

Action Collaborative on Decarbonizing the U.S. Health Sector Virtual Meeting

March 29, 2022

Unperfected Transcript

Welcome & Opening Remarks from the Action Collaborative Co-Chairs

VICTOR DZAU:

Good morning.

My name is Victor Dzaou, I am the president of the National Academy of Medicine or NAM for short.

I am delighted to welcome you all today to the second public session of the academy's action collaborative on decarbonizing the U.S. health sector.

You know it's part of the NAM's challenge on human health, climate change and equity.

Just last month we heard the second installment of the--and evidence continues to show that climate change is a dire threat to the human being and the health of the planet.

This report presented a broad range of climate effects on human health.

Including increases in heat related deaths, infectious disease and food insecurity.

As well as impact on mental health and well-being.

Urgent actions needed to address these increasing risks which should encompass both mitigation and adaptation for resilient so therefore it's also an equity crisis but if you do not know the U.S. sector is a major contributor to carbon emissions in the United States and the entire health sector is responsible for about 5% of global emissions.

It's a bit of a contributor so my feeling as a major contributor to climate change, the health sector has a responsibility to do no harm.

We must be part of the solution.

The Biden administration announced a target for the United States to achieve 50-52% reduction in greenhouse gas emissions by 2030 and net 0 emissions by no later than 2050.

Well, you know what, 2023 is just around the corner and the time to act is now.

We must activate the entire health sector to decarbonize.

So this is what this collaborative is all about, it provides a unique opportunity for people to come together and to do this together.

It brings together participants from across the health sector presenting health and hospital systems, conditions, private payers, pharmaceutical and device companies, health professional education academia, nonprofits, and the federal government.

And we all come together align the collective goal in actions for decarbonization, based on evidence, shared solutions and a commitment to improve health equity.

As you hear, the collaborator of was organized around 4 crowd areas with 4 working groups carrying out the work.

Healthcare supply chain infrastructure, healthcare delivery, health professional education communication.

And last but not least, policy metrics.

We launched the initiative last September and this working group had been really working hard, meeting monthly to develop their own goals and priorities, and so, what are the areas of actions, so during this morning's event, you hear an update from the co leads of the working groups on their progress and the anticipated outcomes, very excited and very grateful to them.

We also have an update from the federal government from Admiral Rachel Levine and her team, and we will have special remarks from Admiral Mirakal Levine, 1 of the co chairs.

In addition you will hear remarks from 2 international speakers, Maria Neira, director department of environment at W. H. O. Will give you a global perspective of how to decarbonization and how it's important for achieving global equity outcomes and you will also hear from Nick Watts chief sustainability officer for National Health Service England, or NHS and he will share what is happening at NHS.

So with that setting, I would like to turn the meeting over to my 3 co chairings for their remarks, George Barrett, Andrew Witty and Admiral Levine, so let me turn it over to George Barrett with Cardinal Health.

GEORGE BARRETT:

Thank you Victor, and good afternoon to everyone joining us from, a broad, we have a full agenda so I will keep my comments brief, but I would like to thank Dr. Dzau for leading this and keeping us on course.

Would also like to thank all leaders participate nothing in collaborative and have fully committed to this initiative.

With each meeting of our working groups, it becomes increasingly clear to me how important it is that we brought together leaders from both the public and the private sector.

As we tackle this critical challenge across a highly integrated healthcare system, the ability to work across sector boundaries will become increasingly important and the teams already showing that spirit and that capacity.

Finally while our work here is focused on the U.S. healthcare citizen, events of this past month remind us that our work is affected by and influenced by events around the world and there are recent examples, 1 on the global stage and 1 right here at home.

The tragic events in Ukraine have taken a horrifying human toll but also affected global access to the cost of the energy and while this may shift short-term possibilities for fossil fuels but it also charts a course to reduce this dependence.

Second, this past week, the securities and exchange commission in the u.s. issued proposed rules regarding obligations of companies to disclose risks associated with climate change including specific metrics related to admissions, governance expectations and more.

While this is still in the request for comments stage, it is clear that the pressure on the private sector to address climate change will continue to grow.

And it's in this context that i will--we will continue our very important work which vector outlined.

And with that, I would like to introduce 1 of our other co chairs Andrew Witty, chief executive officer of the united states united health group, Andrew?

ANDREW WITTY:

Thanks, George, so much.

And let me add my wnl welcome to everybody who joined us today for this conversation.

Very much appreciation your time and attention.

As George and Victor both said, bringing together public and private sector is really the only way we're going to be able to make real progress here.

In terms of decarbonizing the health sector, and 8 and a half of emissions coming from our sectional analysis ow so we have a real urigence tow do something here.

Last year we were proud to,a nouns that we would strive to,a chief that goal of 0 carbon by 2035 and we would do that with minimal use of offsets, this has to be an authentic real elimination of carbon footprint.

To do that, it was going to require a tremendous degree of collaboration, across the sector and is going to need a tremendous amount of help from federal and state authorities and regulators because decarbonizing actually means modernizing.

It means we have to modernize the way we do things, rethink the way we do things to allow us to do them in ultimately a healthier way for the planet and also for all the people who are currently at risk of climate negative impact.

With that, I'm very, very proud to be able to announce or to introduce Admiral Rachel Levine who will address a number of comments around the federal government's action plan to decarbonize the u.s. health sector.

As you will know, Admiral Levine is the 17th secretary of health and human services and that follows a very accomplish career as both a physician and a public health official in many different states and federal positions.

So with that, Admiral Levine, I would like to hand it over to you.

Federal Action to Decarbonize the U.S. Health Sector

RACHEL LEVINE:

Well, thank you so much for that introduction, I would like to thank to Dzaou and all of the staff at the National Academy of Medicine.

I would like to thank my co-chairs as well.

And thank you for all coming here today for the Action Collaborative's biannual meeting.

You know this collaborative gives me open.

Watching the collection of organizations that make up the collaborative as it gains momentum, gives me hope that we will be successful in protecting people in the nation from the health risks that climate change presents, both by reducing the healthcare sector's emissions and by increasing the resilience of facilities and communities.

We know that many of you on the line here today are at the vanguard of pioneering work in this field and I am deeply grateful for your contributions and your input.

As 200 plus medical journals asserted in the fall, climate change represents the greatest global health threat, now and in the coming decades.

Report after report confirms this and makes clear the disproportionate suffering that certain communities, communities long the victims of discrimination and disadvantage already face as a result.

These are the same communities, the same groups that have been most harmed during the pandemic and that traditionally do bear the brunt of environmental injustices.

On their behalf and on behalf of future generations, we have no choice but we have to act boldly.

