

Jesse Burton:

There wouldn't be more money later to allocate to building a sustainable economy that is inclusive, that creates employment. So, miss allocating scarce resources now I think even has the effect of slowing growth in the long term, slowing investment and makes that longer-term opportunity even harder to grasp.

Ben Cahill:

Welcome to the Energy 360 podcast. I'm Ben Cahill, senior fellow in the energy security and climate change program at CSIS. We're living through one of the worst economic shocks of the century, and governments are spending unprecedented amounts to help protect public health, employment, and investment. The IMF estimates that governments around the world have committed \$16 trillion in public spending to cope with Covid-19. And the scale of this effort means that this crisis also presents a real opportunity. Investment in infrastructure, transport, and energy can help support a transition to greener economies. And there's been a great deal of focus on how to prioritize the green recovery from Covid-19. But it's also important to make this recovery fair at the just transition initiative, which is a joint research effort between CSIS and the climate investment funds, we've just written a new paper called Adjust Green Recovery from Covid-19.

Ben Cahill:

And today we'll talk about this topic with two experts, Brian O'Callaghan of the Oxford University economic recovery project, and Jesse Burton from the University of Cape Town and E3G. So, Brian and Jesse, welcome to the podcast, it's great to have you with us. Brian, let me turn to you to kick things off. You've written a lot about Covid-19 recovery packages around the world, and just curious about some of your big takeaways about reading recovery spending you've seen so far. So, when we add up global recovery spending, how much are we talking about and what is the breakdown that you see between the OECD economies versus developing countries?

Brian O'Callaghan:

Fantastic. Thank you for that intro, Ben, and it's great to be joining you on the pod today. Look here at Oxford, we, as you say, have been tracking government spending on Covid-19 around the world, and I might actually one up the IMF's \$16 trillion tally, we're probably up closer to \$19 trillion or so now. In terms of the key takeaways that we can draw out from that spending so far, and particularly from the green spending, we generally highlight three areas that we share with everyone from presidents to activists. So, the first key takeaway on green spending is actually to take a step back and ask the question of, well, why spend green at all? The takeaway is that well targeted green spending can simultaneously strengthen both the economy and the environment. It's been a long time fallacy that green is bad for the economy, but last year I showed in a paper with Nobel prize winner, Joseph Stiglitz, and a bunch of others that in fact, you can use green initiatives to both stimulate economic growth, create jobs while also building a more sustainable environment.

Brian O'Callaghan:

So, that's the first key takeaway that green actually can be quite good for the economy. That being said, the second takeaway is that governments so far, aren't prioritizing a green recovery. Only 18% of recovery specific spending in 2020 went to supporting a greener reality. And if you've talked about total spending, so that's 18% of recovery spending, which we can get to in a second, but total spending, only

1.5% has been green. And even that small percentage has come from just a tiny handful of high-income countries. So, in one breath here, we have governments talking about building back better, and how they're creating a more prosperous future, but in the next they're supporting the literal status quo that we have dealt with for the past decades. So, that second takeaway, I suppose, is governments aren't doing enough. They can do more, and they need to do more.

Brian O'Callaghan:

And then the third key piece you asked me about OECD economies versus developing countries. This is kind of the scary part. I mean, it's a little scary, but in particular, the spread between how high income nations and low-income nations have responded to Bovid, it's... As I say, a bit scary. We're up to about \$13,000 in spending per person in high-income countries, but only \$10 per person in the least developed countries. And that's not because it's the least developed countries don't want to spend, and don't want to support a return to growth; it's because they can't. They just don't have the same access to capital, or as economists call it, the same fiscal space as high income countries do. And so, the gap that we had prior to Bovid, the gap between rich and poor, it was already mammoth.

Brian O'Callaghan:

Unfortunately, over the course of the pandemic, and I'm sure Jesse can tell us all about it, about this, that gap has only grown. And now we're dealing with this reality where because of different abilities to spend, the high income countries are going to bound up further while low income countries deal with poverty increasing for the first time in 25 years. And look the consequences of that... there are more than just altruistic. This isn't just us saying we need to protect the weak and the vulnerable. No, the consequences of that are economic as well. They lead to global instability, and a world order under undue and in dangerous. In many ways, dangerous pressure. So, it's a bad outcome for everyone and high income countries need to lend a generous hand there.

