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PRESENTATION

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Good morning or good afternoon, everyone. I am very pleased to welcome you to Moderna's first ESG Day. Today, you will hear from Moderna team members about the highlights from our ESG strategy. This morning, we issued a press release and presentation slides, both of which can be found on the Investors section of our website.

Before we start, please note that this presentation will include forward-looking statements made pursuant to the safe harbor provisions of the Securities Litigation Reform Act of 1995. Please see Slide 2 of our accompanying presentation and our SEC filings for important risk factors that could cause our actual performance or results to differ materially from those expressed or implied in these forward-looking statements.

With that, I will turn it over to Stéphane to start off the day.

Stephane Bancel - *Moderna, Inc. - CEO & Director*

Thank you, Lavina. Good morning or good afternoon, everyone. Thank you for joining us today.

As you know, since we started the company, we were already energized by our mission, which is to deliver on the promise of mRNA science to create a new generation of transformative medicines for patients. What was very clear to us, because mRNA is an information molecule, is that we had potentially in our hands a platform, a platform that could be very impactful to better the world. And so as we thought about building the company, it was very important to us to think about how do we build a responsible company in the holistic sense of the world.

And as you can see, the framework that is on the right of the slide, we developed a framework that is about, first, of course, medicines for patients, which I will come back to and the team as well; also making sure that we have, of course, great talent; that we are a responsible company within our community; but also a responsible company with regards to the environment; and then, of course, because we wanted to be here for the very long term, to build very strong governance and ethics principles to make sure that we could build the best possible version of Moderna.

So that framework was shared in 2018, on the next slide. We also issued earlier this year our first ESG report, which we, of course, would love to have your feedback and input as we'll try, as always, to improve it over time to make it as useful as we can to you, our partners, our shareholder. Our goal today is to give you a bit of a glimpse into our progress and also our team and our thinking so that we can get, again, a good dialogue with you to help us take this to the next level.

So as you see on the next slide, let's start with medicines for patients. So as you know, of course, our #1 priority is to develop as many impactful medicine, going after unmet medical need that we can. And as you know, we have a portfolio of vaccines for infection, which is in blue, and the portfolio of therapeutics. If you look at the vaccine portfolio, we are very excited about it, as you can see on the next slide because of what we can do for patients around the world.

On Slide 8, please. It's basically the ability to prevent disease for literally hundreds of millions of people, prevent a lot of deaths, as you can see just right on the slide, and to make sure also that we can provide value to the health care system. We believe with aging of population, the current trajectory of the health care system is not tenable. But we believe that Moderna can be part of a solution to prevent health care costs by preventing disease. We want to turn the world from sick care, which it is today, not health care, to true health care, keeping people healthy.

If you go to the next slide, as you can see, we have a very extensive set of vaccines in development. As we shared at Vaccine Day, there are around 220 viruses that hurt humans that are known today, and there is vaccine against around 20 of those viruses. And so we want to continue to really develop a very strong pipeline and to advance it to go after a lot of unmet medical need in respiratory viruses, in latent viruses but also, of course, tropical disease and also pandemic prevention.

So as you can see on the next slide, one of the things that we are also deeply concerned about, if you look at trajectory of the planet, is the increase of risk of pandemic because of climate change. This has been documented by many organizations, including the UN, and we're totally aligned with that worry, which is why, as you can see on the next slide, our goal, and the team will come back in a minute to share more details with you, is to develop a holistic set of tools to be even better ready last time. We're, of course, very proud and humbled by the work the team has done during the pandemic, going from scratch to launch in 11 months for a company that had never run a Phase III, never got a product approved and never industrialized at such a scale so many vaccines.

But very à la Moderna, we don't want to stay there. We think we can do even better next time because we believe there will be a next time. We just don't know when it will be. And so as you will see, and the team will come back to it in detail, we want to take to the clinic all the 15 key pathogens that have been identified by the UN, WHO and also CEPI as the high-priority pathogen with the highest risk of becoming an outbreak or pandemic.

With that, we developed a tool called mRNA Access, which we presented in the spring, to allow a decentralized way to collaborate with the best scientists around the planet to go after those vaccines. And so of course, our strategy on regional manufacturing, which the team will come back to in a minute.

So that's kind of what we want to do in terms of the vaccine front. If you look at the next slide, what we'd like to do, of course, also on the therapeutic is to develop a wide range of therapeutics to help people where there is high unmet medical need like in rare genetic disease in the liver, for which we shared some good progress, and as you know, there's a lot of rare genetic disease in the liver; in oncology; but also in autoimmune disease; in cardiology; and we hope, over time, much more.

What I think is interesting -- if you look at the next slide on the therapeutic side of things, is we always try to figure out what is a better way to do things. So as you know, we are trying to take to market rare disease programs that has been done by quite a lot of pharmaceutical and other biotech companies over the years. But we have been scratching our heads in terms of how do we deal with ultrarare business, disease where you might have 50, 100, a couple of hundred kids on the planet. And as we work through that thinking, we really had a passion to figure out a way to get it done because that's really aligned with our mission and what we believe and the fact that we have a platform allowing to go much faster, no dedicated manufacturing. So a lot of very cool feature that can be used for ultrarare disease. But as we're trying to think about it and just run the math for how do we just return the capital invested to shareholders, it was really hard to kind of find a way to get there.

And so one of the very innovative model that we are piloting to learn and to try to find a different model is to collaborate with Institute for Life Changing Medicines. And basically, we've licensed to them with no licensing fee. So basically, we gave to them the IP for mRNA-3351 against Crigler-Najjar disease or CN-1. And we've committed to supply the material for preclinical work, clinical work but also, if the product gets approved, to provide the drug to families and patients without any charging for that drug. So it's something that we are very proud of. We'll be learning as we go, and we'll see if that model needs to be expanded or if there's another model that we need to go after, but please be assured that we think

it's very important that all of those kids get medicines if our technology allows it and that we find a way to make it that is responsible as part of our beliefs.

So on the next slide, what you will see is some key commitments around vaccine and therapeutics, which we shared as we are launching the vaccine Spikevax in December 2020. So I won't read the whole slide. This is not a new slide today. But again, just to reinforce to all of you, as we try to work with principles and frameworks that we want to put those out there to hold ourselves accountable so that we do the best possible work we can.

On the next slide, let me move a bit to another topic, which is employees. And clearly, as you can see on Slide 16, on employees, the punchline is simple. We believe that the only way we're going to get the biggest impact on patients is having the best possible talent, making sure we retain them, that we develop them, that they're happy working at the company. And so we were very pleased recently where, for the eighth consecutive year, our employees decided to vote us as one of the best employers in the world in the Science survey. And Tracey will come back to it in a few minutes. But we are already trying to constantly think about how do we improve the experience for our team members at the company.

The HR team spend a lot of time running surveys and putting new things in place. We will not stop very much like we are wired as a company. We want to really be -- this be one of the best places in the world to work for to attract not only the best talent from the biopharmaceutical industries, so best talent from academia but also from the best talent from other industries like we've done, for example, in IT, getting clients coming from the tech world who want basically to kind of have a second career using their talent to help other people on the planet through making important medicine.