We have to act boldly and I know many of you have been demanding that for years now.

We must take bold, concrete, historically rapid action to both protect the public from the catastrophic and chronic climate threats and to reduce the health sector's carbon footprint.

The health healthcare sector can no longer watch and react and respond to crisis as they emerge, they must lead, mobilize clinicians, administrators, public health officials and communities across the country.

The price of waiting, the price of waiting in terms of human morbidity and mortality and the financial burden on our health systems and communities is too high to delay.

In the last 6 months, the United States government and health and human services have started moving from words to action to have a lasting impact on this issue and what I'm going to do right now is briefly describe some of our work and our plans as well as our hopes for collaboration with all of you.

A major signal from the Biden administration on the importance of climate change and health equity, was the establishment of our new office at the Department of Health and Human Services, Office of Climate Change and Health Equity, on August 10, 2021.

We finally called this office O.T. And it reports directly to me, it's in my portfolio and it's an office with a pretty small team right now but a mighty mission.

And I want to recognize our entire offices by unsung heroes, they get the unsung heroes award for what they've begun since that time.

This office has 3 main quires of work, the first area aims to build the resilience of communities to immediate health impacts of climate change.

Health impacts such as extreme heat, wildfires and the resulting smoke as well as flooding and those communities that face more than their fair share of risks, the health equity component che is so critical.

We are working with health and human service units such as the office of the assistant secretary for preparedness and response, as well as our regional offices to tailor solutions that meet each community's unique needs.

The second area of O.T.'s work focuses on harnessing long-term recovery and in Francis Collins sphructure initiatives to combine climate action with health equity.

We know that the environments where people are born, live, work, play, worship and age can either contribute to people's health and longevity or contribute to illness and health disparities.

Those disparities make people more susceptible to health threats of climate change.

So o. T. Is working with and assisting other agencies and government departments leading infrastructure projects and optimizing health benefits of their climate change related investments.

Lastly, o. T. Works with our nation's hospitals and health systems, both private and federal to reduce the greenhouse gas emissions and make them more resilient to the effects of climate change.

Again in service of their most vulnerable patients and families.

As has been quoted here a number of times, united states health sector accounts for roughly 8.5% of U.S. carbon emissions and globally, the health sector accounts for 4.5 to 5% of global carbon emissions, so progress in this area, is critically important towards meeting president Biden's goal of economy wide greenhouse gas reductions by 2030.

I like to think of O.T. As the glue that holds all of our climate health work at HHS together and the connector to other departments, federal health systems and private sector stakeholders.

Through our office, we look to exchange--to enhance existing programs, and introduce policy levers that are available across the government to combat climate change.

We have already started listening closely to constituent feedback through regional listening sessions and interactions with large associations.

Our colleagues within HHS at NIH or CMS have also issued RFIs to collect rich insight and feedback from individuals if communities about their current challenges, their break through ideas, and policy recommendations with respect to climate change and climate justice.

This input is a great help to us and will inform program designs.

O.T. Has now met with every division, every agency within the department of health and human services, to determine their strategy and how we will jointly begin to address health challenges of climate change together.

We have launched the department wide climate change and health equity working group in February of this year, to get into coordinated action on this front and just about every HHS agency and division and office is identifying programmatic actions to take and we're very excited to soon begin to share some of these new resources to support communities and providers on earth day, just coming up and shortly thereafter.

Our updated HHS-wide climate action resilience plan to be released later this year will document every agency and division's planned work and contributions in detail.

And while we continue to create and enhance programs, and resources over the balance of the year, a number of programs are already in motion for example, the low income home energy assistance program is housing for administration children and families that division and making a concerted effort to increase adoption of this benefit to support families to access funding to cover home cooling.

In advance of the summer seasons extreme heat.

Of course we are used to extreme heat in the southwest, but last year we had extreme heat in Seattle, in Portland, and so hopefully we're working on upon-this new program.

Every lever available to the government is on the table as we pursue progress on climate change and health equity.

And we are going to use our pulpit and clearly signal our intent through our commitments.

In November, I had the pleasure of leading o. T. Representatives and leading the HHS aspect of the united states teleigation to cop 26, united nations conference of parties, and we announced the united states commitments to the cop 26 health program to achieve climate resilience, low carbon health systems and i had the pleasure of meeting Maria at cop 26 and I'm looking forward to her comments today.

We've taken the additional steps of supporting implementation of new executive order on federal sustainability.

This federal order mandates that all federal facilities including our federal health systems at v. A. D.o.d. achieve significant greenhouse gas reductions from energy use, vehicle fleets and buildings.

The goal is achieving net 0 emissions including our supply chains, and we hope that the private sector will mirror this.

We are currently orchestrating cooperative activity presidency the Indian health service, the VA, d.o.d., military health system and other federal care providers to accelerate our work in this area.

And we intend to make our learning as transparent as possible to help others starting their own efforts in this space.

We are also exploring many other policy levels that we have at our disposal including incentives and reporting on emissions but our emphasis in the near future is introducing tools, technical assistance and support.

To make fast progress, we have to learn fast together and we seek to create forms for learning and exchange that support different provider types of different stages in their journey on their work, on climate change to serve the communities most in need.

We seek to engage private sector leaders such as you all, in making commitments to planning and action similar to our own so that the nation is as prepared as possible for what's to come, tending to threats to both physical health and mental health.

Physical health and mental health which we know are seriously threatened by climate impacts.

Since so much of the healthcare in this country comes from the private sector, we need a broad cross sector approach.

That's why you are here and why the national academy of medicine action collaborative on decarbonizing the united states health sector is so vital to our future.

I'd like to thank the leadership of the organizations from across the industry, that the collaboratives identifying and we are identifying priorities related to healthcare delivery, healthcare supply chain and infrastructure and health professional education.

As well as policy financing and metrics, the national academy of medicine's action collaborative brings together really some of the finest minds in the nation, really you all to tackle this crisis and creates an open door to input from the field through its fabulous new network organizations.

We applaud the bold commitments that many stakeholders have made and we hope that others will continue to match and we encourage everyone to become a network organization member so that we can continue to hear your feedback and learn and share best practices.

It's not enough to simply resort to action and repeat how important this problem is, instead we need to make unprecedented bold commitments.

We need unprecedented boldness that we can demonstrate in several ways through this collaborative.

By number 1 sending clear measurable goals for emission reductions together.

Two, transparently report the progress of federal and private sector health systems on these goals.

Three, energetically share our resources and learning with 1 another and 4, setting aside territorialism that can sometimes form between individuals organizations and industries.

Those silos cannot help us in this regard, we need to work together.

