The 1.5-Degree Lifestyle: Introduction

I used to have a monster carbon footprint. At the end of the last century, I was in my second career (my first was as an architect) as a successful real estate developer in Toronto, building award-winning condominiums. I drove my classic Porsche 914 the couple of blocks between office and jobsite; I drove my daughters to school and down to the lake every morning in the rowing season; then on winter weekends, we drove up to the private ski club where all the rich developers hung out. Every weekend in summer, I drove the family up to our summer cottage in Muskoka. Throw in a few flights every year, and I was probably emitting about 30 tonnes of CO_2 per year in the process, or what could be called a 30-tonne lifestyle.

Then, suddenly, I wasn't a developer anymore; after a falling-out with partners, I had almost nothing but a substantial financial loss and probably a nervous breakdown. However, I had learned a great deal from the experience; I was convinced that the way we build had to change, that it was too slow and too expensive and used too much material and energy. I went to the biggest prefabricated housing manufacturer in the province and convinced him to let me design and sell small, modern, green housing units. He agreed, I set up an office, started doing all the home shows, and waited for the phone to ring, when I wasn't driving my Subaru all over the province. While waiting, I built a website to educate people about prefab and green building, updating it every day as I would find articles of interest—essentially a blog before there were blogs.

I spent a lot of time waiting for that phone to ring; there wasn't much interest in Ontario in small modern green prefab. However, in

the United States, there was huge interest in my website, which was soon recognized as one of the most important resources on prefab in the time before blog platforms appeared in about 2004. One of the first that I started following was a website called *Treehugger*, which was then a "guide to green and gorgeous." I started sending them tips, stuff that I couldn't use on my own business-related site. Soon I was writing for them as well for $10 a post, and not long after that was offered a full-time position. I concluded that I was a better writer than I was a prefab salesman and have been doing it ever since.

There were other changes; the Chair of the Ryerson School of Interior Design saw me speak on a panel and asked me to apply for an open position teaching sustainable design. The more I read, the more I taught, and the more I wrote, the more concerned I became about the issues of sustainability. My carbon footprint was dropping because I couldn't afford that developer lifestyle anymore, but also because I was becoming increasingly concerned about the issues. Having built out of both concrete and wood, I became an early proponent of the concept of embodied carbon, which almost nobody took seriously 10 years ago. (Actually, they still don't.) My carbon footprint might have been even lower had not my early focus on wood, embodied carbon, and an efficient building concept called Passive House put me on the international lecture circuit stretching from Seattle to Munich, or my press-related trips to China and Spain.

Much changed with the Paris Agreement in 2015, with its limits on carbon emissions. According to the Intergovernmental Panel on Climate Change (IPCC), we have to cut the quantity of greenhouse gases we emit roughly in half by 2030, and almost to zero by 2050, if we want to keep the rise in global average temperature to 1.5 degrees Celsius and avoid catastrophic consequences of global warming. To put this in perspective, the COVID-19 lockdown, with its massive reductions in transportation and industry, reduced emissions by about 7%. We have to continue doing that every year, another 7% to 8% reduction, to stay under 1.5 degrees.

But where do these greenhouse gas emissions come from? Who is responsible? Who has to fix it? How can we fix it? Suddenly the measuring of all the carbon that we are all putting into the air is of critical importance, and someone has to fix it or be blamed for it.

Everyone has heard the statement that "100 companies are responsible for 71% of global emissions," that corporations emit the carbon and governments should regulate the carbon away. They should fix the problem by delivering clean electricity instead of burning fossil fuels, or by running our pickup trucks on electricity. The latest is to put hydrogen in our furnaces instead of gas, so that we can all keep living the way we do until we have to maybe start thinking about this in 2030.

The problem with this is that those 100 companies don't directly produce much CO_2; they sell fossil fuels that are burned for energy, which releases CO_2. It's their customers, you and me, who turn their product into emissions. We buy what they are selling, directly or indirectly, whether out of choice or out of necessity.