The next one we're very interested and is part of this framework is, of course, the environment. And as you see on the next slide, and Debbie will come back to it in a minute, as we shared before, our goal is to get Moderna in a net zero on Scope 1, Scope 2 by 2030 and coming soon with a science-based target and plan to get to our target on Scope 3. We've already engaged with quite a number of our large suppliers at the most senior levels to be very clear about our goals but also our expectations of them so that together as we look at the entire Scope 1, Scope 2, Scope 3, Moderna is a leading player in that field, so that we minimize the impact of the company on the planet because we all need to have a healthy, well-functioning planet for all of us, obviously, and our children and grandchildren.

On the next one, the other topic you will hear from Kate is, of course, the community. When I do the onboarding of new employees, like I'm going to do next Monday, I'd like to remind everybody that we cannot expect any of us to live in a good community if we don't actively engage in that community. It's not going to fall from the sky. And so we really incentivize employees, as Kate will share with you, to volunteer in the community, in projects or topics they are passionate about. We do some employee gift matching.

We also, as you know, through the Moderna foundation, do philanthropic giving and also involved in humanitarian reliefs. We think that's very important. And we think that especially as Moderna now is on a different scale, soon close to 4,000 team members around the world, we want to be able to really flex that muscle even further. But I'm really happy that we started doing this corporate volunteering quite early in the company history to really put this as part of the DNA of the company. And many executive, including [Jose Vega], has been spending time volunteering in our community here in Boston.

So on the next topic, of course, last but not least, and Shannon will cover this, is all the things we want to do really be kind of best-in-class company, looking at what is done not only in biopharma but across industries in terms of governance, ethics, of course, at the Board level and executive level, making sure we drive a lot of transparency in our supply chain across everything we do and also increased disclosure. So we're building a lot of muscles and processes to be able to get more data out there and to monitor our progress because we believe in this company that data are friends, data allows you to become better. And so we'll do that, of course, as part of our ESG journey.

So with this, on the next slide, I'll share very briefly, at a high level -- I'm not reading everything, obviously, on the agenda.

I will now turn it over to Stephen and his team, Jameka and Hamilton to talk about what we do around the patients. Then Tracey, who is, as you know, our CHRO, will talk about culture and employees. We've minimized Tracey's section. You see there's a few slides. She could talk for the whole day on all the things we do, and she's very passionate, and I'm really fortunate to have such a partner in such an important topic, which is employee, because we believe it's all about people. Kate will talk to you about what we do in the community. We'll take a quick coffee break, 5 minutes to

stretch your legs. And I will come back with Debbie talking about the environment and then Shannon closing on governance and ethics before I just come back with 1 or 2 slides. And then we'll be delighted with the team to take your questions.

So with this, let me turn it over to Stephen. Thank you.

Stephen Hoge - *Moderna, Inc. - President*

Thank you, Stéphane. I'll be relatively brief. I want to quickly provide an overview, for those who may not be familiar with it, with the science of mRNA because some of you may be listening into this story for the first time around our ESG Day. I'd like to then describe how we take that science into medicines and then give you a sense of where we hope our medicines will have their first and biggest impact in the near term, where we're doing late-stage development of those medicines because, as Stéphane highlighted, our contribution to human health is one of the most important things that we must do from an ESG perspective. And then I'll get out of the way and introduce both Jameka and Hamilton to talk through 2 examples of how we are doing that, how we're doing that in a way that we think is really consistent with our broader principles, not just the medicines we're bringing forward but the way in which we are doing them.

So on the next slide, just a quick overview for those who maybe aren't familiar with mRNA or messenger RNA. mRNA is really nature's instruction molecule. It's an information molecule. It exists in every one of our cells, and it allows all of the parts of your body -- it tells yourselves what proteins to make. Those proteins do all of the work of life. So we really think of messenger RNA as the software on which all of life runs.

And what we do at Moderna is we use that software to make medicines. We make messenger RNAs that provide instructions to the body about everything from a COVID virus and what it looks like, to how to make a protein that can correct a genetic disease, a rare genetic disease that a child might be suffering from, all the way through to treating cancer. And so we make that mRNA, those instructions. We wrap it in a lipid nanoparticle, the circle here on the upper left, and then we give it to the body. And then what happens is, those instructions are unpacked inside of the cells in your body, and they're just followed. The body then goes off and makes the protein, and the protein can be anything. It can be a secretive protein that goes off and treat something far off in your body. It can be a transmembrane protein or something that looks like a virus or can stay inside the cell.

The most important thing is we use the same platform technology, the same capabilities to do all of those things. And that software-like aspect, that really digital aspect of our platform is what allows us to have such a big impact so quickly as we did in COVID but also allows us to pivot so quickly as even we're doing now in COVID and pursue medicines across such a wide range of diseases.

Now on the next slide, 26, I'll give you a sense of just how we think about that unconstrained large opportunity. So how do we go about prosecuting? And the answer is we develop things we call modalities. These are families of medicines against a similar type of diseases that cause human suffering or death. On the far right-hand side, if you read it right to left, our most established modality are our prophylactic vaccines against respiratory viruses. Many, maybe all, have had an mRNA vaccine against COVID-19, but we've also got a number of other respiratory virus vaccines against flu and RSV in late-stage studies, and I'll talk to in a minute the impact that we hope that will have on human health. So our respiratory vaccines, we consider a fully established modality. We've shown the potential benefit it can have. And so we're rapidly expanding the number of vaccines we bring forward against all the different respiratory viral pathogens that can cause human suffering.

Right next to it, we've got a similarly slightly less derisked but still substantially derisked modality, which is prophylactic vaccines against other viruses. Often latent viruses are our focus, including CMV, a virus that is one of the leading causes of birth defects in pregnancies in developed economies, and others like EBV, which are associated with multiple sclerosis and cancer. And so we're developing vaccines against those.

And moving right to left, you'll see that there are a number of other emerging modalities where we haven't yet got approved medicines, but we have seen evidence in humans of the progress of our platform technology, our ability to hopefully impact those diseases. One is our -- in orange there, is our systemic intracellular therapeutics. Now these are putting instructions into the body. In this case, in rare liver diseases, propionic acidemia, or PA, is one that's recently been released in terms of data, where people are born without a gene that helps them manage through an illness, helps them be metabolically healthy. And without that gene, they're often hospitalized and can have very severe outcomes if they don't

have that on board. We've been able to make an mRNA that replaces that protein and have been dosing that in children in the propionic acidemia program for over 6 patient years through September, our R&D Day. So we're really encouraged by the progress that we're showing there.

And as you move right to left, you'll see we even have activities in cancer, including our personalized cancer vaccine, which we're looking forward to that data on in the short term. And then all the way on the left, exploratory modalities, places where we haven't yet got the human data in our hands that show that there's a potential for that medicine but where we're quite optimistic about that, and we're moving into clinical trials. One most recently that we're looking forward to is our inhaled pulmonary therapeutic, which will be against a cystic fibrosis gene where we're trying to replace that in the lungs of people who suffer from cystic fibrosis who cannot currently benefit from the medicines made by Vertex. That's a partnered program with Vertex, who are world leaders in that space.

