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“Calling individual climate leaders.”

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Published in:
Association for Women in Science Magazine

2017

Document Version:
Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):
Nicholas, K. (2017). “Calling individual climate leaders.”. *Association for Women in Science Magazine*, 49(03), 8-10, 47.

Total number of authors:
1

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Calling Individual Climate Leaders

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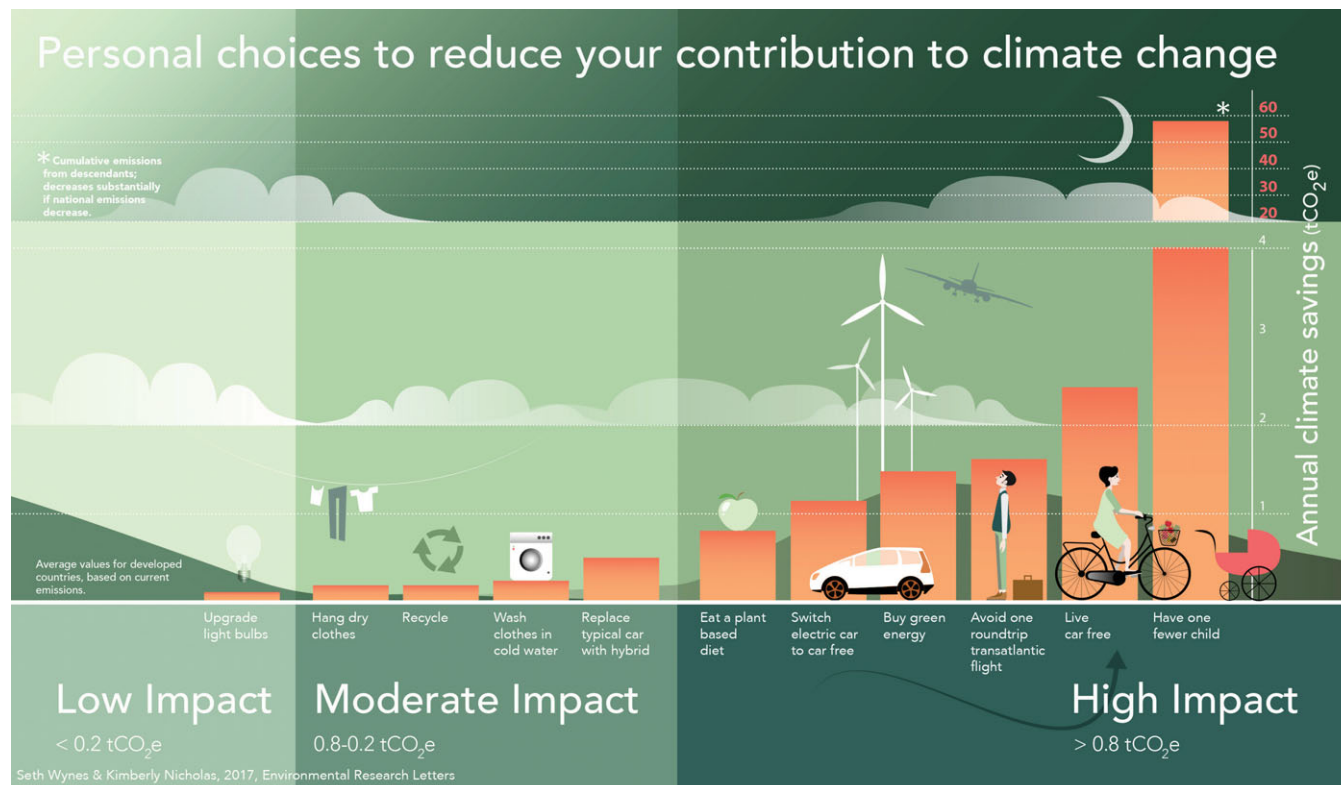
Readers of this magazine are already familiar with the basic scientific facts about climate change, documented in thousands of peer-reviewed articles and prestigious reports: scientists overwhelmingly agree that the planet is warming, humans are causing this, the ramifications are deeply dangerous, and we need to find solutions.

