapping carbon dioxide (CO<sub>2</sub>) and other greenhouse gases that have driven global warming. The accumulation of these greenhouse gases likely will soon cross numerous ecological “tipping points” in global warming that could rapidly compound our climate crisis.<sup>4</sup> As the concentration of CO<sub>2</sub> in the atmosphere

exceeds crucial thresholds, the effect on climate change could be sudden and potentially irreversible.<sup>5</sup>

A 2015 National Academy of Sciences report found that even temperature increases below 2°C could trigger tipping points that are expected to bring “abrupt shifts in sea ice and ocean circulation patterns as well as abrupt shifts in vegetation and the terrestrial cryosphere [including polar ice caps, glaciers, tundra, etc.]”<sup>6</sup> For example, thawing the Arctic’s permafrost likely would release vast amounts of CO<sub>2</sub> and the greenhouse gas methane into the atmosphere.<sup>7</sup> This could set off a feedback loop whereby more warming thaws more permafrost that releases more greenhouse gases, causing even more warming.

Another ecological tipping point is the irreparable decline of sea ice that causes more heat to be absorbed by the ocean (rather than being reflected), which in turn melts more sea ice. This could accelerate the rising sea level far more than expected — to nearly a meter higher by the end of the century, threatening and imposing huge costs on coastal communities.<sup>8</sup>

### Carbon Dioxide Projections Demonstrate Urgency of Staying Under 1.5°C

In 2014, the IPCC forecast an array of carbon dioxide projections (or carbon budgets) that calculated whether the planet’s warming could be slowed depending on how much CO<sub>2</sub> was emitted into the atmosphere. In order to have a two-out-of-three chance of avoiding the catastrophic 1.5°C rise in temperature, the IPCC found that we could only emit an additional 400 gigatonnes of CO<sub>2</sub> (GtCO<sub>2</sub>) after 2011.<sup>9</sup>

But between 2011 and 2016, the global economy has *already* released 220 GtCO<sub>2</sub> into the atmosphere from burning fossil fuels.<sup>10</sup> Just to have a two-out-of-three chance to avoid another 0.5°C of warming, the planet can release only 180 GtCO<sub>2</sub> more — the equivalent of four to five more years under current emission trends.

Once emitted, CO<sub>2</sub> persists in the atmosphere for decades. The IPCC carbon budget demonstrates the imperative of driving greenhouse gas emissions to zero quickly. There is no longer any wiggle room. Currently, global CO<sub>2</sub> emissions from burning fossil fuels amount to close to 40 GtCO<sub>2</sub> annually.<sup>11</sup> Reducing these emissions by about 20 percent starting in 2017 and continuing to cut about 20 percent every year would drive emissions to near zero by 2035.<sup>12</sup>

## How to Achieve Zero CO<sub>2</sub> Emissions by 2035

The rapid transition to 100 percent clean energy is essential to avoid devastating climate impacts on communities around the world. We cannot wait decades before eliminating greenhouse gas emissions. Staying below 1.5°C of additional global warming requires a 100 percent clean energy system by 2035.

The fossil fuel cartel is abetted by Wall Street banks eager to speculate on fossil fuel extraction for handsome returns for lending tens of billions of dollars to the U.S. oil and gas industry.<sup>13</sup> The investments sunk into pipelines, oil and gas wells, fracking and fossil fuel infrastructure lock us into a dirty energy future.

The way out must be an immediate and dramatic shift to zero-emission wind and solar power. We must make enormous investments to deploy existing technologies and solutions for harnessing wind and solar energy. Additionally, there needs to be a massive investment in upgrading energy efficiency and boosting conservation: the easiest reductions are for the energy that we do not need to use. We also must tap electricity from wind and solar to meet almost all transportation needs. The call for genuine, emissions-free renewable energy dates back nearly 50 years. We need a New Deal-scale investment at the innovation level of the space program's Apollo Project to drive the rapid transition to clean energy.

The United States must be a global leader on this ambitious path. The goal of 100 percent clean energy by 2035 is achievable with the necessary political will. Everyone must demand strong government policies and commit

to aggressive action now. We must organize and mobilize on an unprecedented scale to implement what are already largely proven solutions.

The future of our planet demands an equitable, rapid and safe transition to 100 percent renewable energy by 2035. These next 20 years must be marked by:

- massive investments to build wind and solar infrastructure across the United States;
- the end to the era of extracting and burning fossil fuels;
- a ban on building new fossil fuel infrastructure;
- committed investments in energy efficiency and conservation across the residential, commercial and industrial sectors; and
- greatly expanded and improved public mass transit.

## Endnotes

- 1 United Kingdom. Department for Business, Energy and Industrial Strategy (BEIS). Met Office. [Press release]. "Global temperatures set to reach 1°C marker for first time." November 9, 2015.
- 2 Pachauri, Rajendra K. et al. "Climate Change 2014: Synthesis Report Summary for Policymakers." Intergovernmental Panel on Climate Change (IPCC Policymaker Synthesis). 2015 at 2; Pachauri, Rajendra K. et al. "Climate Change 2014: Synthesis Report." IPCC (IPCC Synthesis). 2015 at 40 to 41, 49 to 53, 60, 67, 73 and 97.
- 3 United Nations Framework Convention on Climate Change (UNFCCC). "Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015." January 29, 2016 at 22.
- 4 Drijfhout, Sybren et al. "Catalogue of abrupt shifts in Intergovernmental Panel on Climate Change climate models." *Proceedings of the National Academy of Sciences*. October 12, 2015 at E5777.
- 5 *Ibid.*
- 6 *Ibid.* at E5778 and E5784.
- 7 IPCC Synthesis (2015) at 67.
- 8 IPCC Policymaker Synthesis (2015) at 11.
- 9 IPCC Synthesis (2015) at 64.
- 10 Food & Water Watch calculation based on: Le Quéré, Corinne et al. "Global carbon budget 2016." *Earth System Science Data*. Vol. 8, Iss. 2. November 14, 2016 at 609 and 633; IPCC Synthesis (2015) at 64; Friedlingstein, P. et al. "Persistent growth of CO<sub>2</sub> emissions and implications for reaching climate targets." *Nature Geoscience*. Vol. 7. September 21, 2014 at 710.
- 11 Food & Water Watch calculation based on Le Quéré et al. (2016) at 609 and 622.
- 12 *Ibid*; Friedlingstein et al. (2014) at 710.
- 13 Crooks, Ed. "US shale oil industry hit by \$30bn outflows." *Financial Times*. September 6, 2015.