So as we build our pipeline, we established those modalities and expand the number of medicines, as you can see on the far right-hand side. And then we continue to explore towards the left in new ways to get mRNA into cells to try and bring forward medicines against many, many diseases. Hopefully, over time, every disease is possible to treat with this technology.

Now on the next slide, 27, I'll talk just briefly. Our medicines where we think we'll have the biggest impact in the near term are those places that we're in later-stage clinical trials, where we're testing the medicines in patient populations that we mean to treat. The respiratory vaccines portfolio that I referenced on the prior slide of all the blue is a place where we think there is still dramatic unmet need. In fact, respiratory infections are a top killer globally. Even respiratory virus infections, just those places where flu, RSV, COVID can be a top 5 killer collectively in most developed economies. And so we have a huge unmet need there and to try and improve outcomes in those patient populations with those vaccines. And we have late-stage clinical trials, Phase III or licensed products across those 3 viruses, ongoing right now.

In the middle, our rare disease populations are -- have a huge unmet need. In fact, 4% of the world population is affected by some form of rare disease. And our advanced program in propionic acidemia is in patients right now, as I said a moment ago, and we're trying to advance many others on the back of the encouraging data we've seen there.

And on the far right-hand side, the third place we expect to have impact in the near term through late-stage development and hopefully progress with licensing is in cancer, where our personalized cancer vaccine is in a randomized study in Phase II. We hope to have data this year -- or we expect to have data this year.

All 3 of those are places of incredibly high unmet need. But as I said a moment ago, we will continue to expand our efforts to bring forward new modalities so that we can not only focus on these 3 substantial sources of morbidity and mortality and do our responsibility by bringing forward medicines to address them but then will also be able to expand the other places that we can bring forward medicines for the future.

Now on 28, I'd like to briefly introduce 2 topics that will deal with how we bring forward these medicines in our R&D organization. First, Jameka Hill will talk through work that we do on inclusive research because our medicines are only useful if we evaluate them in the populations we mean to help. If we make sure they are used in those populations, then we have a very substantial responsibility to address many of the health inequities that have emerged over the last centuries and decades. So Jameka will walk through some of the work that we're very proud of there. We're just getting started. We've got a long way to go as a society and as a company, but we're incredibly proud to be leaders in that space.

And then I'll turn it over to Hamilton Bennett, who will talk through our approach to other forms of unmet need, particularly global health diseases that maybe have not been prioritized historically by other R&D companies and how we're trying to bring forward medicines or vaccines that can address those less well-served needs in terms of global public health.

And with that, I'd like to turn it over to Jameka, who will begin us with inclusive research.

Jameka Hill

Thank you, Stephen. Good morning and good afternoon. I'm Jameka Hill, Director of Patient Advocacy and Clinical Trial Diversity here at Moderna. And I'm delighted to share more about the importance of clinical trial diversity and review Moderna's unwavering commitment and surrounding efforts to help advance health equity through inclusive research.

In today's world, we're really surrounded by the need for diversity in all settings, and one place where diversity should not be overlooked is in clinical trials. The reality is that medical conditions don't discriminate. Medical diseases and conditions may affect all people differently, but they can still affect anyone. And in fact, the primary goal of diversity in clinical research is to really understand the influence of biology, environment and lifestyle and treatment response. And given that responses can differ among specific populations, having a diverse trial composition really ensures that findings from the research are more generalizable to those who will use the product. And that being said, it's important to know that clinical trials have historically been underrepresented in people of color, women and older adults.

For instance, 40% of the U.S. population identifies as a racial ethnic minority, but only about 6% of the U.S. trial participants are people of color, which is a significant gap. At Moderna, we understand the ethical responsibility and scientific imperative that we must ensure our clinical trials include people of all backgrounds and across several dimensions of diversity. We also acknowledge that there are guidelines for each clinical trial and not just anyone can participate. For example, some clinical trials need participants with certain illnesses or conditions, while others need healthy volunteers. In fact, there are many factors that may be important in different circumstances depending on the disease or condition and the population at risk.

It is also important to understand that in the United States and across the world, regulatory approvals for investigational products are based on clinical trials where the population enrolled reflects those that are most affected by the disease. In fact, it has long been recognized that many approved products on the market today do not have adequate data on women, older adults or people of color. Despite concerted efforts, federal initiatives dedicated to the inclusion of diverse trial participants have not achieved their desired outcome. And this is in part due to limited awareness.

Let's remember that prior to the pandemic, most people had never heard about a clinical trial, let alone participated in one. And additionally, recruiting clinical trial participants is notoriously very difficult across all populations. And many issues and questions are universal, from logistical barriers, including scheduling, travel and finances to low health literacy and questions about potential risks and benefits. Still, reluctance remains highest in diverse populations. And this is most often due to a general distrust of the health care institutions resulting from disinformation, mistreatment and even past human right violations in clinical research throughout the world.

At Moderna, we know that overcoming these barriers will not happen overnight. And so we're actively working to increase diversity by designing trials that are sensitive to the cultural and social norms of diverse populations as well as implementing approaches across each phase of the drug development process to more efficiently identify, engage, recruit and retain trial participants from various backgrounds and geographies. We recognize that population demographics throughout the world are shifting. Populations are getting older as well as becoming more rationally diverse.

And as these demographics shift, it's paramount that the composition of our trial participants also shifts. You'll notice on this chart that this is something the biopharma industry has not done well historically. And you'll notice on the far right that the trial representation prior to 2020 was, in fact, far from where it needed to be. This meant that Moderna really had an opportunity to live our values externally and showcase to the world that we're developing vaccines and therapeutics for people of all backgrounds. We believe that cultivating inclusivity in clinical trials is a collective effort that requires deliberate and upfront attention. And this begins with selecting trial sites across many regions and doing so with inclusion in mind, collaborating with trusted voices, developing tailored educational materials and leveraging digital tools to track our performances.

In combination of these strategies -- or excuse me, the combination of these strategies, along with Moderna's full decision to slow enrollment to extend opportunities to historically underrepresented populations is an example of a business decision that we made, knowing that we would be second to reading out our results but, nonetheless, a vital decision that captures our commitment to doing what is right and equitable in health care.

And as a result of these efforts, Moderna was able to achieve 37% racial ethnic diversity and showcase that inclusive research can be attained even in the most extreme circumstances. So looking forward, as we rapidly scale to bring additional vaccines and medicines to patients, we will continue to apply best practices as well as embrace the digital tools that are paramount to our success. Our ability to tap into automation and digital capabilities enables Moderna to coordinate the sharing of critical information across internal and external stakeholders as well as pivot fearlessly in the face of new data.

We will also continue to hold ourselves accountable to enroll an entire spectrum of intended populations into our clinical trials to perform rigorous safety and efficacy analyses by patient demographics and to share the data in plain language with the public. These are foundational steps towards building trust within our communities and empowering people with the knowledge to make informed decisions about their health.

Our commitment to advancing health equity is at the very core of Moderna's values. Our efforts to create clinical trials as diverse as the patients we serve is not the result of the latest FDA guidance. Our efforts began with our very first Phase III trial. And while we recognize that there is still much work to be done, we are certainly proud of the continued efforts to prove equitable health care access to all populations as both possible and essential.