Ben Cahill:

Thanks for that. Brian, that disparity in resources between the rich countries, developing countries is really worrying. Of course in many ways, we're still kind of in the early days of this pandemic, and we all know about the disparity in vaccination rates between the OECD countries and others. I want to touch on one other aspect of the spending patterns that we've seen today, that you've written about. You make a distinction between short-term relief for emergency spending versus longer-term recovery spending. Can you explain what the differences and talk a little bit about the balance that we see in terms of global spending today?

Brian O'Callaghan:

Yeah, absolutely. So, we define rescue spending as that which is intended to protect lives, businesses, and livelihoods, right? It's to keep people alive. Whereas recovery spending is a bit longer-term in nature designed to reinvigorate economy, and get things going again. For most of the world over the last year, we've been in a very rescue focused phase. And in fact, I think 87% of spending in 2020 was rescue, just about keeping people and businesses alive. The recovery spending, as I say, is long-term in nature, it's what real stimulus is, and it's where governments also have a lot more flexibility in where they can spend. And so, when we're talking about a green recovery, we very much are talking about this recovery type of spending, and it's in that department that governments can choose to, as we say, either support

the status quo of fossil dependent industries or otherwise choose to decouple growth from emissions and invest in new, and more sustainable modes of production and maintenance.

Brian O'Callaghan:

So, that's where governments have that choice, that's why we talk a lot about recovery. Here you can quite clearly see where the press has maybe gone a little bit off track. They talk a lot about stimulus packages and stimulus checks. In fact, most of that hasn't been stimulatory at all. It's just been about keeping people alive, now the focus is on recovery and much of the world. But at the same time, in other parts of the world, particularly lower income, medium income countries, the focus is still on that rescue side, and discrepancies in vaccine availability are supporting that too.

Ben Cahill:

Jesse, I want to turn to you now and bringing into the conversation. You're based in Cape Town, I wonder if you could just help us understand how Bovid-19 is affecting some of the socioeconomic challenges in South Africa. Issues like unemployment, inequality, damage to important sectors, including the energy industry. Maybe you can just help us with the broad context of what you see happening in South Africa as a result of Bovid-19.

Jesse Burton:

Hi, Ben. Thanks for having me, and thanks to Brian for that very fascinating, and I agree very scary introduction to the kind of disparities being faced in the world around recovery spending. So, for people I'm very familiar with South Africa, South Africa is the most unequal society in the world. We were already before Bovid; Bovid and the associated response measures have only exacerbated that, and we were a country that already had extremely high levels of poverty measured almost in any way you think. But I think always a very striking measurement is household hunger. And then roughly 25% of households before the Bovid pandemic, couldn't meet their basic food needs every month. What has happened especially last year, we lost more than two million jobs between quarter one and quarter two, which doesn't seem a lot for kind of very big countries, but you're looking at a situation where South Africa was already almost 40% unemployment, and it's well now, well over 40% unemployment. This is a huge shock to the economy; it's mostly impacted, especially women.

Jesse Burton:

So, there's also gendered kind of component to what has happened. And even now as kind of the economy has started to reopen more, and go to restaurants again kind of the hottest lockdown is lifted. Employment is still sitting at 10% down from 2019. We can still see that between 30% and 40% of households are facing hunger right now, already in the country even though we were kind of starting to recover. That damaged industries has sort of been variable. Mining's done okay, some bits of trade have done better, agriculture's up in fact, but there's been a real knock for example, in tourism. So, tourism is at 30% of where it was two years ago. And although this isn't the energy sector, it's an important employer. It's an important part of the non-energy economy in South Africa. In the energy economy, again like the whole economy before Bovid, we were already in a crisis, our utility was in an operational and financial crisis, very coal intensive, very much not a green recovery example.

Jesse Burton:

And despite the kind of economic crisis that we were in last year, there was still what is called load shedding, which was basically controlled blackouts for 10% of the year when demand was more than 5% on for most of the year. So, it's very, very challenging being in the developing world in this context, I think. As Brian says, there's been so much focused on rescue, even in South Africa that hasn't... The rescue elements of recovery have been fairly limited, and I'm sure that that's something that's seen across the developing world, let alone starting to talk about recovery.

Ben Cahill:

Yeah, Jesse, you're an expert in Just Transition, so I want to connect those dots later and talk a little bit about how you see this crisis affecting the Just Transitions efforts. But those points you made about the realities of South Africa, I think are really important. I'm just curious to get your perspective on countries like South Africa that have more limited resources and big challenges with debt and high borrowing costs, but do you think it's realistic for governments like this in the global south to spend more on green recovery, and to be able to focus on it, given all these other economic challenges?