Most of the world's nations signed on to the Paris Agreement, promising to reduce their carbon emissions, but so far nobody has done very much. It's hard when you have economies based on digging up fossil fuels and then manufacturing stuff that runs on them, emitting carbon at every step of the way. It's harder when everyone wants more stuff, and the jobs all depend on us buying it. So, the only strategy anyone can think of is to produce more carbon-efficient stuff, to build electric cars instead of gasoline-powered, to burn natural gas instead of coal, to make more wind turbines and solar panels, and to dream of nuclear reactors, carbon capture and storage, and hydrogen.

This was actually working, to a degree: pre-pandemic, the rate of increase in carbon emissions was slightly less than the growth of the world's economies. But even with all that greening going on, carbon emissions were still increasing by 1.3% on average, while the global economy expanded by about 3%.[1] And in 2019, global greenhouse gas emissions from all sources still reached a record high of 52.4 gigatonnes of CO_2e. (The e stands for equivalents—other gases like methane or fluorocarbon refrigerants, some of which have many thousands of times the global warming potential of CO_2.) When the economy booms, so do emissions.

The world loves growth, and nobody wants to see an economic seizure like we had during the pandemic happen again. Governments have been pouring vast sums into cranking up the economic engines, encouraging us to buy more stuff and more services, while almost

completely ignoring the fact that to keep under a temperature rise of 1.5 degrees, we have to reduce our carbon emissions budget to 25 gigatonnes of CO_2e by 2030, less than half of what we emitted in 2019.

Norman Mailer wrote, "There was that law of life, so cruel and so just, that one must grow or else pay more for remaining the same." Growth is the law of life, and the engine of growth runs on fossil fuels.

If we have any chance of getting close to the carbon budget for 2030, we have to change the way we think about growth. We have to stop thinking about production, the making of what everyone is selling, and start thinking about consumption, what we are buying. We have to stop thinking about efficiency, making something slightly better, and start thinking about sufficiency: what do we really need?

The premise of this book, and the research it is based on, is that we are all collectively responsible for reducing our carbon emissions to keep under that 1.5-degree ceiling. We have that carbon budget set in Paris, and if you divide it by the number of people on Earth, we have a personal carbon allocation or budget target of "lifestyle emissions," those emissions that we can control, of about 2.5 tonnes per person, per year by 2030. Getting by on this is what we are calling the 1.5-degree lifestyle.

But what is living on 2.5 tonnes of carbon actually like? How do you measure it? How much does individual consumption matter? These are some of the questions that this book will try to answer.

We will try and look at the carbon cost of everything that we do in our lives to help people make choices about what makes sense, what's worth trying to change, and what isn't. It's a model that not only can influence our personal lives but also can guide policy, from urban planning to agriculture.

For many people, lifestyle carbon emissions are baked into the way we live and very hard to change without concomitant societal and environmental changes; our developed Western world seems almost designed to emit carbon. We are also creatures of habits that are difficult to shake. However, many habits changed in the course of the COVID-19 pandemic. It was perhaps not the best time to start this journey; much of the planet was now living a low-carbon lifestyle whether they wanted to or not.

On the other hand, it may be the perfect time for changes. We can collectively work for system change, but also for individual change, a 1.5-degree lifestyle. It is based on living within a tight carbon budget, but if one makes the right choices, it is sufficient, and there is enough to go around for everyone.

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What's the 1.5-Degree Lifestyle?

- 1 grapefruit: 90 grams of carbon
- Instant coffee with milk: 50 g
- 1-mile cycle: 3 g
- Seared mackerel fillet with British seasonal asparagus and Jersey new potatoes: 600 g
- Toasted hazelnuts, honey, and yogurt: 200 g
- 1 orange: 90 g
- Eggy bread (1 egg = 300 g) and kimchi: 400 g
- Cardamom and honey milk: 350 g
- Time online approximately 3 hours
- Data and servers: 3 × 50: 150 g
- Device laptop iPad or iPhone: used 3 times
- Fridge: 64 g
- Average water use: 38 g

That's a day in the life of Rosalind Readhead[1] (May 14, 2020 to be more precise), an English activist and erstwhile mayoral candidate, expressed in grams of carbon emissions. She measures every move that she makes, every bite that she eats, everything that she does, in her attempt to live a lifestyle with emissions totaling less than 1 tonne per year or 2.74 kilograms of CO_2 or its equivalents per day.

