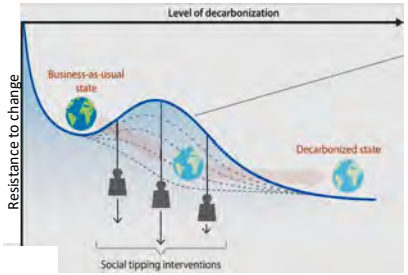
You Have The Power To Create An Epidemic of Climate Action



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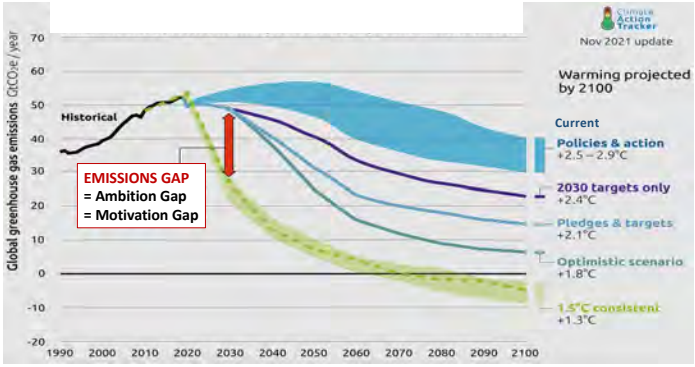
1

The bad news: We are not cutting emissions fast enough



We need an EPIDEMIC OF ACTION

2

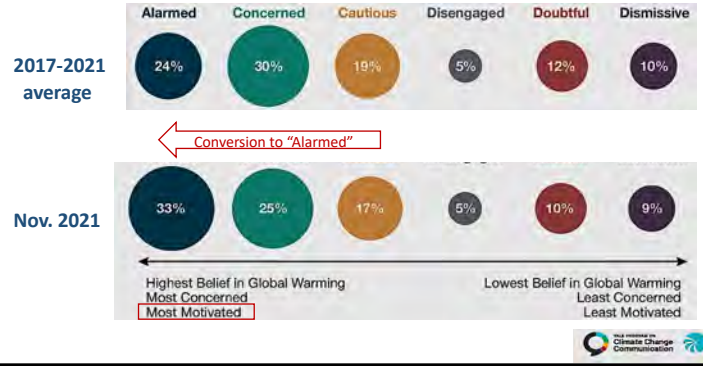
The Good News: There is plenty of room for optimism

1. More people are starting to care.
2. There's more help for people who want to act but aren't sure how.
3. More really good ideas & solutions are appearing
4. We see how people power can change the projected outcomes.

We can cause the EPIDEMIC OF ACTION we need

3

More people are starting to care: Global Warming's Six Americas



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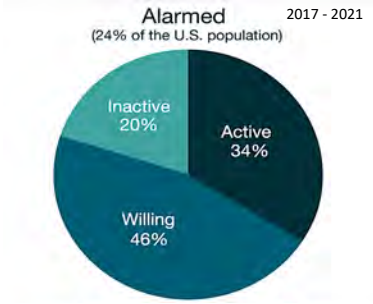
Most of the "Alarmed" group are either active advocates or willing to become active

Majority of the Alarmed are already active in advocacy or are willing to become active

Now, how to further motivate the "Willing" & "Inactive"?



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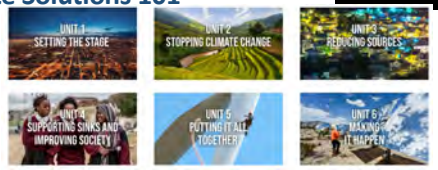
More help for people who aren't sure what to do

Increase your knowledge:

Project Drawdown- free online course

Climate Solutions 101

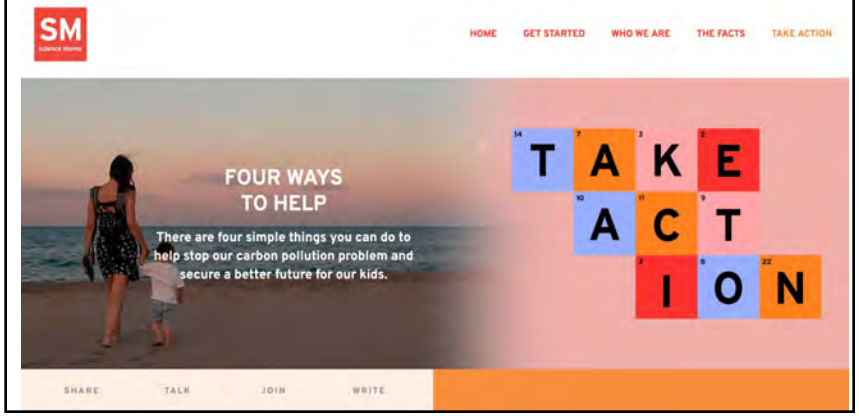


Many other resources on the Drawdown website!