On this last point, I say that of all the great movements I've studied and been a part of, we have common deep generosity and the removal of barriers to unconditional team work.

We need to work together.

Given how much of the health sector emissions are associated with the supply chain for example, we know that progress on emission reductions will require organizations that--organizations that might be unfamiliar with 1 another, perhaps even competitive with 1 another to find new ways of cooperating.

We're seeing that in this group already and it is really inspiring.

We also need to open new doors to inputs and directors, and often those from neglected communities around the country but are too often shot out of the conversation including indigenous groups, communities of color and older and disabled populations in communities.

Their knowledge, insight and passion is indispensable to what we have to build.

In closing history will look back at this critical moment and remember us for the action we take or the actions that we fail to take.

So I choose action.

Secretary Becerra chooses action, our'd ministration under president Biden an leadership chooses action, I choose to do all I can for my health, our world's health, my family, my community and to support our nation and the world.

It's no longer a question of thinking about protecting future generations but protecting people right now.

We eagerly await your involvement, feedback and partnership, we know that you are bursting with ideas of how to make things better, our inboxes are overflowing with your innovations but also your worries, your suggestions and your concerns so keep them coming and keep sending your input to this group, and the organizations that comprise it as well.

So thank if you advance for your time and efforts and watch this space in the coming months.

For more from our office and from o. T. And our HHS partners and, thank and you i will turn things back to Dr. Dzau.

VICTOR DZAU:

Thank you Admiral Levine, and we too choose action, that I can you.

Let me turn it over to George Barrett to introduce the next speaker.

GEORGE BARRETT:

Thank you Victor it's my pleasure to introduce Dr. Maria Neira, who you just heard from is doing important work as the director of climate change and wealth world health organization.

Dr. Neira has been directing the climate change and health of world organization in Geneva since September of 2005.

Throughout her tenure and up until now she has led and advised on policy and management in key areas of environmental health.

Prior to that she served as undersecretary of health and president of the Spanish food safety agency and from 1991 to 1998 she was the coordinator of the global task force on control and so with that, I would like to turn the podium over to Dr. Neira.

Health Sector Decarbonization – A Global Perspective

MARIA NEIRA:

Thank you.

Thank you very much.

Good morning to you and good afternoon from this part of the world, it's really a pleasure to join forces with you, thank you very much the president of National Academy of Medicine Victor, thank you for the participation and thanks for this opportunity as well to present what is a global picture and to tell you how much we need you.

Actually this opportunity for us is to exchange and join forces, you will see the opportunity and in the historical times we are living which we don't even want to describe, forced us to be aware of a climate crisis, and the voice of the medical community, the health professionals at large is more needed than ever, I think we are the 1s that maybe we can put some common sense and wise approach to what is needed and to do all of that in a very ambitious way and at the speed that we all need to sort this crisis.

Let me start with something positive.

Seven of April as you certainly know, we celebrate every year the world health day.

Well, this year, W.H.O. has decided to dedicate this world health day to the theme which I'm sure you will all agree with that, this year will the theme will be our planet, our health.

If people around the world is still not convinced of this strong linkage between the health of our planet and the health of our people, we will use the opportunity to again mobilize, raise awareness and give people the opportunity to say, okay, as an individual, who can I do starting at home, recycling?

Using my bicycle instead of my car, educating my children, different, stop using plastic, moving on a different energy efficiency at home, and passing the message using the vote and creating the action that is needed and we hope and know that we need a lot of action to move into and start to address differently the climate crisis and the health crisis that are together.

You all know very well that air pollution is a critical part of that as we know that if we tackle the crisis of our pollution, over climate change 1 of the best benefits will come from the reduction of air pollution.

W.H.O. has been working on climate change and health and that for many years now, we have put outside all this specific evidence, we have been helping countries to do more on that, with the climate health, facilities mitigation, we have been trying to influence and change and accelerate the transition to healthy sources of energy to the healthy planning to change and go for more sustainable food systems, recognizing that only these 3 transitions that are so critical will be very positive to achieve a massive health benefit.

You would be very positive as well to recover our economy and we all know this is very much needed these days and of course, it would be very much needed as well, to address the horrible iniquities that we are suffering now and that's--if we keep this track, we will be going for morning and great and even more living even more for people behind after this prices.

We need to recover from the Covid-19 on a very healthy and green and fair way and I really hope that we will be moving of that.

That is why when we went to COP26, and I was very pleased to meet Admiral Levine and hear from her real commitment on decarbonizing the health sector because this is 1 of the key elements on a plan for climate genes and health which is leading by example.

We are convinced that the health sector needs to be part of that, not only describing the risk, not only even interventions the whole type of risk, not only given information to influence the different sectors that we they'd to influence in order to reduce our carbon emissions but leading by example, making sure that our health systems will be contributing to that as well they will be reducing their own carbon emissions.

This will be very, very rewarding.

I'm sure that it will be very challenging as well, you will hear later on from Nick, NHS and uk will be our champion somehow, we will be the 1s that we will be watching and criticizing Nick, with all due respect, you will be our champion, NHS and uk has to be our champion and the 1 that would be providing a lot of samples and good practices, but as well, u.s. because after we discuss it with admiraka will levine and her commitment and passion and engagement at cop 26 I'm sure that u.s. will be another champion sharing with us plenty of experiences and the good knowledge and knowledge and how to do it and using this as well, those samples to motivate nor action around the wormed.

W.H.O. is planning to do a platform, a platform where we can make sure there will be exchange between the private sector and the public sector it's choir that the role of the public sector will be 1 here.

We will be discussing with them, challenging as well, then to go in a bit farther when they are committed to reducing our emissions as mentioned by i think it was yours, it's true that this is and by andrew, it's true this will require modernize our health systems, it would require a different way of using energy, of packaging and this supply is procurements, the efficiency of our health system but we are convinced as well that this will give us a lot of rewarding experiences and the health professionals will be very happy to contribute to that.

So just to let you know that this will be a priority of global level, we will be very happy to provide platform where all of those experience will be put together and stimulate and we hope that by counting on your support and your leadership, we will be able to motivate other countries to follow.

So thank you very much George and Andrew and I hope I was not too much on my time.

Thank you.

>> okay, thank you.

Maria thank you so much for that, and it's really lovely to hear from a W.H.O. member having been there in 2020.

So moving to our next speaker, Dr. Nick watts the chief of sustainability officer NHS, is committed to delivering 0emission health service, and he lives in England and he leads the NHS team across the country which improves the health of public and community with response to climate change w. That, we would love to hear from you and delighted to give you the floor.

NICK WATTS:

>> thank you.

You can hear me?