Rosalind is living her radical version of the 1.5-degree lifestyle, a demonstration of how we have to live to meet the target set by the Paris agreement on climate change if we are going to keep the global temperature rise below 1.5 degrees Celsius. As noted above, to get

there, we have to reduce the average carbon footprint of each person on the planet to 2.5 tonnes by 2030, and then further reduce this to 1 tonne by 2050.

Rosalind is trying to live with the 2050 target of 1 tonne. That is almost impossible in today's society; for most people, it is almost a baseline of the stuff that they can't change or avoid. In the longer term, it is achievable after we rebuild our homes, rethink our offices, and reimagine our lifestyles. I have been trying to live a reduced carbon lifestyle as well, but have been aiming for the far less onerous 2030 target of 2.5 tonnes of carbon per year.

Either consciously or by accident, I have already made lifestyle choices that make it easier. I live in a province of Canada that has low-carbon electricity from nuclear and hydropower, in a streetcar suburb where I can get almost everything I need without driving. I work from home. For others, it's not so simple.

Nonetheless, this book is an attempt at a manual for living the 1.5-degree lifestyle, looking at the choices and trade-offs that we have to make to get there. Perhaps more usefully, it is a look at where our carbon emissions come from and how we got into this mess in the first place.

Some will find it harder than others; some might find it impossible without drastic changes and serious investments.

Many will say, why bother? Everybody knows that it is governments, oil companies, and industry that cause the CO_2 emissions, that our individual actions don't matter or won't make a difference. Others say that we have to get out in the streets and fight for system change, for regulatory change, and for government change. In fact, we need all of the above. But one only needs to look back at the lockdown in spring 2020; we saw what happens when a lot of people stop driving and flying. All the associated industries almost collapsed because the demand for their products and services disappeared overnight. None of it was by choice, but it proved that these businesses are like any other, demand-driven. If we don't buy what they are selling, then they have to change or go under.

What big business wants you to do is buy their goods and services, which generates the emissions. Some of this is by choice, and when we choose not to buy, we are not only emitting less carbon, we are also

emitting less money—a low-carbon lifestyle is generally cheaper. It's also healthier, leading to a better diet and more exercise.

The 1.5-degree lifestyle is not only good for the planet, it's good for you.

What's So Special about 1.5 Degrees?

Buckminster Fuller once asked a very young Norman Foster, "How much does your building weigh?" Usually in architecture, the only person who cares about this is the engineer designing the foundations, part of a building that is buried in the ground and never seen again. But it is critical; it determines whether a building stays up or falls over. Numbers matter.

I am an architect and a writer, not a climate scientist, so I do not want to get into the details of what is causing climate change. I am assuming that people who are reading this already know, but if not, lots of hefty scientific reports from the IPCC and others and many terrific recent books do this very well, like Eric Holthaus's *The Future Earth* or Peter Kalmus's *Being the Change*, which expresses his very personal and somewhat emotional point of view. I am not an emotional person (my wife and kids will confirm this); I like numbers. Targets. Things I can measure, weigh, quantify. I really like spreadsheets, all those numbers laid out for anyone to see. When my late father retired many years ago, I got him a PC with Lotus 123 on it; he would deconstruct corporate financial statements for fun and could proudly tell you how much change he had in his pocket by looking at his screen. Perhaps I got it from him.

That's probably why I am so attracted to the 1.5-degree lifestyle; I can measure this. Sort of. But I will try to explain where the numbers come from.