In summary, Moderna is deeply committed to improving clinical trial diversity, and we will continue to rely on our digital infrastructure to enable meaningful actions that help advance health equity and improve lives around the world.

So I'll now turn it over to Hamilton Bennett to review Moderna's global health strategy.

Hamilton Bennett

Thank you, Jameka, and good afternoon, everyone. My name is Hamilton Bennett, and I'm responsible for vaccine access and partnerships at Moderna. Today, I'll share with you a little bit about the programs that we are advancing in support of our global health efforts.

I'll begin actually by taking a step back. Our first in-human clinical studies targeted H10 and H7 pandemic influenza. Not only did these programs generate important proof-of-concept data for our early company, but they also allowed us to experiment with our manufacturing process and chemistry to build an even more powerful prophylactic vaccine platform. In 2020, we deployed that platform against SARS-CoV-2 and developed a safe and effective vaccine in under 1 year. We're incredibly proud of the impact that our COVID-19 vaccine has had on global health. The COVID-19 is also only an example of what we can achieve. Earlier this year, we announced a commitment to continue to deploy our vaccine platform against emerging and neglected infectious diseases as a promise that Moderna will continue to be part of a solution for global health and pandemic preparedness.

Our global health strategy is based on 3 pillars, as seen on this slide here: first, advancing clinical studies for priority pathogens that pose the greatest threat to human health; second, extending our early research activities in the field of emerging and neglected infectious diseases through collaborative research; and third, expanding our manufacturing capacity through regional distributed manufacturing. I'm going to take you through each of these pillars. I'll first talk about our priority pathogens.

We and others recognize that the risk of outbreaks and epidemics is ever increasing. As Stéphane noted at the top, the range of animal reservoirs and vectors is increasing with climate change. Human population growth and habitat expansion drive new interactions between people and these reservoirs, increasing the risk of what we call spillover events. And the movement of people and the reliance on global supply chains means that regional outbreaks can have a global impact. We believe that it's not a question of if but what and when, and we want to be ready to act.

The first pillar of our global health strategy is to progress programs against a portfolio of pathogens that the global health community, including WHO and CEPI, have defined as priority threats. These include high-burden diseases like HIV, TB, malaria, where we believe that innovative vaccine strategies are needed to drive impact. The prioritized programs also include pathogens, such as Ebola and monkeypox, pathogens that not only cause sporadic outbreaks but also could inform vaccine development for related pathogens in their viral family.

Over the next 3 years, we will initiate early development programs against each of these threats. The current status of the portfolio is displayed here. To date, we have advanced clinical candidate vaccines against COVID-19, Zika, Chikungunya, HIV and Nipah. Six additional programs are in preclinical development phase, and we're assessing vaccine concept strategies for the remaining 5.

I'll use this slide to take a moment to talk about emerging infectious diseases. Our objective in this space is to create a portfolio of vaccines that are able to leverage our scaled manufacture and growing safety database to more rapidly respond to outbreaks in the future. We've talked previously about how early research on SARS-CoV-1 and MERS informed the rapid response to SARS-CoV-2. As part of our global health portfolio, we'll turn our attention back to MERS in an effort to continue to explore vaccine design and development strategies across these related betacoronaviruses. For pathogens that cause sporadic outbreaks, our strategy is to develop prototype products through early development so that we can respond more quickly to what we know and prepare for the unknown, Disease X.

On the next slide, I'll highlight an example of our persistent threats. As I mentioned, our portfolio of prioritized programs include persistent threats like HIV, TB and malaria. I've chosen to highlight our work on HIV because I think it's an example of how we see ourselves and our platform as being part of a larger global health ecosystem.

HIV is the underlying cause of approximately 700,000 deaths a year, and it continues to cause nearly 2 million new infections worldwide. A highly effective HIV vaccine has been the goal of vaccinologists for nearly 35 years. Moderna currently has 2 vaccines in our HIV portfolio. Both of these programs are capitalizing on deep expertise that exists in the field of HIV. At institutions like Scripps, IAVI, NIAID. And we're bringing their expertise to our platform to tackle what's largely recognized as the greatest infectious disease challenge of our lifetime.

Our first program, mRNA-1644, aims to induce broadly neutralizing antibodies through sequential administration of HIV antigens that prime and boost the immune system. This program relies on an iterative vaccine design test cycle, one that learns from in-progress clinical studies to adapt and deploy new boosting vaccines, taking advantage of the speed and the flexibility of our platform.

Our second program, mRNA-1574, tests 3 distinct antigens designed to understand the interplay of immunogen design and induction of these neutralizing antibodies. While both of these programs are in early stages of clinical testing, we think that this model of public-private partnerships that use our collective strengths is an example of how we're going to make progress against these threats, HIV and TB and malaria.

To continue to explore the druggable space of mRNA with infectious disease experts, in early 2022, we launched mRNA Access, the second pillar of our global health strategy. mRNA Access is a program that opens our preclinical production capabilities to academic institutions around the world to decentralize research and development of mRNA vaccines. Our primary mission is to create novel life-saving medicines against emerging and neglected infectious diseases. But we see additional benefits of engaging disease area experts as they tackle their own global health priorities, as we've done with HIV. And ultimately, if we believe that mRNA is the future of vaccinology, we must continue to advance our science and engage the next generation of researchers and engineers in the process.

mRNA Access is what will allow us to do that. Through mRNA Access, collaborators are able to make use of our mRNA design studio to codon-optimize their immunogens of interest. The optimized mRNA is manufactured in our high-throughput production facility in Norwood, Massachusetts and delivered to researchers around the world for in vitro and in vivo testing, deploying that iterative design test cycle that we think is so crucial for vaccine innovation.

Some programs in this portfolio are intended to explore the druggable space of mRNA. They will spend quite a bit of time in this preclinical phase. But the benefit of mRNA Access is that, that exploration is taking place on a platform that has built an early development engine, and that engine can accelerate products into clinical testing and towards licensure.

To give you a sense of the scope of mRNA Access, here, we are displaying the current list of pathogens that are eligible under the program. This is a compilation of pathogens that have been identified by institutions like NIAID as they are tackling emerging infectious diseases or national health authorities that are highlighting neglected diseases in an effort to drive novel vaccine development. The pathogens highlighted in blue are those where we have ongoing or planned programs under our global health portfolio. And I recognize that this is a little bit of an eye chart, but it's

intended to be. We think it's important that we remain responsive to the community, and the list has grown and will likely continue to grow as requests for our -- come in from our collaborators to meet the needs of the global health field.

On Slide 55, you can see the list of collaborators that we have to date, and I'm very excited about the group that we have here to share. And we have 9 geographically dispersed institutions that are participating in mRNA Access. These institutions are able to conduct novel research against any of those previously displayed pathogens using our platform. And the structure of the collaboration is such that researchers throughout the university are able to participate in the program, again, engaging experts in their field, engaging scientists early in their career. It's an exciting program, and we think it's really the first of its kind.