>> yes.

>> yes.

>> you understand my austrailian accent?

>> maybe, maybe.

Delivering a Net Zero NHS: Lessons Learned for the U.S. and Beyond

NICK WATTS:

>> Thank you very much for having me.

Good afternoon to everyone there, good afternoon to everyone in this part of the world.

It is so exciting to be here.

Why is it so exciting to be here?

Because the NHS, October 21st, 2020 we said something, big bold and a little bit stupid.

We said we're going to get to net 0, we're going to tackle climate change head on, we will treat the climate crisis as though it is an actual health crisis and we will do that net 0 by 2040 for the certainly missions we can control directly and 2045 for our total dploaba footprint, absolutely everything.

I'm excited to be here because as we said that we had little asterisks.

Should always pay attention when people have little asterisks, somewhere, I see Maria shaking her head, she's right.

The asterisk is the NHS can't do this alone.

It is not an island.

One health care system cannot transition to net 0 in isolation.

We can only do this if our closest friends in ted United States, Europe and yes even in Australia are on this journey with us.

Since that moment there has been an explosion of interest, engagement into decarbonizing and to strengthening the resilience of healthcare systems around the world.

I feel emboldened to the point I don't think we need that asterisk anymore because I know that we will have healthcare systems, the whole world across the world and something like this, gives me assurance that the United States will be right there with us, heading towards a new net 0 healthcare future.

--you should not let anyone be transparent when they say this, I mean net 0 offsetting only 6% of our direct emissions, offsetting only 8% of our total global emissions and we have every intention of moving that number down as low as we can possibly go and I promise you won't hear anyone in the NHS even say the word offset until we are sure we have done absolutely everything we can and we have reduced our emissions as far as possible.

The time for anything other than that with a couple of decades ago, the price of entry into this discussion has risen significantly in order of magnitude.

See let's talk about the more interesting side of this, we can all say things by 2040, that stuff is easy, let's talk about the more ambitious side of things and I will talk about what the NHS has done since making that commitment.

It's been about 18 months so let's focus on the first 12 months of that and bear in mind that the healthcare system, in the United Kingdom and yes around the world has been busy during this time and yet I think the NHS has something we should be quite proud of.

Number 1, we had to get our own governance in order.

It's 1 thing to have a net 0 strategy, for the country, but the country is a big place.

It's the 29th of March.

On the first of April.

You will see a press release out from us saying we have just passed an important milestone, 100% hospitals in the country have their own localized net 0 strategies, saying a board lead saying I am accountable for this hospital and that my hospital gets to net 0 along with the NHS direction.

Number 2 you will also see every integrated care system, (ICS), their own board level lead and their own net 0 strategy, this is a total of 900 healthcare strategies, and ICS but the sake of comparison is roughly the same, there are 42 of them in the country, roughly same as an American state in terms of how we think of them, but they are pretty independent, they do their own thing, they broadly ignore what the center has to say, they administer hedge care and run their own budgets and yet on climate change we can all work together and there are 42 net 0 ICS level strategies.

The governance is important but so too is the capacity and we have built up a national team from where we are only 18 months ago when there were 5 people working on this, there are now 150--157 people working on this with a new net 0 nursing team, net 0 surgery, net 0 ambulance, net 0 estates, everyone's starting to embed the response to climate change and everything we are doing right across the way of the NHS.

So you need governance, you need capacity, you need analytics, and so we've got to the point now where we don't just have a footprint for at the national level, we have a footprint at the regional level, in the country at the integrated care system level and hold your breath and count to 10 and then wait 2 weeks we will have that as well for the trust level, for the hospital level as well.

Footprints across every single hospital for them to be able to base line and measure that progress.

Importantly and Maria is right, we want to be a champion of this but we want to be hold accountable and when we fail and miss our target we want to be criticized for that because we want to take this journey seriously, tell be tough and so all of that information is public, because when we miss a target we haven't missed a targeted yet but i promise you will come because this is difficult, when we do we need a chorus of healthcare professionals in our country and across the world and from the world health organizations shouting, cheering, come on using that and so we will make all of that public as best we're able.

Governance, capacity, core analytics to measure the footprints across the entire healthcare system, and then you have to start doing some stuff that will actually reduce damn emissions, eh?

So let's look--United Kingdom built hospitals not fit for the purpose, not fit for the future, new net 0 hospital standard again, there is an upfront capital challenge that this places on the system, it increases the cost, it I'm revealing dollar, but it increases roughly about 8-15% of what you might expect, the new hospital build today, that pays back for itself 5 times over in the lifetime of the hospital because these are just good common sense energy efficient hospitals that our staff and our patients love.

Investing new 0 emission responses, we have the world's first, the world's sec 0 emission ambulance, we're quite keen to have the world's third, fourth, fifth, sixth, 50th, this is the new direction of travel.

Once we have a we have a bit more innovation to do it but once we have a final specification, our plan is from 2024 with NHS is to stop purchasing diesel amplanss and start only purchasing 0 emission ambulances.

The fleet then turns over a couple years later.

So you deal with your infrastructure and you deal with your supply chain and we have a big important role in supply chain but so do our suppliers.

Two things I want to highlight.

Number 1, first of April 2022, coming up in just 36 hours or so, we are introducing a 10% waiting for net 0 into every single thing that the NHS buys, every single, 10% waiting.

It means every procurement officer up and down the country has to have a conversation with their supplier about what they are doing to respond to climate change and it builds into the way we express our values through our costs.

That will be a nice easy way into this but it gets more series, pretty quickly.

We've been clear, within the decade, the NHS will no longer purchase from anyone that does not meet or exceed our ambitions on net 0, we're serious about this.

So we've laid out exactly what we mean because when people use vague language you should always say yeah, yeah, yeah issue you what's behind that.

One minute past midnight April 2027, every single supplier is a qualifying criteria for doing business with the NHS, qualifying criteria buyer you even get to the competition, will have to demonstrate that your company is aligned with the 1, 2, 3 global emissions in the same direction, speed and level of the speed as the NHS.

It's a bold thing to say, the response from our 15 biggest suppliers, who make up a descent chunk of our emissions, emissions roughly the entire size of the country of Belgium is that will be tough Nick but we understand that you are not going to be the only healthcare system asking for this.

We understand this is the direction of travel for healthcare around the world and so we are with you.

You deal with your infrastructure and supply and you deal with the clinical side with this as well because the unfortunate thing about net 0 is you don't just get to do 1 or 2 or 3 things, you have to do everything, you have to do your 10 best ideas and the next 10 and the next 10 and the next 10 after that until you can't think of anything else and then you need to start innovating and to that end we are investing with our royal college partners across the royal medical colleges across the country in new net 0 emissions, asking what does this net 0 strategy mean for surgery and the royal college of surgeons of England Edinburgh coming together to look at that question.

