

EPISODE 1 – FERDINANDO COTUGNO

“Climate Change: Shaping the Future Beyond Fear”

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Opening teaser

What does this mean? It means that we have a precious window of opportunity, and it is narrowing. It means we've done a good job so far, and we should recognize that, but there's still more to do.

Teaser:

Since 1893, we've been telling the story of a changing world, one Bollettino at a time. Through revolutions and innovations, people and ideas. Today, that story continues in a new format: six episodes, six voices, and six themes defining our present. We approach them with the same spirit as always: to better understand the present, so that we can better face the future.

In this episode, Ferdinando Cotugno takes us through the challenges of climate change.

This is Connessioni, the voice of Bollettino Generali.

Episode

The first solar panel was installed in 1954.

It took 68 years to go from the first solar panel to the first terawatt of solar power. That happened in 2022. The second terawatt took just two years. The third, only a year and a half. Today, we're adding a gigawatt of solar capacity every 15 hours.

That's where the energy transition stands today. It's also the closest thing we have to a cure for climate change. The problem is that climate change is accelerating too. Just look at the Amazon rainforest. Shared by nine countries, it's one of the ecosystems that best reflects the scale of the challenge we're facing.

Right now, 18% of the Amazon rainforest is degraded. Then a figure began to emerge from the data monitored by the experts studying the Amazon: if degradation exceeds 23 to 24%, the rainforest could stop being a rainforest and begin turning into a savanna. It's one of the so-called tipping points, a point of no return.

Climate tipping points are thresholds beyond which an ecosystem can't return to the way it was before. It's like sitting on a chair tilted back, leaning against a table. At some point, you tip too far, and there's no going back.

So, this is a story of contradictions. It's about learning to live with them, because our perception of climate change tends to ebb and flow. And that's only natural. We're human. Sometimes it feels like nothing is happening at all, simply because nothing is happening where we are. Then, all of a sudden, it's the fifteenth tropical night in a row in Milan, a devastating flood, or a drought that's driving up prices at the supermarket.

That's when we start to feel as though we're racing towards disaster, that nothing can be done. And that's when we slip into the most dangerous response to something as complex as the climate crisis: fatalism. What we need instead is a balance between these two extremes: between "nothing is happening" and "nothing can be done". To reach that balance, let's begin with a quick recap of the previous episodes. Because, as we've said, this begins with the emergence of a challenge that first appeared in the data before becoming visible in the world around us.

Between the 1960s and the 1980s, it became clear that emissions from energy production were causing global temperatures to rise, and that those rising temperatures would in turn cause extreme weather events.

Back in the 1980s, scientists called them "the storms of our grandchildren". That's how James Hansen, then head of NASA's climate research institute, described them. He was the scientist who went before the United States Senate and said, in effect: "Ladies and gentlemen, we have a problem."

And that's when we began to confront the problem: with the Rio Earth Summit in 1992, the United Nations Framework Convention on Climate Change, and the years of work that culminated in the Paris Agreement.

The Paris Agreement, signed in 2015, is probably the best place to step back and see where we are. Because the way it's worked, and the way it's still unfolding, tells us a lot about the state of the fight against climate change. The truth is, the fight against climate change is progressing in ways that are both encouraging and worrying. And that's exactly the kind of contradiction we need to learn to live with. On the day the Paris Agreement was signed, 196 countries, from the Marshall Islands to Saudi Arabia, from Italy to the United States, signed up to the same commitment. That morning, humanity was on course for a four-degree rise in global temperatures by the end of the century. In other words, the children of babies born this year, or next, would have grown up in a world that was simply uninhabitable.

The Paris Agreement is also a frustrating mechanism to watch in action. Yet it has dramatically reduced the scale of the challenge ahead. It has brought projected warming, for the children of today's children, down from four degrees to around two and a half. That's both an extraordinary achievement, accomplished in little more than a decade, and not nearly enough. Because a world that is 2.5°C warmer is still a world we cannot afford. So today we find ourselves in a peculiar position: we've treated the most serious part of the illness, but we're still sick. Which means there's still a great deal left to do, and we need to do it faster. And we need to recognize that, at this moment in history, the energy transition, our remedy for climate change, has been an engineering masterpiece.

It was a masterpiece of the kind humanity does best: devising technical solutions to extraordinarily complex problems. Solutions that once seemed beyond reach. If, back in 1954, we had told the engineer who built the first solar panel how many solar panels would be installed around the world by 2026, he would have said: "No way! You're describing something more ambitious than a mission to Saturn."

