

**Coal at Sunset: A Colorado Town in Transition
Episode 3: "You Knew"**
**Presented by the Institute for Science & Policy at the Denver Museum of Nature &
Science along with House of Pod**

KRISTAN UHLENBROCK (narration): When was the last time you changed your mind? And I don't mean what you were going to wear, or what you were going to have for breakfast. I mean something big. Something important. Something essential to your identity. A belief that you hold dear.

Not so easy, right? As humans, we're wired to form opinions and stick to them. We build our lives around what we know, or at least, what we think we know. We tend to seek out facts that fit our pre-existing worldview and ignore any that don't. Think about some of the identities that define you. Your family. Where you live. Your political beliefs. Your hobbies. The type of career you have. What would it feel like to one day just go against those?

Changing our minds feels uncomfortable. It can seem like a betrayal of our core values. It means admitting, on some deep level, that we might have been wrong. Science lives in that uncertainty. It's always evolving. New experiments lead to new data, which can lead to new understanding of the world around us. We haven't always known about germ theory, or plate tectonics, or the human microbiome. Doctors used to recommend cigarettes to their patients! Sometimes, when the facts change, we need to as well. That's not always easy, particularly on a topic like carbon emissions.

JENNIFER HOLLOWAY: I remember one day in ninth grade, Mr. Bergman's Earth Science class, we were talking about how power plants work, and the whole cycle with carbon .

KRISTAN (narration): This is Jennifer Holloway. You may remember her from our first episode. She grew up in Craig. And she's the Executive Director of the Craig Chamber of Commerce.

JENNIFER: And I remember someone in the class asking: So that's what our power plant's doing? And we all were just like sitting there, and he explained but in a very PC way that ours isn't, ours isn't like that. Ours is better. Our coal, our power plant doesn't pollute. So we were very much raised even in our classrooms, although we were taught the same science, it was still through the lens of our community surviving on that. And so, ours was better, it won't ever get shut down because it's the best one. It's the cleanest one, we do it right here. So, just even growing up, "oh yeah that carbon science sure but it's not gonna affect us, because our power plant's the best." The whole community is in a just a generational state of denial that it won't ever get cut.

KRISTAN (narration): Our relationship with coal is complicated. As we learned more about its environmental impacts, perceptions began to change.

JENNIFER: I feel like the coal miners and this is all over the country, we're not the only coal mining town going through this, but we're not the bad guys, just because we were in an industry that the nation needed at that time, That was the best industry at the time, it was the way to make electricity.

KRISTAN (narration): Our actions and our beliefs can be contradictory at times. After all, we're human. We're not strictly rational beings. And we have all kinds of competing imperatives besides just scientific facts. Coal is harmful. But it's also a paycheck.

JENNIFER: And I think one of the misperceptions about the people here is that we don't care about the environment, that "oh those coal miners, they'll burn anything", you know," they just want the money." That's not what it's about. It's about feeding our families, it's about being able to have a community that we can participate and contribute to and the mines and the power plant have been the best supporters of that community environment. They sponsor everything we do. They put money into every initiative in our town. Anytime we need something, that's who we call. So it's a dependency relationship as well that we have to wean ourselves from.

KRISTAN (narration): The problem comes when science can no longer be ignored. There's a famous saying that "nature bats last." And when it comes to climate change, humanity is getting dangerously close to the ninth inning.

(transition)

KRISTAN (narration): This is *Coal at Sunset: A Colorado Town in Transition*. I'm your host, Kristan Uhlenbrock. I'm the Director of the Institute for Science & Policy at the Denver Museum of Nature & Science. In our first two episodes, we've examined the forces that led Tri-State to phase out its coal plant and coal mines in Craig, Colorado. We've touched on some of the changing economics, and the rise of renewables. Those factors will have huge impacts for a town like Craig, which relies on coal jobs. In this episode, we're going to focus on why ambitious clean energy efforts are necessary in the first place. Simply put: Planet Earth is warming up. Fast.

For decades, scientific evidence has pointed to significant human influence on our climate, dating back to the Industrial Revolution. Burning fossil fuels like coal releases significant amounts of carbon dioxide and other greenhouse gases into the atmosphere, accelerating global warming. Here's Jerry Mahlman, former administrator of the National Oceanic and Atmospheric Administration, testifying before Congress in 1992:

JERRY MAHLMAN IN C-SPAN CLIP: *We have long known that a buildup of atmospheric carbon dioxide has the potential to warm Earth's climate through the so-called greenhouse effect. We now know that other greenhouse gases can contribute as much to climate warming as does carbon dioxide. The amounts of all these gases are currently increasing at a rate sufficient to have substantial climatic implications.*

KRISTAN (narration): Over the next three decades, policies designed to rein in emissions, like a carbon tax, failed to gain national traction. Worldwide, greenhouse gas emissions continued to increase.