If I'm a surgeon what does this mean for the way i will to change my practice?

The same for primary care, the same for nursing across each of the major professionals of the NHS, that the healthcare engages with.

We invest in clinical leadership and fellows, we have a new fellowship scan started last year and we're tripling in size this year, taking the best and the proprietariest pharmacists, physio therapists, nurses, doctors, out of clinical medicine for a year to move into national healthcare policy to take that forward and say okay accident what this means if I'm a urologist and this is how I might like to see nigh national healthcare system support me as i transition to net 0 as my professional transitions to net vorand then finally targeting, different, easy quick wins, we're inventing in now incentive schemes to shift clinicians away from particularly polluting medicine where we know there's a common sense safe alternative but let's be frank our patients prefer.

We're looking at analgesia, in labor we're looking at anesthetic, modern methods of construction and construction of modern medicine and aligning that approximate with a lot of work that we do on net 0.

So you do the infrastructure, supply and clinical engagement and then you innovate.

All the things I just talked about the new programs that were started off in the last 12 months for the NHS, we've got a few answers but we don't have all the answers.

We have to be clear about that.

We don't have a clear view of the NHS or what the healthcare system looks like by twebt 45 but we know we can figure it out so with our friends the national institute of health research, NIHR, we announced a 20 million-pound research fund for our best academic and health science centers to start to research and what are the kinds of interventions to put it in place, and what we steel, shamelessly,

from other healthcare systems around the world, you take that sort of big academic innovation fund, and then do a similar thing where we repeat it for small businesses who provide and supply to the NHS, do a similar thing for a nurse or doctor who just has a good idea and says, hey, if you give me 10,000-pounds I bet you I could scale up something cool in my healthcare system.

You do the infrastructure, you do the supply chain, the clinical investment, the innovation, you get pretty damn close to net 0 for a healthcare system the size of NHS, the 1 thing that is miss suggest that you need the international collaboration.

And that to finish what I started is why I am so excited.

The NHS cannot get to net 0 alone, it can only do that if the united states is moving, pulling, pushing, shouting, cheering the same pace as we are, why Maria was so excited to work with the w. H. O. To establish the new platform, the new unit dedicated to helping the world move to a low carbon future.

It's what you need for this to become not just fund, not just additional, not just positive but inevitable future direction of healthcare the right way, around the world.

Thank you very much.

>> Nick, thank you.

I think you can feel confident that we understood you perfectly.

This is a great reminder from you and for Maria that we have much to share, much to learn from 1 another.

So thank you again.

With that, I think it's time to turn the podium back to Dr. Dzaou to lead us through the next session.

VICTOR DZAU:

>> Thanks Nick and Maria you know I have so many questions I want to ask you.

I guess time will not permit us to be able to have a deep discussion, but I'm interested, Nick, in thinking about, you know in our--so we have a working group, as you will hear later on policy incentives and metrics and i think in sentive is a really important word that influence behavior.

A lot of what you are doing NHS are very impress sieve because a single payer system and it sounds quite top down, except for the innovation.

How do you incentivize every clinician, everybody to act?

So in our case, we have a payment system similar to yours, so we move into [indiscernible] based payment, so in other words you can turn that into international classification sentives for hospitals and systems to meet the decarbonizing goal as a payment incentive, as well.

So I wonder if Nick or Maria can say a word about that before i move to the next program?

NICK WATTS:

>> Sure, I can talk briefly and I'm sure Maria has more creative and exciting answers than mine.

Mine are boring things you might expect.

Number 1 we put it in the job description of every single job healthcare professional in the country, if you are a good healthcare professional, you are tackling climate change, 1.4 million of us.

You make it clear that the national medical director cares about, yes but also your chief nurse at your hospital, we make them visible, and we try to unlock that sort of potential from our staff, we incentivize, we incentivize like i said, those that are a smaller innovation grants for our individual clinicians, this is all about getting that bottom up approach as well as the top down, you're entirely right.

What we find to be honest is we're playing catch up most of the time.

I find that when I go out and ask, and we poll our stuff, and ask what do you care about, what do you want see more of?

They shout back, 9 out of 10, 90% of our 1.4 million healthcare professionals shout back, i want to work for an organization that is taking this seriously that is living up to my personal values, often it is the center, the national healthcare, the national part of NHS that is playing catch up to the excellent work already happening on the ground.

Our job is to provide that enabling capacity.

A bit of funding to, a bit of taking forward with some slightly crazy ideas.

Our 1.4 million health care professionals will do the rest.

>> Maria what are you learning from the, you know globally, internationally from other countries.

MARIA NEIRA:

>> yeah, first, doctor, things have changed.

Today the health professionals are more and more becoming very much demanding or doing something about climate change.

So there is a huge demand now coming.

I remember when we started at the beginning and the W.H.O. or something to talk about climate change and health, yeah, before, follow but it was not with the same engagement.

Today well is hope because we see young professionals, we see even not so young, many of the health professionals have now joined in this for more and he said, it gives me a lot of satisfaction to see that some national academies are now going for their own plan of climate change and health and even very traditional societies, so this is 1 of the big motivation, second in some experiences we have for instance on the huge hospitals, people feel very rewarded, i mean, do you need to do first an assessment of the carbon foot print and we will reduce this and that and then you have to explain it to the whole personal, the hospital for them to be engaged, but it is very rewarding, everybody is quite rewarded to see the results and you will realize that there is some economic cost reduction as well, maybe not the first year, Nick would know much more than me than on that but there are additional benefits that we generate more motivation, and the third 1 i think is looking at the number of dates, you can prevent, if you tell someone how much is represented in terms of enumerator pact on the home by reducing emissions

how many lives you could save and how many decisions you could avert, this is very motivating but to maintain it for more than 20 years, we want to reach this 0 net, so we would require a very strong motivation and commitment by and incentives.

Over.

VICTOR DZAU:

>> Thank you.

You know you're both right.

If climate change action is incorporated into the same mission as healthcare, I think everybody would take this on, right?

Which is I think education is also important.

So you hear that we have an education communication wealth stream where if you are a medical student, nurse, healthcare worker, studying to care for patients but this whole environmental area is part of patient care and good health, then suddenly it becomes in the day, in a to do it as well and not something else as opposed upon you.

I think that's exactly what you're both saying and I totally agree that this has to be part of our mission as well, because it's for a better healthcare.

So thank you very much both of you for really very stimulating talk let me move to where we are which is hearing from the 4 working groups.