And yet, that's exactly what we're doing. Today, that's not really what's holding us back. It's not the lack of technical solutions, even though there are still many more we need. What's missing is the political commitment needed to make those solutions happen. Because, and this is another contradiction we need to learn to live with, climate action is two things at once: an effort to heal the planet and an industrial revolution.

And, like every industrial revolution, there will be winners and losers. We're only now beginning to understand what that looks like. We got a glimpse of it in 2026, with the closure of the Strait of Hormuz and the increasingly visible tension between petrostates, countries still tied to the old energy economy, and electrostates, countries racing towards the future. China is the most obvious example. It has

become the prototype of the electrostate. But we also need to look more closely at the contradictions within this picture, because some of the data tells a more nuanced story. Take solar power in the United States. It's experiencing a boom. For the first time, solar generation has overtaken coal, and some of its strongest growth is happening in Republican states, driven by economic and energy considerations that go beyond ideology. Or take China. We know how complex China's clean-energy industrial revolution is, and how challenging it can be to engage with it, because it is creating new dependencies.

But beyond China, it's worth paying attention to what's happening elsewhere. We all know the success stories of Spain and Denmark in Europe. But there are others that are just as interesting and, perhaps, still largely overlooked, even in the public conversation.

Take Pakistan, for example. In 2025, the country installed 27 gigawatts of solar capacity. What's particularly fascinating about Pakistan's solar boom is that it was driven from the ground up. It wasn't the result of a government-led plan. Instead, consumers and households steadily began installing solar panels and disconnecting from the grid. As a result, Pakistan proved to be one of the most independent and resilient Asian countries during the Strait of Hormuz crisis.

Or take India, which may well be one of the defining stories of the decades ahead. Right now, India remains heavily dependent on coal, the energy source with the greatest impact on the climate. But it could also become the first major economy, and the world's most populous country, to power its industrialization with solar energy. Today, solar capacity in India doubles every five years and is growing by around 40% year-on-year. What we're witnessing today could become a model for the future. And what's especially significant is that India's path to industrialization may offer a template for many other countries to follow.

Because when the climate negotiations began in 1992, they began on this basis. We had discovered that these three energy sources would damage the possibility of human life on Earth, so we had to find a way to move progressively towards phasing them out. But there were countries that had been using them for a hundred years, countries that had only just begun using them, and countries that were about to begin. And the great dilemma was: How do we reconcile the different starting points of the United States, China, India, Bangladesh, and Nigeria, and how do we find a common pace based on the principle of common but differentiated responsibilities?

But if a major country like India can, within a decade or fifteen years, free itself from coal and from fossil fuels, skipping an entire stage of industrial development, then we truly have good news for the planet. And at this point, the key is no longer decarbonization, as it was when we signed the Paris Agreement, but electrification.

At COP31 in Antalya, Turkey, a proposal will be presented to electrify 35% of energy consumption by 2035. That would be an enormous achievement: many countries are moving in that direction. In France, there is a plan to install one million heat pumps a year because the more consumption we shift away from fossil fuels and gas, the more countries and economies become independent of volatile markets such as hydrocarbon markets, and the faster the transition can move forward. Because at this point, we need to think not only about what has been described as an industrial revolution, with countries seeking a new place in the world, but also about our responsibility to care for that world. What we have learned is that the transition is a remarkable engineering achievement. It is advancing rapidly, faster than we had expected, but not fast enough for this planet. At the same time, we have learned that the climate crisis is more serious than we believed.

When the Paris Agreement was signed and climate action first took shape, the central concern was temperature: how much warming there would be and over what timeframe. We now realize that the problem is more complex, that the Earth's climate system is more sensitive than we thought and is beginning to slide in a dangerous direction.

In other words, between 1970 and 2015, global temperatures rose significantly, by 0.2°C per decade, but at a constant rate. Since 2015, which unfortunately is also the year the Paris Agreement was signed, the pace of warming has doubled.

Why? Because our planet can no longer shed the excess energy, the excess heat, because it is accumulating too much of it. What scientists are focused on now are points of no return, such as the Amazonian one we started from. It's like the chairs tilted back against a table while we're eating: we're sitting in this somewhat uncomfortable position, and we risk falling backwards and no longer being able to return to the way we were sitting before.