Today, those impacts are being felt. Earlier this year, the United Nations' Intergovernmental Panel on Climate Change released a report putting the situation in the starkest possible terms. The Earth is heating rapidly. That increase is happening nearly everywhere. And the window to avoid the worst case scenario is shrinking. We're seeing it here in Colorado. Just this past year, we've witnessed extreme heat.

9NEWS CLIP: *Well, first place is not always the best place to be. In fact the administrator of NOAA said today it is probably the worst place to be considering that the month of July is now #1, the hottest month ever on Earth.*

KRISTAN (narration): Droughts.

9NEWS CLIP: *The Dolores River in southwestern Colorado is dry in places. As in, no water flowing in the riverbed.*

KRISTAN (narration): Megafires.

DENVER7 CLIP: *The East Troublesome Fire is nearly six times larger than it was last night. It's now the fourth largest fire in Colorado history.*

KRISTAN (narration): We've had to change our thinking about humanity's relationship with the climate. And for one Colorado scientist, the growing awareness of global warming shaped his own personal journey.

WALEED ABDALATI: I am Waleed Abdalati, and I am the director of the Cooperative Institute for Research and Environmental Sciences at the University of Colorado Boulder. I grew up with very little money. My dad died when I was a kid, and I was gonna do something employable. So I studied engineering in college. My great love was theater, actually, but you know, nobody hears about the starving engineer working four jobs just to make ends meet. I was lucky to be good at math and science. So I got a degree in engineering and worked in industry as an engineer, and it just didn't feel right.

KRISTAN (narration): It turned out that earth sciences were more appealing.

Waleed: I had worked on satellites. And I realized while I was getting my master's that I became much more interested in what satellites were looking at rather than the engineering behind them. So I encountered a professor who had these magical stories of the Arctic and what a beautiful place it was, you know, I, I ended up doing my PhD. It was a mix of fieldwork in Greenland, and computer work, working with satellite imagery of Greenland to understand how it was changing, primarily the melt characteristics. So between my engineering and science background I was a good fit for NASA.

KRISTAN (narration): That was in the mid-1990s. Climate change research was beginning to expand rapidly. New advances in computer modeling and meteorological data allowed scientists to track the rate of warming. More and more evidence pointed to a discernible human impact.

Waleed: Climate has always changed and it always will. When we talk about climate change today in the context of human influences and, and others, what we're talking about is the fact that the emission of greenhouse gases traps heat in the atmosphere. And that's just the way the chemistry works. We've known this for well over 100 years. When energy leaving the Earth, which is long wave energy, strikes these molecules, they vibrate in a certain way, they absorb that energy, they start to vibrate and they radiate that energy back to Earth as opposed to letting it escape. So, when we put a lot of greenhouse gases or heat trapping gases in the atmosphere, they trap heat, that's just what they do. In the simplest sense there's a lot more energy in the system. And when there's energy in anything, it's more volatile. It's extreme droughts, extreme

floods, extreme temperatures, increases in fires. We've seen all of these. We've seen the manifestation of that extreme heat, and we know from the fundamental physics that it's very likely that as we trap more heat, these things will get worse.

KRISTAN (narration): He stayed at NASA through the early 2000s, leading various Earth observation research and development groups. Finally, he accepted a faculty position in Colorado. He was happy there. But in 2011, NASA came calling again.

WALEED: I got a call one day in my office and it was from someone at NASA saying, the administrator is bringing back the position of Chief Scientist and yours is a name that keeps coming up as someone we should talk to.

KRISTAN (narration): He accepted the role and became a bridge between the scientific world and the political arena.

WALEED: My job was to advise the NASA administrator on science matters but also interact with members of Congress, and leaders and other agencies to really get the NASA priorities endorsed, supported, particularly by members of Congress, so that's where the policy aspects came in. That's where I learned to speak Washington.

HOUSE SELECT COMMITTEE CLIP: *Thank you Congressman, and Chair Castor, Ranking Member Graves, and members of the Committee. I'd like to thank you for the opportunity to testify on this truly critical topic.*

WALEED: And it was a wonderful experience. I've learned a lot, and (laughs) this is where the theater came back actually because I asked the administrator: Why me, you know, why an earth scientist and why me? And he said an earth scientist because no one ever asks why NASA is going to Mars, no one ever asks why we're launching big telescopes, but everybody asks or many people ask: why do we do Earth science?

