

Our home is burning. Rapid climate change is destabilizing our world.

It seems our emissions will not fall quickly enough to avoid runaway warming and we may

soon hit tipping points that will lead to the collapse of ecosystems and our civilization.

While scientists, activists and much of the younger generation urge action,

it appears most politicians are not committed to do anything meaningful

while the fossil fuel industry still works actively against change. It seems humanity

can't overcome its greed and obsession with short term profit and personal gain to save itself.

And so for many the future looks grim and hopeless. Young people feel particularly

anxious and depressed. Instead of looking ahead to a lifetime of opportunity they

wonder if they will even have a future or if they should bring kids into this world.

It's an age of doom and hopelessness and giving up seems the only sensible thing to do.

But that's not true. You are not doomed. Humanity is not doomed.

Despite the seriousness of the situation, for years positive trends have accumulated and there

is finally some good news and a clear path towards our collective climate goals. Welcome to our Ted

talk, please watch this video to the end – check out our detailed sources afterwards to learn more.

Ok! Let's start with the scariest things.

Canceling the Apocalypse

Some of the most widely shared stories about Climate Change are that it is an existential

threat – the end of human civilization and maybe even our own extinction event. And

that it is basically unavoidable now. But what does science actually say?

As of 2022 the global average temperature

has risen 1.2 degrees celsius compared to preindustrial times.

Limiting warming to 1.5 degrees was the most ambitious goal of the Paris agreement

but we are not likely to meet it. Already with the warming we have today, hot places will get hotter,

wet places wetter and the risk and strength of extreme weather events increase significantly.

Warming beyond 2 degrees makes all of these extremes more extreme, extreme weather events

more common with more ecosystems under major pressure. Some will not survive.

At 3 degrees significant parts of earth, especially in developing countries,

might become unable to feed their populations. Heat waves will become a major global issue.

Large scale natural systems will break down. The scale and frequency of hurricanes,

fires and droughts will further increase and cause trillions in damage. Poor regions and subsistence

farmers will be hit the hardest. Hundreds of millions of people will need to leave their homes.

In the 4-8 degree range the apocalypse begins – the hothouse earth, where things change

so quickly, that it may become unable to support our large human population

and billions may perish, leaving the rest on a hostile alien planet.

A decade ago, for lack of action and perspective, many scientists assumed a 4+ degree world was our

future and a lot of public communication focused on exactly this future path.

Luckily, it's much less likely that this version of the apocalypse will come to pass.

If current climate policies stagnate, we're likely to end up with warming 3 °C by 2100.

Which is scary and tragic and far from acceptable. But this is actually good news – how? In the last

decade, we have seen enough progress that most scientists now think that we have likely avoided

apocalyptic climate change. Although substantial

risk still remains, we can pretty confidently say

that humanity isn't going anywhere. Civilization might have to change, but it will endure.

Which begs the question: What has changed over the last ten years and is this really good news?

The Invisible Shift

You probably know this story: The last decade has been an immense

failure for climate policies around the world.

Instead of passing comprehensive, binding bills that would meaningfully reduce emissions

we mostly did: nothing. A lost decade with one negative record after another. And this story

is true and it is one reason why so many people are giving up. But it is not the whole picture.

Despite the lack of climate policies and ongoing

lobbying and misinformation campaigns from the fossil fuel industries,

there was a lot of progress. Let us go back 20 years to see why today is so different:

Between 2000 and 2010, greenhouse gas emissions had grown by 24%,

three times as much as the increase in the previous decade. Subsidies for fossil fuels

aimed at promoting economic growth, caused a colossal increase in their consumption.

For emerging countries like China and India coal was the cheapest fuel for growth

while rich countries showed little interest in changing their ways.

In 2010, many people expected these trends to continue. Instead of decreasing fossil

fuel use its consumption would rise. The next decade turned out to be very different though.