The 1.5-degree *target* comes from the 2015 Paris Agreement, where nations committed to "holding the increase in the global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above preindustrial levels." The Paris Agreement is based on the scientific consensus, but it is a policy document, a treaty, that includes numbers that the signatories can verify: a target (the temperature), a path to get to the target (the carbon budget), and a schedule.

The first challenge was to figure out what happens at various degrees of warming, and what target to aim for. Using historical data and "multiple forms of knowledge, including scientific evidence, narrative scenarios and prospective pathways," the IPCC estimated the effects on the climate from warming at various temperatures. The 2015 Agreement settled on 2°C as the target, but in 2018 the IPCC released a special report that showed what a difference half a degree makes: 2.6 times as many extreme heat events, twice as much species loss, reductions in crop yields by half.

Half a degree doesn't sound like much, but we are not starting our measurements now, but back at the preindustrial levels of 1880, and we are already at about 1 degree, so from our standing start now, it is double the temperature rise. It is a big enough difference that there was concern about "tipping points"[2] that occurred below 2 degrees, with particular worry about sea ice and permafrost collapse. But even at 1.5 degrees, we've got trouble.

Even at 1.5 degrees, we face extreme changes, with more extremely hot days, droughts in some areas, and heavy rains in others. There will be impacts on biodiversity and ecosystems: in the north, the transformation of the boreal forests, tundra, and permafrost; changes to the ranges of marine species and reduced productivity of fisheries.

Even at 1.5 degrees, human health is affected by heat-related mortality, by increased air pollution, by geographic spread of diseases like malaria and dengue fever.

Even at 1.5 degrees, there may be reductions in crop yields and food availability. Livestock may also be challenged by changes in food supply and disease.

The Carbon Budget

The *budget* starts with the "simple idea," as Zeke Hausfather of Carbon Brief calls it, that "the amount of global surface temperature warming tends to increase proportionately with the total cumulative emissions of CO_2."[3] The next challenge was to calculate how much could be emitted before the specified temperature rise was likely to occur. This was, again, complicated science given that the oceans and forests absorb so much carbon and so many variables have to be

separated out to determine the quantity of anthropogenic emissions. As Bard Lahn notes, it is "a concept explicitly aimed at mediating between scientific knowledge and policymaking."[4] He continues in his "History of the Global Carbon Budget":

> Alongside its scientific merits, therefore, the main strength of the carbon budget concept was seen by scientists to lie in its ability to simplify and accentuate certain choices and challenges facing policymakers. It was based on this line of reasoning that the IPCC AR5 report unequivocally concluded that "the simplicity of the concept of a cumulative carbon emission budget makes it attractive for policy."[5]

The carbon budget measures CO_2e, or carbon dioxide equivalents. CO_2 is not the only greenhouse gas; others include methane and the fluorocarbons like refrigerants. Some have many times the effect of CO_2 and are converted into equivalents based on their Global Warming Potential (GWP); methane, for example, has a GWP 25 times that of CO_2, so 1 kilo of methane is counted as 25 kilos of CO_2. Time is also a factor; CO_2 stays in the atmosphere almost forever, but methane breaks down over about 20 years.

Finally, there is the *schedule*, with the long-range target of the end of the century, a mid-range target of 2050, and staring us in the face, the short-term target of 2030. To keep the temperature rise under 1.5 degrees at the end of the century, we cannot have cumulative emissions of more than 420 gigatonnes; according to the latest UN Environmental Programme emissions gap report, global greenhouse gas emissions in 2019 were 52.4 gigatonnes. To stay under 1.5 degrees, we have to start reducing that to 25 gigatonnes by 2030 (less than half of what they were before the pandemic) and essentially to net zero by 2050.

Meanwhile, back in the real world, emissions were rising at 1.4% per year prior to 2020. That is the scale of the challenge we face: we have to seriously, dramatically, radically, and painfully reduce the amount of greenhouse gases we emit to keep under that carbon budget. That's a global drop of 7.9% per year. That doesn't sound so dire, until you realize that the COVID-19 pandemic—when factories

closed, flights were grounded, and nobody was driving, an almost total shutdown of the global economy—is estimated to have caused a global drop of CO_2 emissions of about 7%.