KRISTAN (narration): Over the past 30 years, many of the initial uncertainties around the reality of climate change have been resolved. Scientists now overwhelmingly agree that burning fossil fuels will continue to warm the planet, barring any drastic emissions reductions. But facts and data are only one piece of this equation.

JENNIFER: There's a lot more human content in this situation than I think some people in the city might understand...

KRISTAN (narration): Craig Chamber Director Jennifer Holloway again.

JENNIFER: ... and they know the science of carbon and they understand we need to get away from fossil fuels. And then they're like, well just shut it down. Well this is an entire community that's dependent on that. There's third, fourth, my great grandfather was in the mine. So it's got to be more comprehensive and holistic than that.

KRISTAN (narration): Climate change policies can potentially put livelihoods at stake. But the same is true of doing nothing.

WALEED: The implications of inaction are just going to keep getting worse and worse and worse. But when people hear that they're like, "Okay, well, what's, what's too long, what's too late. How long do I have?" Human nature is such that if we don't have timeframes, it's hard to get our heads around things we ought to do, steps we ought to take particularly when they're costly. Think about getting your car serviced, you know. A little light comes on that tells you it's time, and you can drive it for 1,000 more miles, 10,000 more miles, 20,000 more miles. You know intellectually, well, at some point my engine's gonna break down or something's gonna happen. You're cognizant of the fact that the consequences are going to be greater the more I push it, but how long is too long, right. And unlike your car which just breaks down, it stops running if you've just neglected it for too long. Climate will keep running, but the costs just keep growing and growing and growing.

(transition)

KRISTAN (narration): On a bright spring day in May 2019, Governor Jared Polis signed the recently passed climate action bill into law. It was Colorado's boldest step yet toward addressing carbon emissions.

KC BECKER: We did a bill signing in a field where there was a big solar installation in Boulder County.

KRISTAN (narration): KC Becker was there that day, and she remembers it well. She was the Democratic Speaker of the House in the Colorado legislature at the time.

KC: And lots of people showed up for it and then it got, you know, national press, you know, saying Colorado is really taking the lead.

KRISTAN (narration): The bill committed Colorado to a 50% reduction in carbon dioxide emissions by 2030 and a 90% reduction by 2050. Almost every sector would be affected. Electrical utilities, like Tri-State, for example, would need to generate more of their power from renewables like wind and solar.

Before getting elected in 2008, KC had worked in environmental and natural resources law. She knew this issue well. And Colorado had already made some progress on moving toward cleaner energy.

KC: The state of Colorado passed a renewable portfolio standard to say we want 20% of our electricity to be from renewable resources and then you saw the legislature increase that later. And slowly, a growing awareness through Colorado throughout the nation and through the world, around the need to address climate change, and it's one of those things where it was sort of very, very slow and then very sudden. And I think in the last couple of years, the support for action around climate has increased dramatically, certainly the awareness around it. The speculation about, is this really a thing, has gone down.

KRISTAN (narration): Over the years, climate change grew in importance for Colorado voters.

KC: In the 2018 election, we saw climate being talked about in all corners of the state, and by people who weren't typically running on an environmental agenda. Governor Polis, talked about wanting to get to 100%, clean energy and climate was a major focus of his campaign. And so I

think that was exciting and also signaled to us we have a real opportunity to get something done here.

KRISTAN (narration): As Speaker of the House, KC and her fellow legislators drafted House Bill 1261, also known as the Colorado Climate Action Plan. She co-sponsored the bill, meaning that she was one of its primary champions. Getting buy-in wasn't easy. It required a lot of negotiation.

KC: But like any bill you have to talk to a lot of people, not just the people who are voting for it, but the people, the organizations, the companies who could end up supporting or opposing it.

KRISTAN (narration): She had to weigh the tradeoffs of what this bill would mean in coal communities like Craig.

KC: There's absolutely an impact to jobs and communities. There's also an impact by not doing anything, and you have to weigh those balances and make tough decisions. We can't cast ourselves in amber and say nothing's going to change, because it's going to have impacts. Because the world is changing anyway. And addressing our climate future is imperative. And so there are communities that aren't happy about this. But I think you can point to any industry and watch it change, and know that that change is going to be hard, but you can't avoid the future.

KRISTAN (narration): Not everyone was sold. So she hit the road to promote the bill directly to her constituents, speaking at numerous town halls and public forums. In the end, all that effort paid off. The bill passed on the final day of the legislative session, leading to that ceremony on that sunny May afternoon. KC took pride in what she and her fellow legislators had accomplished.