First of all, coal burning in emerging countries like India has been slowed down or leveled off,

like in China. And it has plummeted in rich countries like the UK and US.

Since 2015 three-quarters of planned coal plants have been canceled and 44 countries

have committed to stop building them. Ten years ago that would have seemed like wishful thinking,

but today we can say with confidence: Coal is dying. It is just not competitive anymore.

Because technologies we thought would remain expensive matured rapidly instead. Renewable

electricity has shown explosive progress. In a mere decade wind energy got three times cheaper.

Solar electricity is now ten times cheaper! Cheaper than coal or any other fossil-fuel burning

power plant, despite the massive subsidies and global infrastructure propping up fossil fuels.

25 times more solar and nearly 5 times more wind electricity is produced today compared with ten

years ago, which is of course not nearly enough. One of the biggest obstacles is the variability

of their power output. Renewables need a lot of energy storage to be a reliable power source,

like expensive batteries. Amazingly battery prices have decreased by 97% in the past 30 years,

60% in the last decade alone – which will serve all kinds of green technology like electric cars.

You might say, well that's great but didn't Kurzgesagt's last climate video

say that while wind and solar are nice, we need nothing less than a fundamental transition of

our global industrial system? Yes but luckily the shift goes beyond just the energy sector.

Throughout the economy people are working on improving current technology to lower emissions.

We're rapidly replacing old incandescent light bulbs with LEDs that are ten times more efficient.

In 2020 about 7 out of 10 new cars in Norway were electric

or hybrid – In 2021 it was already 8 out of 10. And the list goes on,

from electric heating and better insulation to ships traveling at half speed to save fuel.

Wherever you look you find scientists,

engineers and entrepreneurs trying to

solve some aspect of climate change.

Enormous amounts of human ingenuity are being brought to bear on this problem

with more and more people deciding to prioritize preventing rapid climate change. Solutions for

low-carbon production of cement, electronics and steel, and innovations like artificial meat and

carbon capture are in the works. The more of these technologies we deploy; the cheaper new

and better technology gets. The cheaper they get, the more people use them. And so on.

We can see the impact already:

The domestic CO2 output of rich countries is falling without a major recession.

Since the year 2000, the EU as a whole shows a 21% decrease, Italy 28%, the UK 35%, Denmark 43%.

But the best news may be that emissions are no longer necessarily coupled with economic growth.

In the past this was an inconvenient truth – to get richer, you had to emit more. Which

led to fierce arguments between developing and developed countries about the fairness

of reducing emissions while their populations were still poor. But in the last decade we have

seen that it IS possible to increase prosperity without increasing emissions. Emissions in the

Czech Republic dropped 13% while their GDP grew by 27%! France reduced their CO2 emissions by 14%

while increasing GDP by 15%! Romania saw an 8% decrease and 35% growth! And even the

largest economy on earth - the USA - decreased emissions by 4% while growing their GDP by 26%!

Some of you may call this a numbers trick. That rich countries are just exporting emissions to

poorer nations by moving the dirty parts of their economies like manufacturing. But even

when we account for all of our imported goods, the numbers still look positive! It's no longer

a matter of having to choose between prosperity and the climate as it seemed to be a decade ago.

Developing countries will profit from that because as rich countries pay for

the expensive development of green technologies, they can adopt them more cheaply. They can skip

most of the high emission phase that today's rich countries went through.

We are at the point where not decarbonizing is a bad business decision.

And we haven't even really talked about solutions like carbon capture.

In 2000 it didn't really exist. In 2022 that technology does exist and costs around \$600 to

remove one ton of CO2 from the atmosphere. As investment pours in and the technology matures

and begins to scale, it is likely that these costs will plummet over the next few decades.

So everything's fine then? Well let us not get carried away here - all of these processes are

great but not nearly fast enough. We are still doing way too little and technology will not

magically solve everything. We need to use fewer resources and use them longer, design

consumer goods that are repairable and durable and decrease our energy requirements. We need

much better infrastructure, agriculture and cities. It will still be hard work,

especially to get the right policies passed and enacted.