Jesse Burton:

Clearly it's incredibly difficult to be in a developing country, and to try and think about how to allocate scarce resources across a challenge like Bovid. It's much more complicated in situations where countries have high levels of debt, where they don't have access to cheap global finance, like rich countries can access. What that has kind of translated into is seeing very limited support for small business, quite limited support for people. So, in some ways it's almost a moot point, right? Poor countries are simply not able to provide enough support either in the short-term or the medium-term. Of course, take a step back from that, all governments have to always carefully assess how to allocate scarce resources. And it's obviously more challenging with these short-term needs are kind of outweighing the long-term considerations. But in fact, I think the scarcity makes us an even more pressing issue.

Jesse Burton:

If you're South Africa, you've got high levels of debt, you've got limited fiscal headroom, extreme social challenges that you need to address. That situation is not going to change in the short or medium-term. There won't be more money later to allocate to building a sustainable economy that is inclusive, that creates employment. So, miss allocating scarce resources now, I think even has the effect of slowing growth in the term; slowing investment and makes that longer term opportunity even harder to grasp. Particularly in South Africa measures that can stimulate the economy that will actually provide meaningful change is kind of a unique opportunity. We can take a really unsustainable development pathway, high unemployment, high emissions, kind of a crisis, and by diversity, and on almost any metric you want to look at, South Africa is unsustainable. And we can say, right, we have to have recovery of some sort. Is it going to be the same old thing that isn't just, that is in the long-term not going to be sustainable and competitiveness? Or can we use this as an opportunity to build an inclusive job rich and resilient society?

Ben Cahill:

Yeah, I think that's a great point. It's never an easy time to do this, but we're kind of in a unique moment where governments are really thinking about large scale public spending, the way we haven't seen for a long time, this is just the generational crisis. Brian, you mentioned earlier that you and your colleagues have found that there's too little focus on a green recovery, and that governments are failing to

prioritize this enough. I'm just curious about whether or not you think it's too late, how much room is there at this point to reshape where and how the money is being spent? Are there a lot of funds that have been allocated, but not really directed to specific spending it? And can we turn around this focus and prioritize the green recovery and future spending?

Brian O'Callaghan:

Yeah, it's a great and central question, Ben. And before I get to it, just to tag on a little bit to Jesse's description there, we here at Oxford have done quite a lot of work trying to understand how governments in the global south may gain access to capital to spend more. Jessie did a really good job at describing the need to be careful about how every dollar is spent, and I couldn't agree more with her on that. We can use every taxpayer dollar to meet more than just a pure economic objective. We can be really productive in how we spend every dollar, but at the same time we need to do more. South Africa is a little bit unique as it has a bit of a more developed private sector, and has more private capital to access, and I know that the government there is trying to get more private sector investment to help.

Brian O'Callaghan:

Many other even lower developed countries don't quite have that luxury, and just have no options. So, there is a big need then, for the international community to look beyond their own borders. I know it's really hard in Bovid, but it's essential. To look beyond their own borders and provide some help, whether that's through direct grants, or concessional finance, or some type of guarantee agreements, we need to be doing more. But then to your question now about whether it's actually too late to do anything on green spending, green recovery spending, and how much room there is to reshape where money is being spent. A, no. It's certainly not too late, and to explain that a little bit more, we just talked about how 87% of spending has gone towards rescue, right? Governments have been rightly focused on just keeping things going. Now, as many in hiring combinations are able to focus on recovery, more attention is going towards those projects.

Brian O'Callaghan:

And we expect almost two trillion from the US in recovery type spending through their jobs plan in the next few months. So, there are certainly big opportunities left in terms of announced spending or to be announced spending. And then there's also continuing opportunities on the implementation side. There are significant chances to use what we would consider traditional types of spending, for example: school investment, hospital investment, and others. Opportunities to use that spending in a way that incentivizes some green industry too. So, green strengths; so for example, you might require that a new hospital is energy efficient and uses green materials. By creating that new demand for those types of materials, you stimulate the private sector to come out and develop those capabilities, and you drive down the price of that, which then makes it cheaper for everyone else, right?

Brian O'Callaghan:

Or perhaps if you're investing in a new school, you could require solar panels or renewable energy generation to provide all power for that school. The school is going to need lights, right? So, you may as well use that new investment as an opportunity to stimulate some of these green industries as well. So to summarize, no, certainly not too late. We can both do more in terms of spending that's to be announced, and we can use already announced spending in a productive way through the implementation phase.