The final pillar of our global health strategy is regional manufacturing, a model that operates mRNA manufacturing facilities around the world to be ready to respond to regional outbreaks. We've talked about our ability to develop products for rapid response and to continue to explore the space of diseases that are preventable with mRNA-based vaccines. But the promise of the pipeline, why we believe that we will continue to have a positive impact on human health, is that the underlying manufacturing process for our prophylactic vaccines is shared across the portfolio. Using common raw material inputs, a common process, each facility has the ability to manufacture the complete portfolio of products. An innovation that occurs with our technical development team in Massachusetts can rapidly be disseminated across our manufacturing sites.

In the near term, regional manufacturing will ensure that vaccines are accessible where they're needed. In time, under the guidance of health authorities, we hope to tailor a portfolio of products to align to the priorities for that region to research, to develop, to manufacture vaccines that address the burden of disease for a region and for that community.

To that end, I'll take a moment to highlight the progress of our infrastructure build in Africa. In March of 2022, we announced that we had selected Kenya as the first site in Africa for manufacturing. Site selection is close to being finalized, subject to reaching an agreement with the government of Kenya. And following a brief pause during Kenyan elections, discussions are now ongoing with President Ruto's administration. This is being done with strong support from the U.S. government, including U.S. Ambassador to Kenya Meg Whitman.

In closing, Moderna has been committed to global health since its founding in 2010, recognizing the power of mRNA. We have committed to bringing forward vaccine programs targeting at least 15 pathogens in order to prepare for any future pandemics. Sharing our mRNA platform with collaborators around the world through mRNA Access is an important part of our continued effort to address emerging and neglected infectious diseases. And we're building regional manufacturing facilities in order to be able to respond to regional outbreaks worldwide. I hope this gave you a small taste of how we think we're going to have a big impact.

And I'll turn it over to Tracey Franklin.

Tracey Franklin - *Moderna, Inc. - Chief HR Officer*

Thanks, Hamilton. Hi, everyone. I'm Tracey Franklin. I am the Chief Human Resources Officer. I joined in 2019, so just prepandemic. And where I was absolutely excited about the platform, what really drew me to the company was the unique culture. It was the biggest driver for why I joined. What I found was a group of just unbelievably authentic people trying to make the impossible possible in such a bold and collaborative way. I was really blown away by the investments that Stéphane, and you heard him referenced this in his opening, and the executive team made around people at such an early stage in the company and in HR to support people. And so I was really pleased to pick up on the amazing work that was done today and bring it forward.

So what have we been up to? I think -- so we have, as you know, rapidly expanded over the last few years. And so we've expanded in 3 places, if you think about it. You heard Stéphane and Stephen reference the portfolio expansion. So we've had to build capability out in places that we hadn't had it before. We expanded in number of people in order to deliver the COVID vaccine around the world and then geographically, again, to deliver the vaccine around the world. The way we build is very responsible. So we take long, hard looks at where we need people, where we can build digitally, how we need to walk a product out the door and, if we go to the next slide, around how the diversity mix is in our organization.

So looking at gender, that's global gender, so we're 50% female for all employees and 41% for executives. We have made progress in U.S. race and ethnicity. But what I'm really pleased to share today is our pay equity. So we did recently a global pay equity study, and what we found and what we can equivalently say is that Moderna provides equal pay for equal work. And so we're really happy about that.

If you go to the next slide, another thing that's super important to us is, and it's been absolutely since the organization was founded, is the global nature in terms of how we build the organization. So we have 34 nationalities represented, just under 200 people in the U.S. with green cards. And I think one thing unique to our company is that the majority of our executives have lived and/or worked outside the U.S. And I think that's critically important because it has -- if you've lived and worked outside the U.S. or in an area that's different from your home country, it allows you to understand cultural differences and become attuned to different ways of working, different ways of thinking. It also allows you to understand there's unwritten rules when you go places that you haven't been before. So whether that's a country or whether that's an organization, there's a set of unwritten rules that you need to learn in order to be impactful and successful. And so we keep that in mind as we think about how we build our company.

And if you go to the next slide, that's why culture is so important to us. So we've always had our mission. When we are about 100 people, we developed our values. And I think when we were probably about 1,500 people or so, we developed our mindsets. And what we learned was that we had to be more kind of transparent and explicit around what the kind of success factors were to working in our company as we were hiring so many people and expanding around the world. And so we spent a great deal of time, Stéphane, Stephen, the EC, folks around the organization, really taking pen to paper and determining what are the things that make us most successful as a company and the things that we want to make sure that all the employees around the world are able to exhibit.

And so what we've done since we've solidified our mindsets is we've built them into how we recruit. So we're very transparent around it, how we onboard our employees, how we develop our employees, how we think about performance management. We've put the entire organization around the globe through a half-a-day immersion training in our mindsets. We've also had special focus and attention on our senior leaders. So we've given them a developmental assessment, and we've given them one-on-one coaching around our values, around our mindsets and what it is to be a leader in our company. And we think that's really important because it then kind of leads into my next slide around belonging.

So when I think about our D&I strategy, our diversity-inclusion strategy -- so I've grown up in HR. I've worked in D&I for a long time. And when D&I first came out, it was a huge focus on diversity in our numbers. The way that we're approaching it from a company perspective is to lead with belonging. I think I can hire diverse, I can give you a seat at the table to include you, but until you feel like you belong, you're not going to be your best self at work, you're not going to feel comfortable innovating, and you're probably not going to stay. And so although belonging is hard because it's a kind of a sense, right, it's something that we are taking on -- head on to say, how do we make sure that we create an environment where everyone feels like they belong. The mindsets help us with that.

But we also, if you go to the next slide, have a road map in place. So we have an integrated road map. You heard Jameka talk about a huge part of that road map around how we do clinical trial diversity, but we have an integrated road map that looks at both belonging, inclusion and diversity. We have amazing resource groups. We have 9 employee resource groups. We've been growing them. We learn from them every day. It's a great group of people that are helping us shape the culture, helping us run the business, and then we hold ourselves accountable. Externally, we participate in benchmarks to really learn how are we doing in certain areas and how can we improve. And so I think the key to us is, how do we make sure this is a place where everybody feels like they can do their best work. We have an amazing mission to rally around, and we want to make sure that we're giving our employees the best that we can.

So I'm going to pause and show a quick video, and then I'll pick up on some more stuff that we're doing.

(presentation)

Tracey Franklin - *Moderna, Inc. - Chief HR Officer*

So hopefully, that gave you a sense. We have absolute incredible employees. And so giving back to them and hearing from them and actively listening to what will make them their best selves at work is important to us. So we deploy a variety of methods where we get feedback. And 2 of

the areas that we collectively are leaning into from an employee interest perspective as well as a company is, one, is learning. One of our mindsets is obsessing over learning. So it's a place that we want to make sure we're doing continual investments. So when I joined, there was a Moderna University that was already established and running. We are just taking that university to the next level, which I'll talk about in a second. And then well-being and total rewards and making sure that we're giving back as much as we can for all the great work that people give to us, are 2 areas that we're going to focus on.

So from a learning perspective, we want to make sure that we're absolutely investing in giving our employees the most cutting-edge skills that they can have where they can learn, grow, develop, give back, give back to the community. And so we're putting infrastructure investments, both digital physical. We've created a college with the deans across different businesses and making sure that we can really truly meet employees where they are and bring them to the next level.