They will tell you what they've been doing.

As you heard we've been up for 6 months but following this open meeting, we're going to have a closed meeting where we will push for exactly, setting goals and actions together.

We want to move clearly towards you know meeting the goals that we all want to see it happen.

So with that, let me ask Greg Smith, he's chairs of the healthcare supply chain, executive vice president of global operations supply chain medtronic.

And so he has been and his colleagues working very much on the issue, Nick, you talk about this, this is in fact, their own urgency, which is really exciting.

Over to you Greg.

Priorities for Action: Updates from the Action Collaborative Working Groups

GREG SMITH:

>> Dr. Dzau, thank you.

Hello, everybody pleasure to be with you today.

It's my privilege to be a co-lead on the supply chain and infrastructure work stream obviously with Chip Davis with the and Michelle McMurray, we are fortunate to have a very strong and growing group of

members, organizations, and if you look across it we're very broad, also very deep within the vertical across the healthcare industry, so the representation really is from academia, it's from the federal government, from distribution in the hospital systems, also, the industry, with medtech, with pharmaceuticals with biotechnology, all the way across the board so the good news is we have a very strong end in healthcare, knowledge base and approach.

What's also quite interesting was as we started, with such diverse points of view.

So as we build and gain our priorities, it's a great opportunity for us to truly understand the overall complex of the industry.

The if you look at our overall charge you know our focus is insuring we are identifying and trying to advance opportunities to reduce carbon footprint and also it will cost the healthcare supply chain but also strengthen the resilience.

--go to the next page, please.

The 3 areas that we're primarily focused on, I will go into more detail is to solely help scale resources and supply chain decarbonization and to help drive that exponential growth and our intent for others to learn from us, we can get started wherever they are on the journey.

The second area is really around fostering alignment around metrics and accounting and reporting standards.

There are a lot of different ways we look at it across the industry, we learn that with our group initially and trying to help really work with the other 3, work groups to, make sure that we're finalizing and looking at objectives and hone in on those things that are important and we want to try to work and influence policy and regulatory challenges to make sure we are helping drive solutions that will actually, you know help share the learnings and other industries, but also to maybe be able to connect to be able to enablement as we go down insuring and we hope we can influence not just the member of companies but actually have a presence and be bold enough to influence a much broader group within our segment.

Next page, please.

So of the 3, let me get into just a little bit more detail.

I think first and foremost, around scaling up the resources, and the best practice, we really going through our working teams to be able to help build a roadmap.

So depending on where supply chain is or a company is in maturity, give the stability to do a start up or to accelerate their overall journey by really benefiting from the knowledge base, the experiences that we've been able to collectively report against and to be able to document, to build that journey map.

We also envisioned that we will have basically milestones along the way and journey map, so that will help each company move through their work stream.

Again, regardless of where they are, or what size they are and how they fall within the overall medical industry.

We also want to make sure we are linking tools and having abilities for them to be able to be very sufficient off the material and the information that we're able to compile so they can really again, move to their starting position or whether they're actually in [indiscernible].

And we want to make sure we are promoting valid and reliable aggressively and using the voice we have to get public isotope and get people attracted to the benefits that this will bring.

The second area is around according standards and we need as many of these we can and focus on excellent reporting and moving toward we're measuring and reporting on greenhouse gas emissions where that scope, 1, 2, or 3, and also setting science based targets.

You know, the idea to get more common in what we do and hone in on our choices and there are a lot of things to be reported out there and we want to make sure we are focusing on and giving clear direction around the things we believe to have the most meaningful impact.

We also want to make sure we have in their timelines and make sure we're coming together on key dates and making sure that we're moving toward the same futures, future state.

And then we want to really be in a position where we drive bold public declarations, we want to make sure we are actually having people sign in writing and really envision that we can actually give them bold declarations and, hold them accountable in the public eye and make sure we are outlining those shared principles and expectations.

And then lastly, is really in the area, next page, please, is really around the policy and regulatory challenges and solutions.

We want to try to help and enhance the alignment in cord nation between industry and policy and regulatory policies to help incentivize, motivate, enable and go after and achieve the sustainable healthcare services and products innovation and we envision dog this by also looking at case studies out of other industries, building, building case studies from our industry and really being in a position where we can really help build relevance to the entire supply chain and so examples of where we can have public and private partnership and then, you know as we think about these initial topics, you know it's making sure that we have regulatory approval pathway and make it clear and help influence the degree that we can to make it easier for sustainable product improvement and innovation.

And then, really think about the investments, the programs, the infrastructure, that's needed to be able to truly enable us to be able to achieve these aspirations, so we are very excited about the work so far, we have a lot of it ahead of us and we are happy with the growth and the interest we've had and we are also very excited about influencing others across the networks not just within our work groups to have a bigger influence on all of these.

So Dr. Dzaou, that is the work we have ahead of us.

VICTOR DZAU:

>> Greg, truly impressive.

You know i learned something in my journey in life as leader, people support when they build and that's what you're doing.

You are getting the payers all working together towards the same goal and you know from creating a roadmap, repository to having measurement milestones to influencing also policy, i think all that will align are success employing so i think it's just wonderful as i'm hear this how these collaborators are getting together in the private sector to work together and so, thank you very much indeed.

>> let me next turnover to michelle hood, michelle is the executive vice president and chief operating officer of american hospital association.

And she's the co lead of healthcare delivery working group.

So we are going from supply to healthcare delivery itself.

Michelle?

MICHELLE HOOD:

>> Thank you Dr. Dzau, and good day, everyone.

I am here representing our healthcare delivery working group, and on behalf of our--my co leads out, Andrea Garcia from the AMA and David Grossman from Kaiser Permanente, I want to start by thanking national academy for this effort and to express to the likely enthusiasm we've heard from our guest speakers today, i think as our work group tackles the details of moving this initiative, ahead, i can, a sure you that there's a tremendous amount of enthusiasm for that work, our working group has been meeting quite regularly and i can tell you the attendance has been exemplary.

We have a good cross discipline approach to the work and as i was listening to Greg discuss the supply chain, I was struck by many of the overlapping kinds of initiatives that each of the work groups has been taking on, I think that really enriches the overall product and creates a lot of synergy for our initiative.

So on our working group, we likewise to Greg have many in our group.

We have lively dialogue, not always agreement but that's fine.

We are hope to that and really--open to that and really encourage that cross fertilization of ideas.

Next slide, please.

So our working group, charge is really to scale sustainable quality and equitable healthcare operations and practices and i will point out the word scale, Greg used it as well.