https://drawdown.org/climate-solutions-101

6

Not sure what to do? Get ideas from the Science Moms



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Want daily support & motivation?

8

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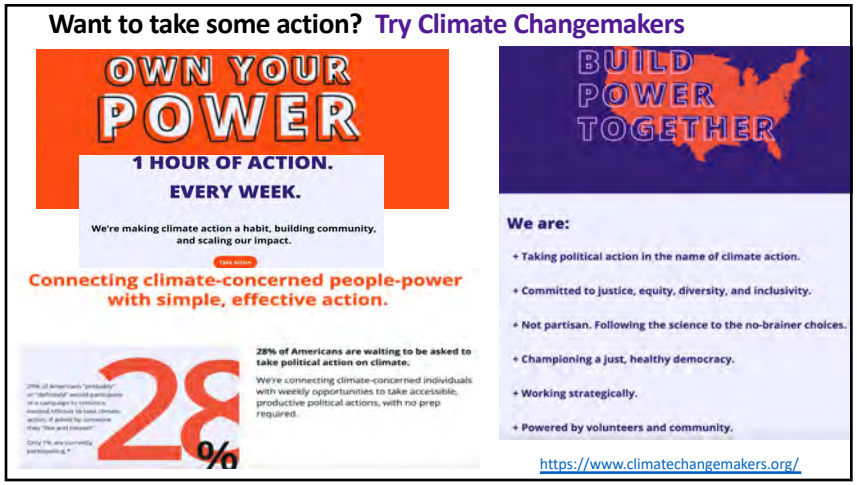


10

More really good ideas & solutions

#1 Electrify Everything!

Burning fossil fuels to generate electricity & run vehicles is VERY inefficient

60% of the energy from the coal or gas is wasted as heat-- only 40% becomes electricity.

https://www.eia.gov/todayinenergy/detail.php?id=44436

Most of the energy in the fuel lost as heat!

- **Electricity generation w/ coal or natural gas:** ~40% efficient
- **Powering vehicles with gasoline:** 12-30% efficient

https://www.fueleconomy.gov/feg/atv.shtml

70-80% of the energy gasoline lost as heat.

<30% left to move the c

All-electric saves $$$$, because no more conversion

- **EV/mile:** 3-4c vs 14-20c for a gas vehicle

https://avt.inl.gov/sites/default/files/pdf/fsev/costs.pdf

11

Electrify Everything!

Even better when we can power our cars, buildings & factories with clean renewable electricity from wind & solar

- **America's energy needs will be cut in half!!**

Saul Griffith, Electrify

- ***Bonus:*** cleaner air, cleaner water, better health!

No conversion loss!! Super efficient!

Lots more information at www.rewiringAmerica.org

12

Electrify Everything!

Even better when we can power our cars, buildings & factories with electricity from wind & solar

- ***Bonus:*** no need for oil, gas from Saudi Arabia, Iraq, Iran, Russia….

"Heat pumps for peace & freedom"
Bill McKibben, 2022

Use American manufacturing and labor to build and install heat pumps in Europe to free them from need for Russian oil & gas.
-manufacturing contracts!
- job training!

No conversion loss!! Super efficient!