Basically, science tells us that the future of a good life on planet Earth depends on us reducing climate pollution about 90 percent by 2050. This means successively cutting emissions in half during each of the next three decades (Rockstrom et al., 2017), while maintaining a good quality of life in the

industrialized world, and greatly expanding opportunities in developing countries.

If we don't cut emissions starting now, children born today will grow up in a world of dangerous climate change.

Fortunately, leaders all over the world have realized the urgency of slashing emissions and have started to roll up their sleeves to address the crisis. For example, hundreds of countries, cities, businesses, and universities, encouraged by support from citizens in their communities, have committed to switching to 100 percent renewable energy, in some cases



Based on an analysis of 39 sources, our new study (Wynes & Nicholas 2017a) found four consistently high-impact personal choices for individuals in industrialized countries under current average conditions that made a big difference for the climate: eating a plant-based diet, living car-free, avoiding plane travel, and planning smaller families. Purchasing green energy was sometimes but not always a high impact action; see Wynes & Nicholas (2017a) for estimates for each action by country. *Image credit: Catrin Jakobsson*

by 2025. This top-down technical, political, and economic climate leadership is encouraging and essential to meet international climate targets aimed at avoiding dangerous warming.

Still, there is an enormous need for bottom-up climate leadership, by which I mean individuals making choices that are compatible with a safe climate and the possibility for a good life for everyone on Earth. Many individuals are concerned about the risks from climate change and want to be part of the solution, but often they aren't sure where to focus limited time and energy on choices that will really make a difference.

Our New Study: Four Personal Choices Have the Biggest Climate Impact

What individual choices can we personally make to lessen our impact on the climate? A recent study I helped conduct, led by my former master's student Seth Wynes (Wynes & Nicholas, 2017a), combines thirty-nine peer-reviewed papers, government reports, and carbon calculators to make a robust estimate of the climate impact of individual decisions, based on current conditions in the industrialized world.

We focused on the United States, Canada, Australia, and Europe (a lower-emitter) because these regions currently have high per-capita emissions. Currently, 10 percent of high-consuming individuals (including more than half of all residents in countries such as the United States, the United Kingdom, and Germany) produce nearly half of all climate pollution (King, 2015). If you've flown on a plane in the last year, as I have, you're likely in this group.

Our study finds that there are four personal choices individuals in the developed world can make that have a big impact on reducing emissions:

- eating a plant-based diet
- living car-free
- avoiding plane travel
- planning a smaller family

These four choices tend to save a substantial amount of greenhouse gases regardless of country-specific conditions. On average, eating a plant-based diet saves about 0.8 tons of CO₂ equivalents per year. Each roundtrip transatlantic flight avoided (for example, from London to New York) saves 1.6 tons;

In our private lives, each of us has some power to shape choices about what we eat and when and how we travel. How might similar choices play out in the workplace?

each roundtrip long-haul flight avoided (for example, from London to Hong Kong) saves 2.79 tons; and living car-free for a year saves 2.4 tons.

To put this in context, per-capita carbon dioxide emissions should not exceed 2.1 tons annually by the year 2050, if the goal of limiting the global temperature increase to well below 2° C is to be achieved (Girod et al., 2014).

Our study also finds that these four key actions are usually missed in official sources, including government recommendations in the United States, Canada, Australia, and the European Union, as well as in high school textbooks in Canada, all of which tend instead to advocate small, incremental changes, such as recycling or switching to reusable shopping bags.

But our results show that eating a plant-based diet saves about four times more greenhouse gas emissions per year than recycling. Avoiding just one transatlantic flight saves eight times more, and living car-free saves eleven times more. Similarly, switching from plastic to canvas bags saves less than 1 percent of what would be saved by living a year without consuming meat. While actions like recycling and using canvas bags are good choices to reduce waste, they are not sufficient to tackle the scale of the climate challenge we now face.