Brian O'Callaghan:

All right, and maybe just one final point before I pass back over. A couple of countries, not a couple, a handful of countries have announced some dirty type policies, initiatives that actually act to exacerbate the existing climate crisis. And in many cases just don't make economic sense, so my home in Australia, the prime minister has recently announced a new spending package for a new gas fired electricity generation facility. It's something that every reliable economists in the country, and the energy market regulator has said we don't need. And yet, the government is choosing to use public money to finance it. Initiatives like that don't make sense, they're unacceptable until the money is out the door, there's an opportunity to stop it. So, we can be doing a little bit of work there too.

Ben Cahill:

Well, I want to pivot now and talk a little bit in more detail about the relationship between this economic recovery and adjust transition. So, in our own work at the Just Transition Initiative, we have looked at how green recovery spending can help advance a just transition, we've looked at it through that lens. And basically we found that not surprisingly the most important principles and practices of adjust transition really haven't been reflected in spending so far.

Ben Cahill:

For example, there's not many great examples of spending that's targeted towards certain groups and communities that are really in need, and it will be vulnerable in an energy transition, and definitely not too many examples of inclusive processes so that the people have a voice in the types of plans and priorities that are being proposed here. Those are kind of the core tenants of a just transition to lower emissions, less carbon intensive economies. But Jessie, I'd love to get your thoughts on this. Can you talk a little bit about how you see Bovid-19 helping or hurting the just transition effort? And looking at things like emergency spending and short-term relief, do you think we're missing an opportunity here?

Jesse Burton:

I'm a little bit sympathetic to how hard it is to kind of build back bigger and to do that very fast while still having a just process. And it seems from just transition processes internationally, it has a degree of slowness of bringing everyone along, of vetting people's voices be heard. There's that kind of social dialogue part of inclusiveness versus the kind of pressure that's been on governments to do rescue. And that is now they're kind of pivoting into this discussion of recovery with ops, I think really thinking through how to make that process just. But I think as Brian has said, we are definitely missing opportunities to green, even just the middle ground of the economy. As I've said, given very scarce resources, we can't afford to not have recovery that's inclusive and just. So in the South African context, you want to move away from being the most unequal society in the world, and having some very high per capita emissions.

Jesse Burton:

So, the response has to contribute to reducing poverty, it has to kind of address inequality. And to do that, you need to be explicitly biased towards vulnerable groups. In our contexts, that's the unemployed, low income communities, workers, small business, youth, and women. And that can enable a just transition also towards a new model of development. And that has to focus on employment creation, and new opportunities reaching everyone in society. Now, a huge part of just transition is related to economic diversification, but I think also to social protection and service delivery.

So, I think there is an opportunity to kind of bring these two ideas together, the economic diversification, and kind of shifting your energy sector. That is the kind of live discussion, and just transition.

Jesse Burton:

You're looking after workers, you're looking after fossil fuel dependent communities. That needs to also be expanded to other sectors, and it's not just specifically on coal, but it's bigger than just coal. But the way you can pivot is to say, "look, we need a large focus on systems that work for people on good, decent jobs" that can be in sectors like renewable energy that also deliver missions outcomes, but it can also be around enhanced public transport or just public transport systems at all on food security and food systems. And Bovid has shown that we need sustainable systems, and we need sustainable infrastructure. And we have to do that while addressing climate change, poverty, biodiversity loss. And they're kind of targeted focus and key areas, I think. One really key one would be the energy sector. So energy is the largest contributor to emissions. There's a clear need for energy security interventions. One, it's about shifting from fossil fuels to renewable energy, et cetera. But it's also by making sure that there's access to clean and affordable energy services.

Jesse Burton:

Instead, we can see that the world's gone backwards through Bovid. People are losing access to modern energy services. So, it would align with the principles of a just transition to reduce emissions, reduce the health impacts which impact women and children, especially, and ensures that people have access to energy. And there are these kinds of places where you can do both. You can find what's just, and what will also bring you kind of a long-term beneficial outcome, but I'm not sure governments are there yet. I'm not sure there's enough focus on bringing these ideas together yet.

Ben Cahill:

Jesse, maybe I can ask you to speak a little bit more about that. In South Africa, the issue of energy access has been a big problem in the past, there have been efforts to expand renewable energy in the country. There's been some criticism of those efforts for not gearing them enough towards helping the poor improve their energy access. Can you talk a little bit about whether or not you see progress there happening? And do you think that this is a moment where we can see some renewed attention and focus on that?