One is the Amazon rainforest; another is West Antarctica. There is an enormous glacier in West Antarctica which, at this moment, is cracked. The latest analysis by the British Antarctic Survey likened it to a cracked windscreen. If this glacier, called Thwaites, were to give way, it would represent a point of no return for rising sea levels. Thwaites is known as the Doomsday Glacier. Then there is the Atlantic current, this vast conveyor belt moving warm and cold water between the equator and the poles, and it keeps slowing down, slowing down, slowing down, slowing down. And if the Atlantic current were to stop, something that could happen over the course of this century, it would completely change the climate of Western and Southern Europe.

What does this mean? It means that we have a precious window of opportunity, and it is narrowing. It means we've done a good job so far, and we should recognize that, but there's still more to do.

There was a great deal of debate in 2026 when the IPCC, the body of scientists that coordinates climate research, concluded that the worst-case scenario it had long worked with, the so-called 8.5 scenario, no longer needed to be considered a plausible end-of-century outcome. There was a lot of debate about that. Trump even said: "You see? These catastrophists are finally admitting that climate change doesn't exist." The truth is that we were able to rule out that scenario, the worst of all: a scenario that was possible, though not likely, not because we ignored the risk, but because we took it seriously. So it was not a mistake to be concerned; the mistake would have been not to be concerned. That is an achievement, a first achievement: being able to look at the worst-case scenario and say, "This is no longer among the futures that await the children of today's children."

The problem is that the range of possible futures is shrinking. We are losing both ends of the spectrum: the worst-case scenarios, such as the 8.5 one, but also the best-case scenarios, such as keeping warming within 1.5°C. As a result, the future is narrowing towards a middle ground, one that is extremely dangerous. So what is the climate outlook at this point? What are scientists telling us? They are telling us that, unfortunately, the 1.5-degree threshold, which was the core objective of the Paris Agreement, is gone. It will most likely be exceeded in 2030, or around 2030. That is what the World Meteorological Organization is telling us. And the best-case scenario right now is overshoot: crossing that threshold, exceeding it slightly, by just a few tenths of a degree, and only for a short period of time, before returning below it.

The overshoot scenario is our best prospect because it would allow us to avoid tipping backwards with the chair, whether in Antarctica, the Amazon, or the Atlantic Ocean. If we can remain only slightly above 1.5 degrees and then bring temperatures back below that threshold by the end of this century, then we will truly have brought humanity to safety. Because this is not only an industrial revolution, a conflict between countries, between energy paradigms, between different models. It is also an attempt to bring humanity safely through this moment on the only planet it has.

And although this may have sounded new in 2019, at the height of the climate movement and the global attention surrounding Greta Thunberg and may seem almost self-evident today, it remains true: climate action, the race against climate change, must remain one of the few, and perhaps now the only, areas in which countries still cooperate when they come together at the COPs. The COPs remain the one place where countries that are otherwise at war or in conflict can still sit around the same table and talk to one another.

And if we want to understand how the response to climate change can be about care, not just competition, we need only look at Medellín, in Colombia. A city with a terrible reputation. In the 1990s, it was the murder capital of the world, the city of drug trafficking and cartels. Today, by contrast, when people talk about Medellín,

they talk about the Medellín miracle. It is a city that has done extraordinary work in urban ecology, creating 35 ecological corridors, ribbons of greenery that run through the city and overcome a divide found in so many places, including in Europe: the park ends, and the concrete begins. Medellín built this network of ecological corridors and completely transformed the city's destiny; it changed the city's temperature. Today, Medellín has reduced its urban heat island effect by two degrees, which is exactly the objective of the Paris Agreement, by developing a model of care based on trees and on connecting wealthy and poorer neighborhoods. And this has made it possible not only to transform the city's environmental future, but also its social future. For many reasons, the city's homicide rate has fallen by 95%.

And this tells us that caring for the environment is never just about the environment. Addressing climate change is never just about the temperature of this planet; it is also about trying to reshape its future. And on that note, let me leave you with the words of Cristina Koch, an astronaut and a member of the Artemis I mission, which recently gave us a view of the dark side of the moon. From there, she turned her gaze back at Earth, at a planet living through a difficult hour, marked by conflict, climate change, and all the turbulence of our time, and she sent a message that I find profoundly beautiful. She sent a message to all human beings: "Remember that you are not passengers on this planet. Remember that you are its crew." And that applies to all the challenges of our time. It applies especially to climate change.

See you next time, and until then, stay connected with Bollettino Generali.

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