There are initiatives and activities ongoing in healthcare and hospitals and healthcare systems across the country, relative to environmental sustainability and stewardship and we have a lot of ideas as to how we can accelerate that and build upon the good work that's already being done.

I do point out, the final phrase of the charge statement around the fact that it's not just scope, 1, 2, and 3, activity that we can tribute to our overall goal, but also the idea of building upon the intersection between environmental stewardship and various and clinical care.

So, we've been talking within hospitals and health systems for over a decade, probably closer to the necessity of driving out variation and standardizing around evidence-based best practices, we think that

you know that could kind of effort and activity will also contribute to the issues of decarbonization and we want to pull that into our work as we move forward.

Recognizing that it will be as other vs said before, today, an iterative process.

--we lay the foundation but we don't want to ignore the expertise we have on our working group to address this issue around evidence-based clinical best practices and increasing variation.

The 4 areas of focus, you see on the slide before you, I'm going to go into a bit more detail on each of those and then we'll go to the next slide, i will start with the multifaceted case for decarbonization.

We recognize that we say a business case that that sometimes makes individuals have a reaction that we won't be able to accomplish our work unless we can prove a positive roi.

We've broadened our thinking, around the issues of the case for decarbonization, so we think about it from previous slide set of multifaceted approach.

Yes, we do believe that in many situations, efforts surrounding environmental stewardship do have a positive impact on the financial balance sheet and income statement of an organization in many ways.

But we also recognize that there are cases around community health that need to be qualitatively and quantitatively included in our building out of the case.

Or also issues around patient safety and quality of care, this should be included in that explanation of why it is that this work is so important.

So pulling it into triple or quadruple aim of healthcare in the united states and making it part of the bigger work that before our hospitals and are for moving ahead.

And I love the earlier discussion about you build the infrastructure and you step through the process and you weave in innovation around that.

I think that's extremely important as we build out this case as well.

Next slide, please.

So the sustainability metrics and we will hear more about metrics from Don Berwick later in this presentation but our group has also been addressing that.

We're using the idea of taking advantage of what's already been done, so a lot of our early work and the group was gathering examples of proven concepts that attempt and well researched and recorded so that we're not starting with a blank piece of paper.

We have a small breakout group that is in the process of taking that work a bit further at this point and again, weaving it back into the policy and metrics work group.

Plan to communicate and promote adoption of metric system just as aren't so once we agree on what those metrics are, how do we build out the communication plan and address the right audiences at the right time.

So using multiple channels will be important networking through trusted sources of information within our field will be a significant effort as well.

Next slide, please.

Like the supply chain group, we also are looking at policy regulatory barriers, we often have in different geographic areas of the country different state regulations that often times conflict with federal regulations so we want to clean that up to the degree that we can identify opportunities to remove split evenly of the questions that are in the field about how regulations do or don't support environmental sustainability goals that we have.

So to this end, we will develop an action plan to advocate for the adoption solutions to address what we've identify as barriers or completion in existing regulation.

Next slide, please.

The final area that we will look at is decarbonization best practices, i mentioned in my opening statement that there are some really exemplary efforts in the field already, so taking those best cases, best practices, building out play books and resources for those who might be in a different place on their journey, through this process.

While leverage the existing frameworks and success stories and do that in multiple ways we have a lot of opportunity to get in frobt of hospital and health system executives, state hospital associations and so forth and as the last point on this slide says, in addition to the c-suite, we know that often times 1 of our earlier speakers said, you know pront line employees can be the biggest cheerleaders for this effort, they can be the best source of ideas and innovation, within several of our disciplines from our facilities from environmental services to materials management and supply chain management and then linking it back to our health equity work will be really important so with that i will turn it back to you.

VICTOR DZAU:

>> thank you.

Another superb set of actions, Michelle coalated by you.

Very, very much appreciate it.

I think it's quite amazing that the first group and second group, many of your actions and directions are fully aligned and again, it goes to show what i was saying that as we are building this, i think we will all see the need for regulatory and policy alignment but incentive, we see the play books and best practices needed, and because we really all want to make sure that we are collectively measuring what we're doing is how we do it.

So thank you very much for your leadership and this and also with the aha.

So the next 1 is my good friend David Skorton, who is leading the health professional and education and communication, he is president and CEO of the AAMC, Association of American Medical Colleges.

David, over to you.

DAVID SKORTON:

>> thanks so much Victor and Victor congratulations and thank you for move thanksgiving whole thing forward.

You are our leader as always and it's very important and I also want to thank Drs. Neira and Watts for these very inspiring presentations and all the work that you're doing.

The working group co-leads from whom I'm learning a lot is Ari Bernstein and Beverly Malone. Like the other speakers, our working group thanks to our leadership and staff is broad and includes those from academia; federal government, health professional, students, health professional associations, and hospital systems and also nonprofits.

We can go to the next slide, please.

Great.

So the strategic framework, the purpose of this particular working group is to empower both health workers and learners to better advocate for decarbonizing healthcare through education and through communication that emphasize both the health and the equity benefits of climate actions, and the theory of change that we've evolved is that health workforce knowledgeable about the health and health equity and decarbonization of benefits of climate actions will be more effective advocates for climate actions in their own lives in their institutions and communities.

And our voices we believe can accelerate healthcare sector decarbonization and through our leadership, drive decarbonization beyond our sector.

The primary audiences are several, first of all health profession students, nursing, pharmacy, medicine, social work, dentists, radiography and others, specifically those who are active current health workers, nurses, physicians, farm suits, social workers and dentists and others, then public health learners and practitioners and very important to focus on the linkage between public health and health care.

Health worker educators hospital and clinic leadership as you heard so eloquently just now and hospital and clinic boards of directors, I believe if at the very top of the organizations, there's not a strong belief and determination to do something that we will go slower than we need to go, next slide, please.

So the goals and priorities are number 1 to identify knowledge gaps on climate and health and they are large.

Garner support for decarbonizing healthcare as well as greater climate and health education.

Thirdly to scale existing climate and health educational and health worker focused communications programs and fourth to identify opportunities to expand curricula and other educational opportunities across the continuum, that is undergraduate medical education, graduate medical education, and then where we spend most of our careers in continuing education, as well as the local health benefits of climate actions.

Next slide, please.

We will accomplish these goals to begin by having 2 sort of listening sessions, 2 groupings and the first 1 is going to be a community listening session.

The working group will convene 5-7 closed listening sessions with representatives of communities who themselves have lived experience, health workers and health leaders and they will be close and comfortable with people sharing their information.

And the participants are communities as mentioned by the Admiral, impacted by climate change, patients, youth leaders and organizations, health professional students themselves and of course health professional educators.