13

People Power & Social Tipping Points: Faster than you think

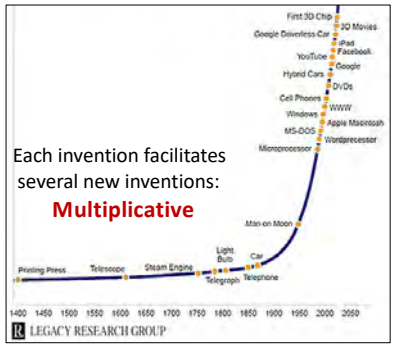
Our perception: Everything is moving at a linear (constant) pace

The reality: Many processes are exponential (multiplicative), not linear

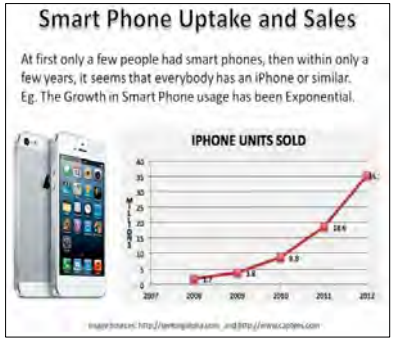
14

Examples: Adoption of new technology

Exponential Growth in Technology



Each invention facilitates several new inventions:
Multiplicative

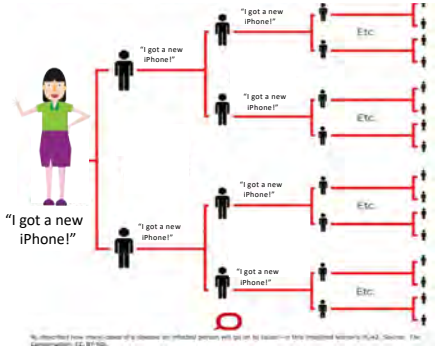


Behaviors can also be multiplicative

15

Multiplicative processes are surprisingly fast!

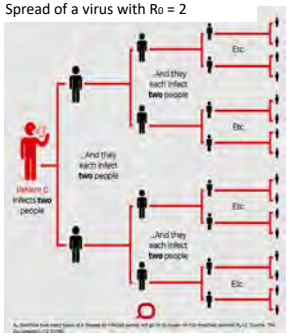
How adoption of a new product or behavior spreads

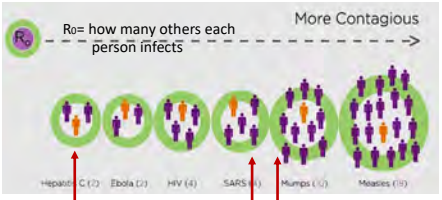


16

Look familiar? Diseases also spread multiplicatively

Spread of a virus with R0 = 2





1.4 – 2.4 COVID, *original*

5.8 COVID, *Delta*

7.0 COVID, *Omicron*

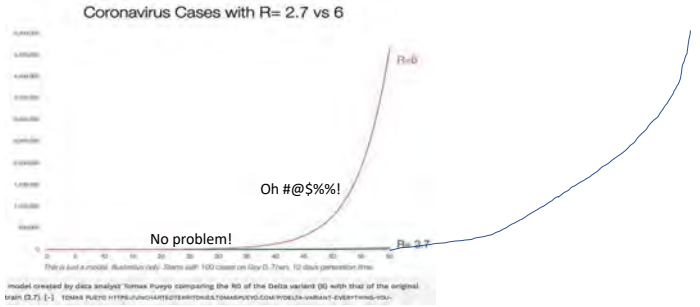
COVID-19

- Initially each person infected about 2 others,
- With Delta, each person infected 5.8 others
- With Omicron, each person infects about 7 others

https://www.healthline.com/health/r-naught-reproduction-number#conditions-it-measures