Let me go to the next slide. Just a couple of highlights. So we have an AI Academy. It's truly unique. We are training the entire organization on AI skills. And we're doing really cool things like AI hackathons, where we're reaching broad and deep across the organization. We're coming up with a lot of unique and different ideas to be able to deploy. We're building the second and third evolution of that academy. We have a clear focus on our manager and our leaders.

And then another unique thing is we want to make sure all employees at all levels in Moderna understand the science and the importance of science. And so we're building out that college and community. And then we intend to launch pieces of that externally to give back to the organization -- or the environment around us for STEM education, for broader community building. And so we're going to look forward to doing that in the next several months as well.

When we think about total rewards, we really want to think about it holistically to support the overall well-being of our employees and make sure that it's customizable and personalized as much as humanly possible. And so we have truly outstanding benefits. They are diverse in nature and very wide-ranging around the globe.

Two of the ones that I want to point out is we just launched Spring Health globally. It's a mental health and well-being support. And the unique thing about this particular Spring Health organization is that they have a variety of diverse providers that can provide individual and specific support, and we've received a ton of great feedback on that.

The second one that's not new but, I thought, would be interesting to highlight is our equity award program. And so we do equity choice -- first, we provide equity throughout all levels of our organization, which helps with the ownership piece, and we want everyone to feel part of the success of the company and benefit from it. And -- but we also provide choice in terms of what makes sense for you at which point in your life around how you want to have that equity delivered. And so a lot of great work in the benefit space.

And then lastly, I've said before, we really do a ton of listening. We are building this company together holistically with all of our employees. And so we do quarterly Glint surveys. We look at the feedback. I read every single solitary written result that comes in, in the organization to figure out how we can constantly enhance, make people feel like they belong. And we hold ourselves accountable from an executive perspective in terms of our compensation around how we move forward.

So like Stéphane said, I could talk for a really long time about this. But hopefully, that gives you a snapshot of some of the key things that we're doing in the organization. And I'll turn it over to Kate O'Malley, who has equally exciting things to talk about.

Katherine O'Malley

Thanks, Tracey. Hello, everyone. I'm Kate O'Malley, Executive Director of Communications at Moderna. I'm pleased to be here today to share a bit more about our focus on community.

So as we work to maximize our positive impact on patients, we recognize that some of the most vulnerable communities have seen disproportionately negative impacts from the pandemic. The World Health Organization published an evidence brief that examined the influence of the COVID-19

pandemic on the social determinants of health. In other words, the conditions in which people are born, grow, work, live and age and their access to power, wealth and resources, which all have important effects on health differences across population groups. In their brief, the WHO provided insights on how the broader impacts of the pandemic have unequally influenced the social determinants of health, further exacerbating health and equities, as you can see here on the slide.

At Moderna, our work to address inequalities exacerbated by COVID-19 has become more important than ever. We're not only engaging and responding to the needs of our communities but also enabling our employees to give back to their communities in support of our mission. Our commitment to serve the communities where we live and work has always been part of our identity. This is a continuation of our journey. We view it as essential to building trust and maintaining our social license to operate.

As Stéphane mentioned in his introduction, we constantly strive to extend our impact on society and our commitment to our communities is just one example of how we do this. We continue to diversify and add more programs to our giving strategy focused on communities and have achieved important milestones in the last few years.

On this slide, you can see our current areas of focus. The first is corporate volunteering. We are very proud of our purpose-driven and committed workforce, as Tracey just mentioned. This year marks our fourth annual volunteer week, and we continue to promote charity work all throughout the year. Additionally, our employees continue to benefit from annual paid leave for volunteering at organizations of their choice.

The second is Employee Gift Matching. Actually new this year is our Employee Gift Matching program and our Dollars for Doers program, which matches additional volunteer time with a monetary donation back to the nonprofit organization. Both of these new programs are funded by the Moderna Charitable Foundation.

The third is philanthropic giving. In April of this year, we launched the Moderna Charitable Foundation to further support philanthropic giving at Moderna. Less than a year after becoming a commercial organization, our Board of Directors approved an initial upfront endowment of $50 million to support the foundation.

And the fourth is humanitarian relief. One example of this is the $1 million corporate donation that we made to the International Rescue Committee in support of humanitarian relief efforts in Ukraine and Eastern Europe, which was a cause important to our people around the world as they witnessed the conflict breakout earlier this year.

These 4 fundamental pillars of our giving strategy have further engaged our workforce, extended our support to our communities and grown our partnerships with NGOs and organizations helping underserved populations.

I'll spend the remainder of my time today with highlights from pillars 1 and 3, corporate volunteering and philanthropic giving. So first, corporate volunteering. As Tracey alluded to in her comments just a few minutes ago, our team members are the driving force behind our scientific progress and our culture. We're proud to attract purpose-driven employees who believe in our mission. Their dedication to giving back to our communities only strengthened during the pandemic, and our charity initiatives have evolved to meet their needs, including more virtual volunteer opportunities as well as the matching gift program I mentioned a moment ago.

Moderna is fortunate to work with dozens of community partners that welcome our employees to contribute to causes that matter the most to them. This year, we've seen an increase in the number of meetings and events where our teams have incorporated volunteer work as part of their agenda, which builds on our aim to positively impact people's lives.

As you know, we believe that mRNA could change medicine and we are extremely passionate about our science. We feel responsible to share our mission to promote education, which is an important social determinant of health as well as innovation and curiosity, which is one of our core values.

Sparking interest in science from a young age means investing in future scientists. As an example, you can see on the slide a picture of Moderna team members volunteering at STEM Education Day at Fenway Park in Boston, an event that reached 3,000 students from the local community.

By promoting diversity and inclusion in STEM education to build an ecosystem that's more representative of the society where we live and work, we could help to close the opportunity gap in underserved communities. Additionally, our engagement with communities is an important element in attracting and retaining the best team members.

Research has shown that volunteer programs, importantly, boost productivity and increase employee engagement. In fact, a study conducted by UnitedHealth Group in 2017 showed that 75% of adults in the U.S. feel physically healthier by volunteering, and the mental and emotional benefits of volunteering are even greater, with 79% reporting lower stress levels by giving back. It's a good reason to volunteer.

Now on to philanthropic giving. The Moderna Charitable Foundation was established earlier this year to support organizations that promote health, further access to quality health care, advanced scientific education and innovation and advocate for diversity and inclusion, particularly in underserved populations. On the right side of the slide, you can see the logos of our initial grant partners that were announced upon the launch of the foundation. I'll highlight just a couple of these.

First, the Moderna Foundation is proud to work with Boston Medical Center's Good Grief Program to provide therapeutic support and promote lifelong resiliency to children who have experienced loss such as the death of a loved one to COVID. Second, the Moderna Foundation has partnered up with Year Up to support a workforce development program that closes the opportunity to vibe between young adults and companies in the United States, in this instance, focusing on job and security as a social determinant of health.

Now taking a global view, the Moderna Foundation is also working to promote public health and access to quality health care in sub-Saharan Africa. As a recipient of one of our foundation grants, Amref Health Africa will focus on improving vaccination coverage in Kenya, with attention to vulnerable and hard-to-reach communities and counties most impacted by the pandemic. Programming will center on community engagement and integration with noncommunicable diseases to build out overall health system capacity, ensure sustained access to COVID-19 vaccines and fill gaps in routine care.