It also doesn't mean that we can all talk about this until 2030, we have to start now. Climate scientist Kate Marvel said it best (three years ago!):

> You may have heard that we have 12 years to fix everything. This is well-meaning nonsense, but it's still nonsense. We have both no time and more time. Climate change isn't a cliff we fall off, but a slope we slide down. And, true, we've chosen to throw ourselves headlong down the hill at breakneck speed. But we can always choose to begin the long, slow, brutal climb back up.[6]

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Equity, Fairness, and the 2.5-Tonne Budget

The world has a carbon budget for 2030 and 2050, as do nations in their Nationally Determined Contributions submissions that are part of the Paris Agreement. Individuals do not, and they vary widely; the average per capita consumption emissions for an American are about 17.6 tonnes per year, while an average Indian emits only 1.7 tonnes. Meanwhile, the richest one percent of the world may have an annual footprint as high as 75 tonnes of "lifestyle" emissions, or those emissions directly attributable to what we as individuals do and how we live.

Max Roser of *Our World in Data* points out that half the world is emitting far too much carbon, but that the other half suffers from energy poverty: "Those that do not have sufficient access to modern energy sources suffer poor living conditions as a result."[1] Any fair and equitable division of the carbon budget has to allow headroom for those suffering from energy poverty to get a little more of it.

At the other end of the spectrum, when I fly to Portugal or drive my Subaru, I may get the benefit and pay the cost in dollars, but everyone in the world is affected by the carbon emissions. So a logical, equitable, and reasonable place to start is with an average carbon budget for everyone on the planet.

Lifestyle emissions are not just individual but the things that we share a piece of, from how we organize our society and our institutions. They are a big chunk of global emissions; a 2009 study concluded that "on the global level, 72% of greenhouse gas emissions are related to household consumption, 10% to government consumption, and 18% to investments."[2]

The next bit of math is also straightforward; we have a carbon emissions budget target of 25 gigatonnes in 2030 to stay under 1.5 degrees of warming. If you divide that by the world's population, the result is roughly 3.4 tonnes per person per year. Multiply that by 72% and you get a 2030 target lifestyle footprint of 2.5 tonnes of CO_2e per person per year. That's the 1.5-degree lifestyle.

Many will argue that expecting someone in the United States to lower their consumption to a worldwide average is crazy socialist talk, and that it will never happen. They are probably right, but it is a place to start. After all, we are not talking about money or status here, we are talking about carbon. The rich man can park his Tesla under his Tesla Solar Roof and charge his Tesla battery and have a very expensive but low operating carbon lifestyle. And frankly, it is not an unrealistic or unreasonable target.

I learned of the actual term "1.5-degree lifestyle" from Rosalind Readhead, who pointed me to a study from the Institute for Global Environmental Studies (IGES), Aalto University, and D-mat titled *1.5-Degree Lifestyles: Targets and Options for Reducing Lifestyle Footprints*. It provided the fundamental underpinning of this project; as noted in the introduction:

> Lifestyles of individuals consist of various elements of daily living including consumption relating to nutrition, housing, mobility, consumer goods, leisure, and services. The consumption-based accounting adopted in this study attributes GHG emissions at production stages as indirect emissions caused by household consumption. This provides a different angle from the footprint of specific products, organizations, cities, or countries, which have been the foci of most footprint studies so far.[3]

The lifestyle study authors acknowledge that this cannot be achieved by individuals on their own; much of it is structural and locked-in. Our world is designed around consumption of energy, and it is hard to break this pattern.

> Although this study quantifies impacts of GHG emissions from perspective of lifestyles and consumption by households, it does not mean that individual households are solely responsible

> for reducing the footprints. The sheer magnitude of change required for a shift towards 1.5-degree lifestyles can only be achieved through a combination of system-wide changes and a groundswell of actions from individuals and households.[4]

So much of our consumption is "baked in" to the way our economies are set up; we still need political action and societal change. But that doesn't give us carte blanche to blame the system and not take personal responsibility.