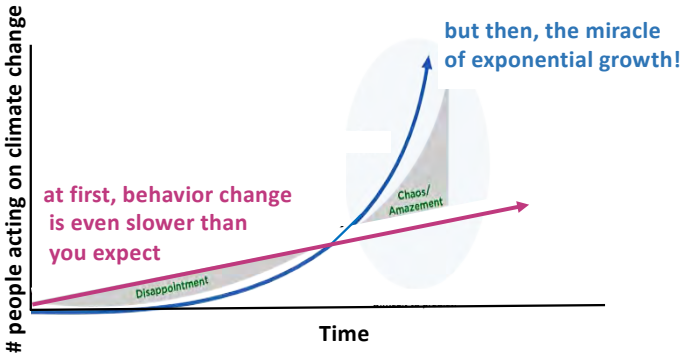
17

Higher R_0, faster increase



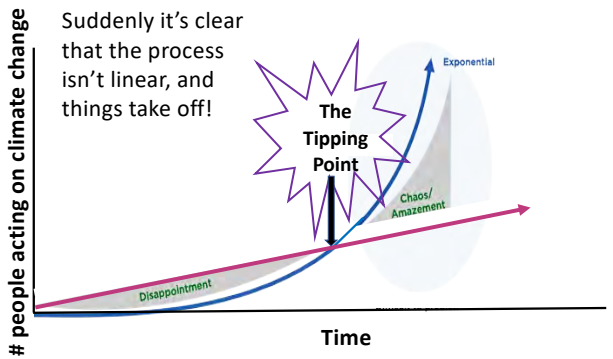
18

Phases of behavior change: From disappointment to amazement



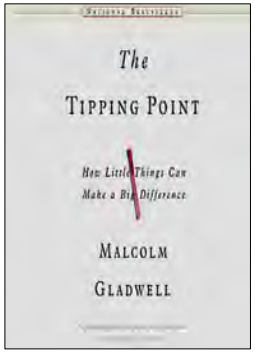
19

Then, the Tipping Point!



20

The Tipping Point



" The world of the Tipping Point is a place where the unexpected becomes expected, where radical change is more than a possibility. It is … a certainty…

…what can we do to deliberately start and control positive change of our own??"

Malcolm Gladwell, 2000

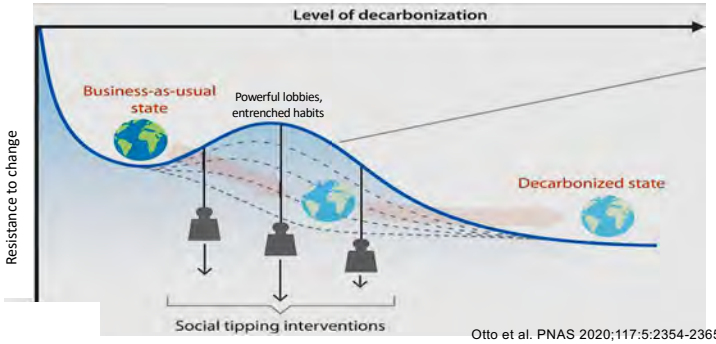
21

What Affects The Tipping Point?

- **The law of the few** (some people have huge R_0)
  - people with large social networks, extra knowledge, persuasive manner
- **The stickiness of the message** (getting people to notice and remember)
  - Rosie the Riveter, Victory Gardens, "We Can Do It!"
- **The power of context** (behavior depends on the environment)
  - As climate worsens, more people become alarmed
  - Social norms can change

22

An epidemic of climate action will counteract entrenched resistance to change

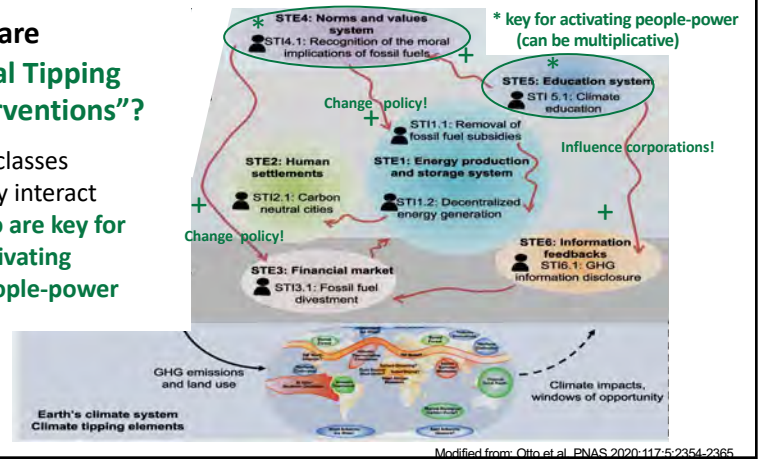


Otto et al. PNAS 2020;117:5:2354-2365

23

What are "Social Tipping Interventions"?