Another grant recipient that you could see on the slide is Seed Global Health. We'll take just a moment to share a brief video on Seed Global's mission and impact.

(presentation)

Katherine O'Malley

As you saw in the video, Seed Global's approach is grounded in the belief that people are among the most important levers of change in the health system. Over the last decade, Seed has trained approximately 40,000 doctors, nurses and midwives across the African continent, who are providing quality care to an estimated 74 million people, and we at Moderna are grateful for their dedication to creating lasting change in the health systems of their partner countries.

The Moderna Charitable Foundation is partnering with Seed Global Health to aid the development of the health workforce in Malawi, Sierra Leone, Uganda and Zambia by providing clinical education and training. Although these countries have made significant progress toward improving health outcomes, critical gaps remain in ensuring the delivery of essential health services.

To close the community portion of today's presentation, we are excited to work alongside our people and our partners to extend our impact across the global and local communities where we work and live. Our commitment is truly an extension of our culture and a fundamental way of how we work as a company. We look forward to future updates on our performance and our progress in this space.

Now we'll take a short 5-minute break, and then over to Debbie Donovan, who will speak to our focus on the environment. Thank you.

(Break)

Deborah Donovan

Welcome back, everybody. My name is Debbie Donovan, and I head the Environment, Health and Safety function here at Moderna, and it's my pleasure to walk you through a little bit about our progress in the area of environmental sustainability. I want to start with this slide that shows a clear picture about how human health -- or human activities has an impact on air quality, which then also can impact human health.

This photo is from the same geographic location in New Delhi, India, but the photo on the left was taken in 2019, and the photo on the right was taken in 2020 after 21 days of diminished industrial activity during the pandemic, during the lockdown. So it's a clear demonstration of human activities impacting air quality.

We've also heard several times during this presentation that the change in climate is affecting the spread of infectious disease, putting populations at higher risk of emerging disease and co-epidemics, and there's a recent publication in 2022 from the Lancet that shows some data about the impacts of climate change on health. And as a company whose mission it is to deliver on the promise of mRNA medicines to patients providing innovative therapies, we also realize we have an obligation to protect the planet and to mitigate the risk of that climate change on human health.

The next slide shows an overview of the international efforts to protect the environment and to tackle climate change over time. So 2022 actually marks the 30th anniversary of the signing of the UN framework on climate change, where countries agreed to study and work on addressing the impacts of climate change.

The most recent climate pact was from 2015 Paris Agreement where world governments committed to curbing global temperature rise to well below 2 degrees C, above pre-industrial levels and pursuing efforts to keep warming to 1.5 degrees C. What that means, the difference between the 2 degrees C and the 1.5 degrees C is just the speed or the slope of the curve to decarbonize, the speed to get it done.

In 2018, there was a new report from the Intergovernmental Panel on Climate Change that warned that global warming must not exceed 1.5 degrees to avoid catastrophic impacts of climate change. And there continues to be additional research in this area and new publications. And I know the COP 27 is ongoing as we speak in Egypt this week and next. And many of you, I'm sure, are watching the news for any new developments out of that important meeting.

Next slide, please. As we've embarked on our carbon accounting journey, we followed the most widely used standards to develop the carbon inventory. The Greenhouse Gas Protocol Standards provide a framework for businesses, governments and other entities to measure and report greenhouse gas emissions in ways that support our mission and goals.

The Standards cover the accounting and reporting of greenhouse gases as defined by the Kyoto Protocol. The following are some basic terminologies we're going to use during this presentation today for greenhouse gas accounting and reporting purposes, there are 3 scopes that are used to define and delineate direct and indirect emissions.

So Scope 1 are direct emissions from owned or controlled sources. So think of this as your natural gas or your oil that you burn at home to either generate heat, hot water or steam.

And Scope 2 are indirect emissions, and we think about it as the generation of purchased energy. So from your electric bill, for example. Even though we don't generate electricity ourselves, the plant that generates that electric wouldn't need to, if not for our operation. So Scope 1 and 2 emissions are directly under Moderna's control.

Scope 3 are indirect emissions that occur across our value chain. Scope 3 is broken down into a number of categories that are grouped into upstream activities such as purchase goods and services that we need to make our product; and downstream activities such as logistics, warehousing, distribution and ultimately the final use of the product. And our Scope 3 emissions occur at suppliers' locations, and they're attributable to Moderna's operation.

Stéphane opened with this slide in his beginning, that we do understand the urgency to limit global warming to 1.5 degrees C. And with the rapid growth of the company ahead of us, we are uniquely positioned to act with urgency and make sustainability a key priority for us as we grow. And

it was with this sense of urgency that last year, we announced our goal to achieve net zero in carbon emissions globally in Scopes 1 and 2 by 2030. For Scope 3, we're committed to defining a near-term science-based target and evaluating a long-term target. And let me explain briefly on the next slide what science-based targets mean.

So we have committed to define science-based targets, and that means targets that are grounded in the climate science through the Science Based Targets initiative. The Science Based Targets initiative, also called SBTi, is a partnership between CDP, the UN Global Compact, the World Resources Institute and the World Wildlife Fund. And it helps companies to find a clear path to reduce emissions and ensure that the path is in line with the Paris Climate goals. And they're considered science-based if they are in line with those goals, limiting global warming to 1.5 degrees C.

There are near-term targets where we will define how we're going to reduce our emissions over the next 5 to 10 years, and then there are long-term targets that indicate the degree of emission reductions organizations need to reach in order to get to net zero and that's by 2050 in the Paris Climate Accord and for the power sector, it's faster. But we're accelerating our journey by committing to net zero in Scope 1 and 2 by 2030. And we will define a longer-term Scope 3 target.

The next step for us in the science-based target is to present our road map and submission for the SBTi organization. As we continue to scale the company, we want to make progress on our sustainability strategy, and we believe it's our responsibility to grow the company in a way that protects the planet and minimizes the impact on the environment.

As a relatively young commercial company, we have a very unique opportunity to grow in a way that puts the protection of the environment as a key consideration in the design of new facilities, new processes and new products. Therefore, we're currently focusing on incorporating sustainability by design principles in the design of new sites and new buildings. I think you heard about our distributed manufacturing earlier, so the advantage of our platform is that we can apply those learnings and sustainability to all of the sites.

Our current Cambridge headquarters is located in a Gold LEED-certified building. The Moderna Technology Center in Norwood, Massachusetts, was designed to incorporate many energy-efficient elements as well when it opened in 2018. And as it expands, we'll continue to put those energy-efficient measures into place.

We talked already about our carbon reduction goals and net zero commitments with Scope 1 and 2, which is a fundamental pillar in natural resource conservation. And we also are committed to reducing carbon emissions in our value chain. We definitely cannot do this alone. We're currently in the process of enhancing our understanding of and our engagement with the partners in our value chain to determine how we can influence them to help us along this carbon journey.