KC: For me personally it was exciting. We had a lot of public polling showing that there was a lot of support for it. I think legislators that had worked on it or were supporting it, or had campaigned on it were, were very very excited.

KRISTAN (narration): It's still too early to know all of the far-reaching impacts of the climate action plan and whether or not Colorado can achieve the targets. There's much more to this story. Including another, less publicized bill signed that same month which created a brand new state office to help coal communities like Craig. We'll return to that in a future episode. But for one day, at least, it was all smiles and handshakes. Colorado had stepped up to address climate change in a big way.

(transition)

KRISTAN (narration): Not everyone shared in the excitement. In Craig, the reaction to the climate action bill was very different.

RAY BECK: We didn't ask for this, you know, but we got it handed to us, we got it shoved down our throat. It seems like about every time we get a foothold and we're headed in a positive direction, something else comes down the pike, another rule, another regulation that sets us back.

KRISTAN (narration): That's Ray Beck, retired Moffat County Commissioner, former Mayor of Craig, and a lifelong Western Slope resident.

RAY: I grew up in and was born and raised in Routte County, Steamboat Springs. Graduated from high school in 1968. And then I attended CNCC, Colorado Northwestern Community College in Rangely on a wrestling scholarship. I like doing policy. I really do like doing policy and trying to come up with good policies that are going to benefit the citizens and the county you represent, but I also like representing and being a voice for my constituents for Moffat County, if you will, at all levels of government.

KRISTAN (narration): In his eyes, and the eyes of many of his neighbors in Craig, the Climate Action Plan was seen as an overreach. He was stung by its harsh implications for coal.

RAY: If I was the governor -- I know I'm not the governor, but if I was the governor -- the first thing I would change is my energy policy. I don't think it should, we should single out any particular one. I think that we're going to need hydro, we're going to need wind, we're going to need solar, we're going to need coal, we're going to need gas, we're going to need everything that we could possibly -- I mean, the population is growing, and even today you can see that there's a high demand for electricity because of the unprecedented heat wave that we see here going across Colorado.

KRISTAN (narration): Some of Ray's frustration stems from the feeling that rural communities are left out of decisions that affect their future.

RAY: So it's like one step forward and two steps back and it's really hard to gain any traction from that. I have to say, I really have to put a lot of that blame on our state legislature. We get people that get elected to that position, and all of a sudden they think they're all that and a bag of chips when at the end of the day, they're no better than the rest of us. They are taxpayers, you know, and instead of reaching out -- as an example, you know, they passed this legislation on the coal fired power plant. I asked one of our state legislators, a year and a half ago when I was testifying in a bill, I asked him, I said, "Well, did you ever tour the power plant in Craig." "Well, no I didn't, but I drove by it once." What kind of message is that? you know, I mean, if you're going to legislate our economy, and they seem to think that they know what's best for our economy rather than reaching out to the people that are going to be impacted by that.

KRISTAN (narration): The rural-urban divide is a major factor in American politics today. And it directly affects the polarized conversation around coal and climate change. There is, at times, a fundamental disagreement about whose values should be prioritized in society, and whose way of life should prevail.

I would offer that that's the wrong framing. Our challenge is to align those core values, not pit them against each other. We can find commonalities. There's more overlap than we might think, even among KC, Jennifer, and Ray.

KC: You know, it's a personal ethic of mine to care about the environment.

JENNIFER: The values of Craig and Moffat County run, I would say, deep into how we're connected with the earth and nature.

RAY: Our forests impact all of us. Water impacts all of us. Agriculture impacts all of us.

KRISTAN (narration): My mom used to always tell me to put myself in someone else's shoes. In this case, I interpret her advice as a question: What responsibility do we have to our fellow Coloradans, regardless of where we happen to live?

WALEED: My approach in communicating -- and I think this is important -- is, to start with: I get why you don't want to hear this, I get why you don't want to do this. To validate an opposing opinion, because there are reasons people feel the way they do.

KRISTAN (narration): CU Boulder's Waleed Abdalati.

WALEED: It's too easy to fall back into: If you just knew what I knew, you'd think like I think. And the other point I make is there are value systems we have and we can't expect our beliefs and values to change the values of another person, so meaningful conversation requires an appreciation of the values of others who see things differently who valued things with different weightings than you may value. And a recognition that disagreement isn't because somebody is evil or bad. I would expect the same courtesy. I hate when I get dismissed as some scientist who just wants more funding, you know, and that's why I'm talking this up. No, it's -- there are reasons. And so I think the challenge for communicating and an essential ingredient is to understand why there are differences in opinion, why somebody may be reluctant to accept what we in the science community see very clearly.