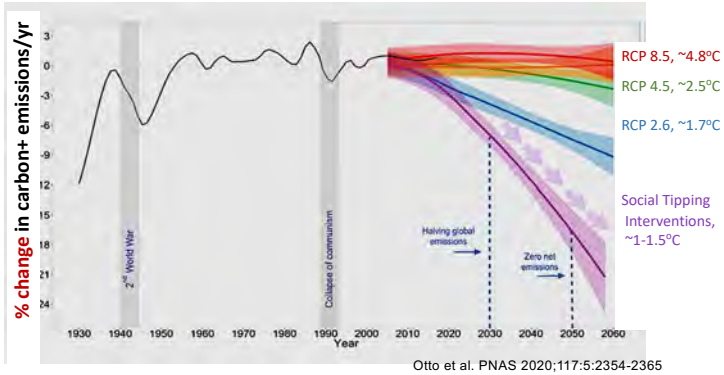
- six classes
- they interact
- two are key for activating people-power



Modified from: Otto et al. PNAS 2020;117:5:2354-2365

24

The Social Tipping Interventions can close the emissions gap



Otto et al. PNAS 2020;117:5:2354-2365

25

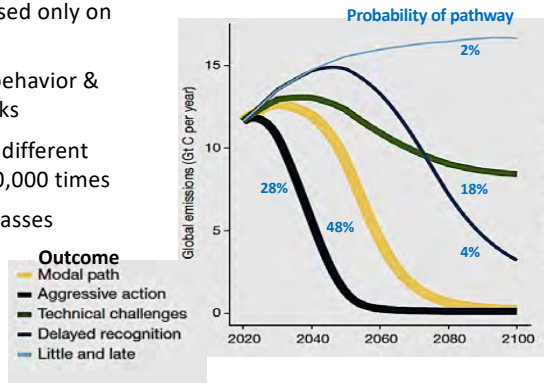
New models show the power of behavior

-Typical climate models based only on the physical world

-These models add social behavior & physical↔ social feedbacks

- Used accepted values for different elements, ran model 100,000 times

- Results clustered into 5 classes

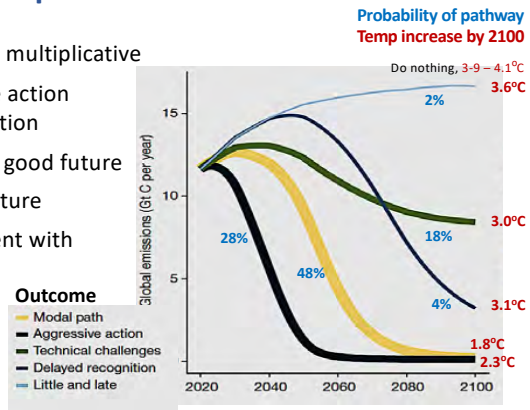


Moore et al. Nature 2022. https://doi.org/10.1038/s41586-022-04423-8

26

New models show the power of behavior

- Social behavior tends to be multiplicative
- Feedbacks increase climate action & speed emissions reduction
- 48% of model runs led to a good future
- 28% led to a possibly OK future
- 22% lead to future consistent with current commitments



Moore et al. Nature 2022. https://doi.org/10.1038/s41586-022-04423-8

27

Who has the social power to start the tipping?

People with high levels of impact on others & governments

Social power depends on combination of income & "agency"

	Percent of global population		Percent of life-style CO_2 emissions	The level of human agency
Socio-metabolic underclass	20%		2.5%	Extremely low
Socio-metabolic energy poor class	30%		7.5%	Low
Socio-metabolic lower class	30%	Family of 4 in US:	22%	Moderate level of collective agency
Socio-metabolic middle class	10%	~$45,000/yr	19%	Moderate to high
Socio-metabolic upper class	9.5%	~ $75,000/yr	35.4% Responsible for	Very high
Super-rich	0.54%	~ $400,000/yr	13.6% 49% CO_2 emissions	Extremely high

We can speed up change by influencing & mobilizing the people with high social influence, also most responsible for the problem

Poverty level in US: $32K/yr
https://www.washingtonpost.com/graphics/2018/business/global-income-calculator/

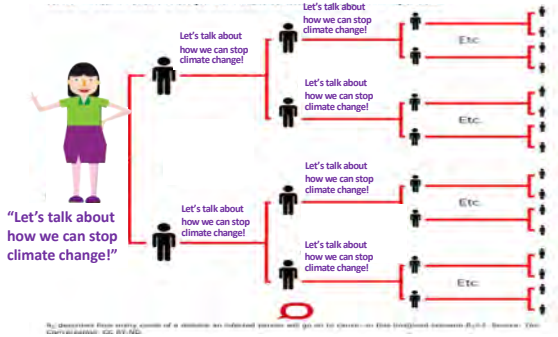
28

Social influencers show up and make a difference

29

What's your climate action R_0?

How many people can you "infect" with the motivation for action?



30

31