Jesse Burton:

Yeah. So, South Africa's always had... Our challenges is somewhat different to other parts of Africa, I think where really there's a big challenge, just getting generational capacity and grid built out. We have an existing grid, we have an existing utility, and we've actually had a very good Eskom. Our utility has been really successful at connecting people at a household level to the grid, but the challenge has always been around affordability. So, you have households who continue to supplement electricity use with dang; or coal, especially in coal regions; or wood; or who can't afford to see the whole month out in terms of electricity. Now, one of the challenges has been electricity prices have gone up and up and up over time. In this strange situation, we don't have cost reflective tariffs yet, but Eskom has invested very heavily in some... into coal-fired power plants, which it can't pay the debt back on.

Jesse Burton:

And so getting tariff increases have been an important part of actually keeping the utility alive kind of important aspect, and one of the reasons we have limited fiscal headroom to deal with Bovid is that the state is bailing out its scum every year. Between \$30 and \$50 billion rand, I don't know what that is in dollars, divide by 15. But not insignificant portion is trying to prop up this utility that was very heavily exposed to coal investments pre-Bovid, which is now limiting the state's ability to respond to other issues. Now, we also have load shedding as we were about to record this, I had to warn everyone that the electricity might go off because there's load shedding today. These very old coal-fired power plants are not sustainable, but there's a lot of fears about new renewable energy coming into the grid that it will impact coal workers, that it will undermine the economies that will lead to ghost towns in particular areas in South Africa.

Jesse Burton:

For me, I see renewables as a win, a green recovery win for South Africa right now in two ways. At a household level, we could actually think about how to enable that for households to earn income or for community-owned renewables, but also having new generation capacity is one of the key things that we can do as a stimulus for the country. One of the key interventions that we can do as a stimulus for the country, and this has been recognized in the government's economic recovery, Penn.

Jesse Burton:

Energy security is a huge focus and renewables offer a whole lot of advantages in that way. They're the cheapest option, new generation capacity option. They actually create more jobs than coal does, and they address our emissions issues, and allow us to kind of get our update out in DCs and meet our long-term goals, but it's not happening. Here like elsewhere, like Australia, there's often political attachment to other industries, to the dirty industries, the industries that countries were built on, where governments understand them, they know how they work, and they feel attached to them. And that's really hard to do in an emergency to pivot to things, to new sectors that maybe not everything is really the institutional frameworks, not the policy frameworks, and it feels new. New and scary for policymakers.

Ben Cahill:

Yeah, absolutely. This is a global story, and in times of crisis and pressure, there's always the tendency to bail out the industries, and protect the industries, and workers that you see and you're aware of. And that means sometimes protecting your incumbents and existing industries. Brian, let me turn to you, want to talk about where we go from here. You've already mentioned a couple of examples, but what do you think are some promising sectors that deserve more support as we try to accelerate a green recovery? And I'm curious if you see examples in Europe, or other regions of countries that are doing this well, and also maybe thinking about targeting investments and programs to help certain communities and areas that are in need.

Brian O'Callaghan:

Perhaps I should give it a little bit of context on the global recovery observatory, which is what we use to track spending around the world. It's a partnership with the United Nations Environment Program, United Nations Development Program, a couple of other UN agencies, the International Monetary Fund, IMF, and the German Development Aid Program. This initiative, as I say, tracks spending across the world, but it also categorizes it into different green types of spending, and then different traditional and

other types of spending. And if you go to Google, you can just type in Oxford global recovery observatory, and you will find a database of over 5,000 different policy items across the world. And you can really see where governments are spending and where they're not. Interestingly in higher income countries, we've seen quite a uniform spread across some of these green investment areas. Ranging from clean energy to sustainable transport, natural capital infrastructure, green research and development programs.

Brian O'Callaghan:

It's very widespread, and from my perspective, that kind of makes sense, right? Every country is different, every country is in a different position of a development cycle. They have different competitive advantages, and therefore different policy priorities, but demonstrates that there are opportunities everywhere, and governments who are looking intentionally to the future can find particular niches for economic growth, and should focus their attention to those niches. Outside of a high-income nation, so in developing contexts, we've seen a big skew towards renewable energy investment and natural capital or nature-based solutions. Both of those also make quite a bit of sense, and we encourage those nations in most cases to continue pursuing those goals, and to pursue them with greater vigor. Renewable energy investment unlocks huge additional economic opportunities beyond the short-term jobs that it creates. In South Africa for example, if your renewables were targeted to bring electricity to those who don't have it yet, you turn the lights on literally, allow children to do homework when it goes dark outside, allow people access to the digital economy and digital forms of work.