How Workplaces Support Climate-Friendly Policies

In our private lives, each of us has some power to shape choices about what we eat and when and how we travel. How might similar choices play out in the workplace? Universities and businesses are starting to have conversations about the larger factors that can support more climate-friendly choices, as well as about what currently stands in the way and how this could change.

For example, some organizations are looking more closely at their travel policies, to see how they can support flexible work environments and provide opportunities for career advancement without requiring frequent travel. This might include steps like expanding teleconferencing facilities, making it easy to book low-carbon travel options when needed, and even starting to question the working culture that equates air miles

Fast Facts

All actions were compared on a life cycle basis for one individual making the decision under current average conditions in developed countries. This means:

Plant-based diet:

Emissions saved from switching from omnivorous to plant-based diet (e.g. difference between emissions of foods consumed by self-selected meat eaters versus self-selected vegetarians). Includes emissions from fertilizers, methane production by livestock, and transport of food to retail centers.



One transatlantic flight:

Emissions for one person flying on a roundtrip flight (e.g., New York to London) under average conditions. Note that long-haul flights have higher emissions (e.g., flying London to Hong Kong round trip is 2.97 tonnes).



Live car-free:

Emissions saved per person based on average vehicle miles traveled and vehicle occupancy. Includes emissions from car production and maintenance in addition to combustion of fuel.



One fewer child:

Estimates the cumulative impact of current and future descendants based on percent of relatedness for the offspring, and current emissions levels, for all emissions produced over the lifespan of descendants, divided by the life expectancy of each parent.



For more details on methods, see the Supplement to Wynes and Nicholas (2017a) and our FAQ (Wynes and Nicholas, 2017b).

with status or intellectual contributions. Others are making tasty plant-based meals the norm at work gatherings, or at the restaurants and cafeterias that employees frequent.

Consider Family Size and Lifestyle

Most people—especially women in STEM—are already acutely aware that choosing whether and when to have a child is fundamental to shaping one’s life personally, economically, and professionally. This individual choice turns out to be the most significant choice for the climate as well. Simply put, when families in industrialized countries with high emissions rates expand carbon increases in the atmosphere.

Enabling children to grow up in a safe climate is a huge incentive to reducing overall national emissions to sustainable levels. Meanwhile, recognizing that family size affects the climate can be one factor informing a complex and highly personal decision.

I’ve heard from many parents, and those planning to become parents, who say that our findings have encouraged them to look at their own lifestyle and at the way they raise their children, in order to chart a more sustainable path. One new mother with a three-week-old baby wrote to say that she has printed our infographic and put it on her fridge, as a reminder that what she feeds her child and how she transports him are critical choices for the climate. This knowledge can inspire conversations about living closer to school and work, making it safer to walk or bike in local neighborhoods, sharing delicious plant-based recipes, or planning family vacations that focus on spending quality time together in a beautiful place that doesn’t require plane travel.

I’ve also heard from people who have decided not to have children, who appreciate data that support their personal choice, particularly when facing social pressure. And I have heard from people who are currently considering whether to have a child and appreciate having data to help inform their decision.

Individual Climate Leadership

I believe that those of us with the ability to make choices have a responsibility to lead by example, especially scientists most closely in touch with climate research. The choices I’ve made to cut my personal carbon footprint—for example, cutting plane trips by 80 percent, going meat-free, and moving to the center of my small city, where I can bike to work and live car-free—have saved me money, time, and stress, improved my health, and given me a greater sense of work-life balance (Nicholas, 2017).

Each of these personal climate choices can lead to important conversations about the limited resources we all have, and how we choose to allocate them in pursuing our own versions

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of a meaningful life. Finding ways in our own lives to contribute to a safer climate will look slightly different for everyone. We’re all well aware of the limitations we face in terms of time and money: adding carbon tradeoffs to this mental calculation is an important step toward focusing priorities in our own lives, and in the households, workplaces, and communities we share with others. This self-reflection, the conversations it sparks, and the examples it inspires, can be powerful forces for bottom-up climate leadership. I encourage us all to start today. ★

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