We plan to develop an open questionnaire accompanying each listening session to reach those beyond a session participants and catch more stakeholders thoughts and comments and finally we envision for this first set of community listening sessions we envision the key take aways and highlights from these sessions will be share wide and informed, the next convening, the, the next slide and that's institution of leadership.

My last slide.

Please.

>> and then we will convene institutional leadership once having had that input from those living the experiences.

The working group aims to convene institutional leadership to identify knowledge gaps, on climate or health to strongly garner support for decarbonizing healthcare and advocate strongly for greater climate and health education.

And we envision that the convening output of this convening could include a discussion paper that rairks dentifys knowledge and action gaps that need to be filled and as was mentioned earlier, discussion paper by itself is not enough, it's just a small beginning and then per happies in an essentials document that lays out specific competencies for each level of education throughout the continuum that would include theory and skills and knowledge that need to be taught and we also explore depending on how things go in the first 2 convenings, a second competing that would bring together meeting participants with those willing to come from the listening session, community listening session participants so Victor that's where we are so far, we are very enthusiastic and even more enthusiastic sartoday's session.

Back to you.

VICTOR DZAU:

>> Thank you David for your enthusiasm and your leadership.

I mean, look, we said this earlier, you know until everybody in healthcare and health professions see this as part of their duty, through education, understanding what it means, and that this is part of health, better health and healthcare it will not happen so it's a fundamental cultural issue which you are needing and I think that's fundamentally important.

So the last 1 actually again, an area that we talked a lot about, policy financing and metrics, this is led by Don Berwick, and he is president emeritus and senior fellow for Healthcare Improvement: thank you for your leadership and insight.

DON BERWICK:

>> thank you Victor and co chairs this is such an important endeavor.

I really Admiral Levine said, gives me hope.

I break you greetings from my co chairs of the policy of finance and metrics group John Perlin, head of the joint commission and Liz Fowler who sits at CMMI in HHS.

We are a little different from the other working groups both in our organization and tempo.

We have meetings every 3 months instead of every month, that's because original working group membership is a cross section of the members of the other working groups, so we see ourselves as a coordinative and integrative assistant to the process that are underway as you heard from my colleague, co chairs of co leads of other working parties that are deep low into the same ubiquitinations we are and we hope we can engage in a coordinated function.

The way we organized our work is according to the 3 nouns in our title, policy, financing and metrics, we began with metrics.

We have the theory that working ahead on the development of better metrics would be a real accelerator to improvement of the work with the entire collaborative.

If I could have the next slide, Liz.

The areas of focus we've chosen, see here accident metric, policy and finance, next slide, metrics are key so we can come up with ways to assess both the progress of the action collaborative and the individual healthcare organizations and other stakeholders will be part of the collaborative.

We think it will be a real accelerator.

So our main focus has been to identify target set of metrics that will guide the work in progress of collaborative as a whole, subject to the judgment of the steering committee and the individual members.

We want to try to test and scale those metrics across sectors, and not come up necessarily with single instructions to the members as to how to measure progress but plausible candidate metrics, we did a survey of the collaborative, about their beliefs about what it is most important to metric--to metricize early and the 2 leading candidates were first a set of decarbonization metrics, and indicators throughout the organizations focusing on scope 1 and scope 2, and an equal rating metric that would include scope 3, you heard from the other working groups that they are also working on metrics, what we will try to do is float a series of candidate metrics, that then can be moved into a pilot project loyalty phase as soon as possible.

Their actually has been a lot of development of metrics, among many stakeholders in this field over the recent years, not least of which is Nick and his colleagues in the U.K. is so what we heap to put out in a set of metrics that honor the priorities set in our survey in which members will move very, very quickly to testing metrics.

Next slide, please.

>> the second area of work is now underway also and that is to collect largely from the other working groups candidate ideas for changes in policy and regulation that would both remove barriers to decarbonization, and would be proactive certainties to decarbonization but innovative of the policy world, as you heard again from my colleague, the other working parties are also working to identify

metrics and identify policies and regulatory pair bares and we will try to police together and do a cohesive agenda.

We talked with Admiral Levine and her office and the HHS seems open to collaborative help from this collaborative to identify metrics that identify policy changes that would be supportive.

We will be focusing largely at the federal level but importantly we now know that there are issues around policy regulation and both the satiety neurons and municipal level and including even rules within organization, that can be inhibitory to decarbonize iegz and ideas are accelerating so we hope to come up reasonably soon with this candidate list of changes and ideas for policy and reg lat ory change.

Next slide, please.

On the finance area, we want to try to understand much more deeply and accurately the financial costs and savings from decarbonizing particularly for healthcare organizations.

There's anecdotal evident to say the least, that working on this could be a cost reducer for healthcare organizations workers vermen infected specific cases of that already evident.

We want to be disciplined about our look at what are the financial costs and savings and my co lead, john is taking oversight of this particular part of the project, in all cases, this and the others will be collaborating with the other working groups, to assemble resources that would be relevant to the decision making that has to occur among c-suite leaders and boards.

Again like the other working groups, we're interested in collecting technical assistance and resource compendia that will be useful and the challenge for us with the coordinator across the working group so that we're coming up with a consistent set of resources to offer the field as a whole.

I think that's the last slide, Liz?

We're very excited by this work, we are delighted to have the chance to think about this, and i must say that the members of the working group are are as committed as I've ever seen.

I'm delighted to be able to help lead them and Victor thank you so much for your encouragement and leadership.

VICTOR DZAU

>> thank you for your great work and I think as we said, very start, I think all issues converge and very much the 1 that you're doing, is what to measure, how to measure it, what to do, how to address policy and regulation, and then finally, looking at the fundamental understanding of the financial case is so important.

So as you all heard, there's several key themes across the collaborative working groups, and we don't need to mention them again.

I think the unique model what have we have together is in fact, exactly this, working across the sectors, public private sectorship to all work collectively towards this goal and i think that's the strength of this collaborative so i thank everyone and their leadership for participating and i know this has been an open meeting, so you know where we are, we are working very hard.

I think next time we will meet again, you will hear tremendous progress.

Today we going to have a closed session that will continue to build on these shared goals and targets and begin to move towards a lot of agreement and actions.

So thank you very much for everyone, for joining, the second public session and i will just ask maybe George to close the meeting and we are ready to go.

GEORGE BARRETT:

>> well, that's an easy assignment.

Thanks to all of you for your time, particular thanks to our guests Maria and Nick, just added tremendous amount of this and to everyone participating and with that I will wish everybody a good day and we will see you soon.

VICTOR DZAU:

>> thank you.

>> thank you.

>> bye-bye.

thank you.