The Lifestyle Domains

The 1.5-degree lifestyle report studied people's lives in great detail in four countries, looking at six "lifestyle domains": nutrition, housing, mobility, consumer goods, leisure, and services. After studying the results in all six sectors, the authors concluded that about 75% of the impact fell within the hotspots of nutrition, housing, and mobility, basically what we eat, where we live, and how we get around.

I was not convinced of this; in my own situation, I have found that "communication and information" in the services category are in fact one of my biggest sources of emissions because I spend all day on my computer connected to the internet. My consumption of expensive Apple consumer goods turns out to eat up a lot of my carbon budget too, so we will look at all six sectors not just the hotspots.

The divisions are also somewhat arbitrary. It is also not so simple to think of them as six separate categories. I will show that housing and transportation are two sides of the same coin and that nutrition is affected by both, as are consumer goods. The North American family tends to drive an SUV to the big-box store once a week for groceries, putting much of them in a giant fridge. The urban Italian might have a tiny fridge, picking up the fresh fixings for dinner on the way home. The Japanese worker might get off the subway and find themselves surrounded by vast multi-level supermarkets. They don't buy the giant tub of ice cream; it's heavy, it might melt, and they don't have a freezer big enough for it. So dividing everything into six lifestyle domains is not really accurate; it's all connected and interrelated, and it is all a rough approximation.

However, the six lifestyle domains are a good place to start, a way to break things down into measurable categories.

Three Approaches to Reducing Our Footprints

The study authors describe three approaches we can take in each category to reduce our footprints, an extremely useful division.

Absolute Reduction

Absolute reduction "means reducing physical amounts of goods or services consumed, such as food, kilometers driven, energy use, or living space, as well as avoiding unsustainable options."

Simply put, just using less. This is the "less is more" and "living with less" approach that I have called *sufficiency*, asking the question How much do we really need?

Efficiency Improvement

Efficiency improvement "means decreasing emissions by replacing technologies with lower-carbon ones while not changing the amount consumed or used, such as in energy-efficient agriculture, vehicles, or housing."

This has always been the standard approach, improving the efficiency of everything that we make and use. But it has failed us: as cars got more efficient, they turned into SUVs; as houses got more efficient, they got bigger.

Modal Shift

Modal shift "means changing from one consumption mode to a less carbon intensive one, such as in adopting plant-based diets, using public transport, or renewable energy for electricity or heating."

This is perhaps the most interesting and important approach: doing things differently. Like absolute reduction, it is closely related to the concept of sufficiency: why drive a car when you can ride a bike, or why use a dryer when you can string a clothesline? Modal shifts also give us the greatest carbon emission reductions and the greatest opportunities.

Doing the Math

The challenge here is to live a lifestyle that emits less than 2.5 tonnes of carbon dioxide or CO_2 equivalents per year; the worldwide average is 4.8 tonnes, although there is not much point in comparing

per capita emissions from production. Why are Chinese emissions per capita nearly four times as much as India's when they are both populous, rapidly developing countries? It's because the numbers are based on dividing the emissions produced by each nation by the population, and China is making so much stuff that we consume. Really, they are *our* emissions that we have offshored to China. Why are Canadian emissions lower than US emissions? The energy mix is cleaner, with more hydroelectric power. No thanks at all to the greener habits of Canadians.

On the other side of the ledger, we have to estimate the carbon footprint of what we do and what we eat. I learned from Rosalind Readhead about Mike Berners-Lee's 2011 book *How Bad Are Bananas*, which tried to put a real number on many items found in our everyday lives. But he admits right up front that it is a rough guide: "The carbon footprint, as I have defined it, is the climate change metric that we need to be looking at. The problem is that it is also impossible to measure." He also admits that some of his numbers are flaky: "Sometimes my calculations and assumptions are highly debatable, but I've included them because I think that just going through the thought process can be a useful reflection on something that matters."[5] But it is still a worthwhile exercise:

> Let me be emphatic that the uncertainty does not negate the exercise. Real footprints are the essential measure, and nothing short of them will do. The level of accuracy that I have described is good enough to separate out the flying from the hand drying.[6]

In the ten years since Berners-Lee wrote the book, a lot more research has been done and a much greater understanding gained about the importance of embodied carbon.