But for the first time ever,

there are a few trendlines pointing solidly in the right direction.

And now imagine – If all of this was achieved without proper financial and political support

and despite fossil fuel lobbying – just think what humanity can do

when climate change finally gets the political attention and funding it needs.

So is it ok to feel hopeful again? The situation is still dire and serious,

so what is the point of focusing on this side of the story?

The Trap of Hopelessness

Climate change can feel overwhelming and make your future seem bleak. The sadness

and hopelessness that many people feel is real and very destructive because it causes apathy.

Apathy that is only serving the fossil fuel industry that is still delaying

change however it can. In a sense they have weaponized hopelessness.

We are now in phase 4 in the public debate about rapid climate change action:

Phase 1 was: Climate Change is not real.

Phase 2 was: Climate Change is real but not caused by humans.

Phase 3 was: Climate Change may be caused by humans but it's not that bad.

Phase 4 is: Climate Change is no longer avoidable. We are doomed and it doesn't matter what we do.

If we want the world to change, we first need to believe that change is possible. And we have

an abundance of evidence that it is. Changes to our industrial system are gaining momentum,

technology gets better and cheaper, climate change has become a key issue in most free elections.

As more and more younger people move into influential positions,

they prioritize climate change and work on new solutions. In 2022 most governments not

only acknowledge it but set their own net zero goals – in democratic and autocratic countries.

The results of years of fighting a steep uphill battle are now clearly visible. The

pressure needs to keep increasing, to make sure that the promises made today are actually kept!

Climate doomerism is the equivalent of giving up even though you can still prevent not just the

worst case but also mitigate most of the bad things, make changes in time to adapt better

and prevent the poorest from suffering. That is why hopelessness and apathy are so dangerous.

If the last, in many ways wasted decade, has shown anything,

then it's that progress is being made and that dire scenarios are just predictions – not our

sealed fate. As of 2022, based on current global policies, we will end up in a 3 degrees world.

Now it is our job to yet again prove the predictions wrong – despite how serious and

urgent things are. To turn that 3 degrees into a 2 degrees and then see where we can go from there.

For that we need hope. And we hope we gave you that today, at least a little. That you feel

that things are serious but also that you have a future. That you can have kids without dooming

them or the world. That taking action today is worth it. And that despite powerful industries

doing everything to delay it, society is changing. If you need a more concrete roadmap of what you

can do personally – we are working on a follow up video to talk about that in greater detail.

Doomerism, inactivity and weaponized hopelessness

are the only trump cards left for the powers that don't want change. Don't let them win.

We are still excited about the future. And we think one of the best things

you can do to keep your optimism and curiosity up is to learn new things.

If you don't know where to start, our friends from Brilliant.org have got you covered.

Brilliant makes math and science accessible and fun with a hands-on approach.

More than 60 interactive courses like „The joy of problem solving“ or

„Scientific thinking“ give you the tools to crack problems in math, science and computer science

that are all designed to get your intuition going and give you plenty of aha-experience.

Lessons will surprise you with storytelling, code-writing tasks and

interactive challenges – basically using whatever

keeps you interested and entertained. All the content is interactive: instead of just reading and listening to explanations, you drag and drop, manipulate shapes and diagrams, make selections and answer questions.

This way you learn something almost without you noticing it. And tiny step by step you'll

build up your long-term understanding of science and get closer to your STEM goals.

To start looking at the world of science from a different perspective, go to [Brilliant.org](https://brilliant.org)

SlashNutshell and sign up for free. And there's an extra perk for kurzgesagt viewers:

the first 200 people to use the link get 20% off their annual membership,

which unlocks all of Brilliant's courses in math, science, and computer science.

At kurzgesagt we love to create things that seem impossible at

first – Brilliant can help you acquire the skills to do that.