Brian O'Callaghan:

And those types of benefits just... they multiply, right? And on the national capital side, a lot of the time this is investment in national parks, which sort of a big tourism advantage and create big tourism potential, protect future tourism. And so, again, it kind of makes sense that government are spending in that domain. So, in developing countries, as I say, it's quite skewed, but that's not a bad skew, necessarily, and we encourage that investment.

Brian O'Callaghan:

And I believe there was a second part of that question. I think it was about helping certain communities, and we have seen a couple of examples of governments, including some of these... Prioritization for vulnerable communities within the geography, but those are very much outnumbered by the others that don't make any of those specifications that aren't necessarily prioritizing those groups. Again, it's an opportunity to use a little bit to go a long way. And so, in every one of our conversations, we're encouraging governments to think about this potential social co-benefits of their spending. How you can boost health outcomes for vulnerable groups by ensuring that the coal plants that you're shutting down are those which are near to people, and are having negative health effects on people. Or if you're investing in new energy efficiency initiatives, targeting those to low-income households where paying for electricity and heating is a serious problem. So, we haven't seen as much as we'd like, but certainly are encouraging governments to do more.

Ben Cahill:

Yeah. In our own research on a just green recovery, we've tried to pinpoint some examples, both in OECD countries, and developing countries, as government programs that are trying to direct investment

or spending towards certain areas of need. And it's definitely early days, but you do see some interesting cases where there's an effort to support areas in the Northeast and Scotland that were former manufacturing hubs to make sure that things like manufacturing for offshore wind or hydrogen facilities are kind of sited in those areas. They have certain skill set, and capital, human capital. But early days, as I said.

Brian O'Callaghan:

Absolutely. And I think to add that it's imperative that we keep governments accountable to that rhetoric because governments, they know what voters want to hear, and they're very quick to say exactly that. They're often slow to follow it up with real well thought through and targeted policy. So, it's up to us to take the fantastic work that, Ben, you and your colleagues have done, and ensure that governments actually are held to it.

Ben Cahill:

Yeah, absolutely. At some point it becomes challenging just to track the amounts that have been allocated for all these different sectors, because there's a lot of overlap them, any commitments and pledges being made. Jesse, look and turn back to you, and put the focus squarely back on just transitions again. So, we're headed into COP26 this fall. Just transitions is definitely on the climate agenda, been a topic of more and more attention in the last couple of years, but I'm curious to get your perspective on whether or not you see the issue moving beyond the realm of multilateral development banks, and international NGOs, labor groups, and advocates, and more towards reality, tangible progress in developing countries. What do you think about that?

Jesse Burton:

In South Africa, there's always been a strong discussion around just transition from the labor movement, from the environmental justice movement, but we're moving into a situation now where there's this kind of work towards, how do we do a project? How do we define what a just transition project is? How do we repurpose coal-fired power plants, and do that in a socially beneficial way? And we can see growing work in India, and many you've covered in this podcast before, the wonderful work that's been done in India.

Jesse Burton:

But I also see kind of think tanks and civil society and labor organizations in other developing countries starting to grapple with the issues, especially in particular, I work in coal phase out, and just transition; but around the phase out of coal and, and how that will look, what does it mean for towns where the whole economy is a single coal plant? What does it mean in a town where there's already been so much historical injustice, where miners have lost their lives and poor mining conditions? So, I think yeah, I think it is becoming a reality. I think people are thinking really seriously, how do we do a just transition? I'm not sure it's intersecting yet with the green recovery discussion as we've discussed. And I think that that is an opportunity that we are missing.

Ben Cahill:

Thanks, Jesse. I think you did a good job of bringing this back to human reality, and tangible progress on actual projects, which of course is what it's all about. Well, I think we're about out of time today, and this is such a fascinating topic, and it's a really important topic. So, I'm very grateful to both Jesse and

Brian for being with us today, and sharing all their insights and look forward to following all your future work on this. Thanks so much for being with us today.

Lisa Hyland:

Thanks to Jesse, Brian, and Ben for this week's very timely discussion of green recovery plans. There's a link on our page to the report, Adjust Green Recovery from Bovid-19 from the Just Transition Initiative. You can also find more episodes of Energy 360 on our website, [csis.org](https://www.csis.org) or wherever you listen to podcasts, and you can follow us on Twitter, [@CSISenergy](https://twitter.com/CSISenergy). As always, thanks for listening.