I have also relied heavily on the work of Hannah Richie and the Our World in Data[7] team out of Oxford University, who also build on the work of J. Poore and T. Nemecek published in 2018, who "consolidated data on the multiple environmental impacts of about 38,000 farms producing 40 different agricultural goods around the world in a meta-analysis comparing various types of food production systems."[8] In a few years, this might all be significantly easier; Unilever

recently announced that it is going to calculate the footprint of all of its products, and other companies will likely follow. It might soon be as easy to measure the carbon footprint of the stuff you buy as it is to read the nutrition label on a cereal box or the Energy Star label on a new TV. Right now, it's not.

Table 2.1. The six lifestyle domains from the 1.5-degree lifestyle report

	item		source	unit	CO2/unit	estimates/day	19-Jun
	Total		daily allowance	grams	2,500,000	6,849.32	6,849
	Notes						even a 15HP "green" motor isn't very fuel efficient
Media	newspapers	daily	berners-lee		800	400.00	
	newspapers	weekend	berners-lee		1,800	900.00	
	Data	variable	JC Mortreux	gms/GB	123	62.00	
	Data	revised	finnish study and othe	gms/GB		10.00	
Transportation	e-bike		calculated	grams/km	17		
	streetcar/subway		JC Mortreux	grams/km	47		
	bus						
	Subaru			grams/km	160		1600
	Aviation						
	outboard on boat			grams/min	214.67		1288
Water heating	Shower		berners lee	each		600.00	
	Bath		berners lee	each		1,100.00	
Food	veg breakfast	est	JC mortreaux			350.00	350.00
	veg lunch	est	JC mortreaux			500.00	500.00
	veg dinner	est	JC mortreaux			500.00	500
	beef		Omni	serving		7,200.00	7200
	pork		Omni	serving		950.00	
	chicken		Omni	600		800.00	
	fish		Omni	serving		1,100.00	
	cheese		Poore	per 100g		1,100.00	
	Milk		Poore	per liter		3,200.00	
	snack					300.00	
Alcohol	red wine		food climate research	glass		275.00	
	beer		food climate research	pint		330.00	330
	martini		food climate research	double		123.00	
Basics			fixed operating (gas, electric, water)				105
			fixed embodied carbon (apple)				
							11,873
							-5,024
Basics	gas heating	fixed	calculated			1,100.00	1.73
	electricity	fixed	calculated	grams/kwh	24	105.00	
						0	
embodied	iphone	embodied	apple	kg/LCA	80	73.06	
	ipad	embodied	apple	kg/LCA	119	108.68	
	macbook	embodied	apple	kg/LCA	174	158.90	
	watch	embodied	apple	kg/LCA	40	36.53	
	Subtotal Apple products					377.17	
	TV	embodied	diane saxe	kg/year	250	684.93	
Total repeated						1,205.00	

It may not be perfect, but using the data I could gather, I started building a spreadsheet based on the six lifestyle domains from the 1.5-degree lifestyle report. With food, I quickly found that breaking up every single meal into its components was onerous and not worth the trouble. A meal without meat or dairy almost always came out about the same, so I took an approximate number and would add a factor for different foods that had a dramatic impact on the footprint. For housing, it was almost impossible to separate my own impact from the rest of the family, so I calculated a general operating cost for the house and would add baths and showers, because they have an impact I can measure independently. If there was anything that really stood out (like a takeout Chinese food dinner), I would put it in notes.

As the project evolved, the accuracy improved as I got more information. New tools and resources continue to show up, and the data continue to be revised. There is more detail about what one can learn from the data in each section, each lifestyle domain that follows.