KRISTAN (narration): In all these conversations, I see a lot of commonalities.

RAY: I don't know that we'll ever get rid of that urban divide. I think to some degree it's always going to be there, but I'd like to see that get lessened, if you will. You're always going to have pushback because people don't necessarily like change. But if change is going to happen, it's inevitable, then you need to jump on the wagon, and if it makes sense, you probably should be taking a serious look at it and see if you can come together to do it. I think sometimes, the destiny lies in the people's hands. I think it's how bad do you want to shift your ideas and make progress moving forward. I think it's, you know the old saying in the face of adversity comes opportunities and we have to look for those opportunities.

(transition)

KRISTAN (narration): Climate change is here. We still have at least some time to avoid the worst case scenarios. But for Waleed, who is a generally upbeat person, there's also a sense of weariness. He's studied the Earth for decades. He's seen opportunities for decisive action pass us by. He wonders how many more chances we'll have.

WALEED: The last time I testified, it was a few months ago, I couldn't help but think back to the first time I testified, which was 20 years ago, and how little has changed since then. And my frustration, with all due respect to the sensitivities and concerns that that legislators and others have to have to manage. I found myself sitting there thinking: nothing's really changed. I mean, what would have happened if we'd used the last 20 years to do more? And what would this conversation be like? But we haven't. And that's, as a scientist who studies the environment, it's heartbreaking. It's really heartbreaking, because we've put ourselves in an even worse situation, the solutions to which will come at a much greater cost than they would have had we

undertaken them 20 years ago. And if we wait another 20 years, the solutions are going to come at a much greater cost.

KRISTAN (narration): Here in Colorado, KC Becker has seen at least some small signs of progress. Electricity providers are embracing renewables in a way that would have been unthinkable just a few years ago. That's called hope, she says.

KC: You see some of that happening in the utility sector. I think that there are some groups that were really reluctant in 2013, when the legislature increased the renewable portfolio standard, that absolutely hated it, and it's 2021 and they're now exceeding what the legislature put in place in 2013. They opposed it then, they're meeting it now, and trying to go way beyond. So I think that's exciting. There has been a sea change. Some of it willing and some of it a little less willing, but it is happening.

KRISTAN (narration): Waleed says that when he speaks to decision-makers these days, he only asks them for one thing: leadership.

WALEED: These are hard choices, you know I make no mistake about that. I understand that. But these are choices that must be made, and these are choices that must be rooted in the science, and they must be rooted in the interests of society as a whole and by that I mean, not just your state or district, although I realize re-election depends on that, but the world. And not just your current constituents, but those constituents who aren't born yet. I think, worry, believe that future generations are going to look back on us and say: you knew. Why couldn't you figure it out? Why couldn't you figure out a way to make it better? I think we're a great nation, and great nations lead. Great nations don't say, "well they're not doing it, why should I" or, "my actions will never overcome the damage they're doing, so why should I do it?" Great nations rally. And, you know, we often point to World War II as an example in the U.S. leadership. The country got behind supporting our troops because the effort was noble. The effort was just. I think the same is true with climate change.

KRISTAN (narration): We started this episode by talking about values and beliefs and identity. We had to think about what we would do if our whole world got turned upside down. We asked Jennifer Holloway what she hopes Craig can become after coal is gone.

JENNIFER: I say success is that we have created a new identity and we have bound around that. And that our community feels like it has a positive future and that we have a mission that we all agree on. Because if our community here can re-identify, then we can transform and fit in with the rest of the world who's trying to move ahead, right. Use science, use our energy in the best efficient way. In more of a holistic and spiritual sense, we have to, we have to come back together.

KRISTAN (narration): I'd encourage us to reflect again: Can we be open to change? What would that mean? And if we can't, what do we do when the world changes anyway?

(transition)

KRISTAN (narration): On the next episode of Coal at Sunset, we'll look at other examples of coal community transitions happening around the U.S. Can Craig succeed where other towns have failed? Be sure to subscribe to this series wherever you get your podcasts.

Coal at Sunset was created by the Institute for Science & Policy, a project of the Denver Museum of Nature & Science, produced in partnership with House of Pod. I'm your host, Kristan Uhlenbrock. This show was written by Trent Knoss. Our producer is Juliette Luini. Our executive producers are Trent Knoss and me, Kristan Uhlenbrock. Our field recorders are Nicole Delaney and Juliette Luini. Our story editor Catherine Jaffee. Sound Design and mastering by Jason Paton. Graphic Design by Nicole Dondelinger. Web Design by Carlos Mosqueda. Special Thanks to George Sparks and the town of Craig, Colorado.

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