An example of how we're incorporating sustainable design principles in buildings is our new Science Center in Massachusetts and our partnership with Alexandria Real Estate. The new science center is being built to support our growth as the company continues to enhance its pipeline of mRNA medicines, and this new site will include custom spaces for leading-edge research and development. The building will integrate scientific and nonscientific spaces to maximize collaboration and provoke innovative disruption. Construction at the location has begun, and we expect to face move-in starting next year.

This building is designed to be the most sustainable commercial lab building in Cambridge, and let me share a few examples of sustainability elements being incorporated into that building. This high-performance facility is harnessing geothermal energy using heat pumps that will reduce fossil fuel usage, targeting 92%. We are also going to have a LEED Zero energy certification for this building. and solar arrays on site.

So taking the first steps in our journey, here are some of the keys we've done for our road map for Scope 1 and 2. We've established our emissions baseline for Scopes 1 and 2 with 2021 as the baseline year. We're completing the process of third-party assurance of the Scope 1 and 2 data in the next few weeks. We're excited to share this information today, and we will continue to be transparent publicly sharing data as we make progress in this road map to net zero.

If you look at our Scope 2 data, we show both the location-based emissions, which reflect the average emissions intensity of the electric grid where energy consumption occurs and the market-based emissions which reflects our commitment to and purchase of Green-e certified renewable energy certificates for our U.S. operations, which results in 99% of our electric consumption being supported by renewables.

Similar to our peers in pharma and biotech, Scope 3 accounts for more than 90% of our carbon emissions. Now let me just take a minute to explain some of the complexity around Scope 3 emissions accounting. Each of Moderna's direct suppliers, which we call Tier 1 suppliers, provide us a [better] service that is essential for us to operate, and then those suppliers have their suppliers that support their business. So those are Tier 2 to Moderna, but Tier 1 to our direct supplier and so on and so on.

We have the most influence with our Tier 1 suppliers. And as Stéphane talked about in his opening, we are engaging directly with them for their support to help us on these carbon ambitions. We will expect our key suppliers to adopt similar to SBTi goals. And by their nature, they will require them to work also in their value chain. So this is where we can use our influence to have a very, very broad reach beyond just our operations.

We're taking steps to better understand our carbon footprint. We've established 2021 as our baseline year for Scope 3. And although on a slightly different schedule than Scope 1 and 2, we will be seeking third-party verification of our Scope 3 data next year. Engagement with strategic partners will be critical to the journey to reduce carbon emissions and we'll use our brand and purchasing power to influence those partners to support setting or accelerating their carbon goals in line with SBTi and in line with our goals. And as we mentioned before, we are submitting our goals for validation by SBTi for a near-term target and evaluating the long-term target for Scope 3 emissions.

Some initiatives that are going on to help us reduce Scope 3 emissions are also engaging and empowering employees to be part of this journey. And just a quick example is that we offer 100% subsidized green transportation across all our campuses in the United States.

But we're not waiting for our validated SBTi goals, we're taking action in parallel. This is a great example of partnership. We worked with our partner in logistics, Kuehne+Nagel, to implement the use of biodiesel in a European shipping route.

With our partner, we conducted a pilot run to move materials on a truck fueled by food waste to transport our COVID-19 vaccine across Europe. The HVO is a biofuel that can reduce emissions by up to 90%. And the round trip for this pilot was 2,300 miles between Spain and Belgium, and it needed to fuel up at least once on the road. Through these engagements and pilots, this effort can support the expansion of alternative fuels in the marketplace.

We will continue our journey and focus on the key milestones. We're focusing on the key steps already mentioned in our commitment to submit science-based targets. We've engaged with third party to perform a client scenario analysis to better help us understand risks and opportunities related to climate change and we're committed to transparency along this journey, and we intend to submit the CDP climate change questionnaire as well as evaluating alignment with TCFD recommendations.

And with that, I'm going to turn it to Shannon Klinger to talk about our governance and ethics.

Shannon Thyme Klinger - *Moderna, Inc. - Chief Legal Officer & Corporate Secretary*

Thanks, Debbie. Good morning, good afternoon, everyone. My name is Shannon Klinger, and I'm the Chief Legal Officer of Moderna, and I also have the pleasure of being the President of the Moderna Charitable Foundation. If we go to the next slide, as we start to dig in on governance and ethics, our Board of Directors, an amazing collection of 9 individuals with deep industry experience as well as deep innovation experience.

And if we go to the next slide, and thinking about a few characteristics of this Board, of those 9 directors, 3 are women; and of our 4 Board committees, 2 committees are chaired by women. We've had 8 meetings over the course of 2021 and have reached 99% Board attendance. Why is this relevant? We have an incredibly engaged Board, leaning in with their expertise to help drive strategic direction for Moderna and provide guidance and assistance to management.

If you look at the kinds of skills and experience that are relevant for our Board members, we have Board members with information security experience, critical as we think about cybersecurity in the role that, that plays. We have experience with health care industry, international experience as we're expanding globally and also manufacturing and supply chain, which has been critically important as we scale up Moderna going forward.

If we go to the next slide, for many companies, you may see a Board committee that's responsible for ESG. But as Stéphane outlined at the very beginning, corporate social responsibility and ESG has been core to who Moderna is as a company since it was founded.

And so you won't find ESG in any one committee, but you actually find it across all 4 of our committees, whether it's the audit coming with oversight for risk assessment and management and cyber security; whether it's our compensation and talent committee looking at human capital management and overseeing the great work that Tracey and her team are doing in belonging and inclusion and diversity; whether it's our nominating and corporate governance committee, which in addition to helping make recommendations to our Board about additional Board members, oversees our ESG strategy and metrics, gets to listen to Debbie talk about the work that we're doing in our climate-related ambitions; and the product development committee which focuses on overseeing things like clinical trial design and the work that Jameka shared with us around diversity.

If we think about the highlights of what these committees together and our Board have focused on this year, it is around the very topics that we're talking about today. Our access initiatives, our patent pledge, that is the first company to agree never to enforce our intellectual property during the pandemic to reiterate that in March of this year that we will never enforce IP in the low-, low-middle-income countries as defined by Gavi in their AMC 92. They've overseen our facilitation of dose donations, how we think about net zero and, of course, creating and overseeing our charitable foundation, which they endowed with $50 million last year.

If we go to the next slide, How do we think about ESG? It's one thing, as all of you know, to have the words on the page and even to have the strategy. But how do we embed accountability in our organization? Just like the Board CCSG broadly dispersed among its committees, as an executive committee, we have ESG accountability broadly dispersed amongst all of us. whether it's Juan and Jerh who are helping on the carbon reduction efforts; you've heard from Tracey and the work she's doing in human capital; Arpa Garay, our Chief Commercial Officer is going to be overseeing our Access initiatives as we continue to move further into commercialization.

When it comes to incentives, our annual bonus programs have ESG metrics in them, whether those are human capital metrics, in 2021 and 2022 that Tracey referred to or metrics for executive committee around vaccine availability in low- and middle-income countries. We want how we believe ESG as our values to be reflected in how we're also rewarded and incentivized.

And finally, for all of our associates, the fifth objective in 2022, act responsibly towards our patients, our employees and our communities. And it's very important for all of us, starting with the Board and Stéphane, that we do things in the right way to deliver on the mission of transformative medicines for patients.

If we go to the next slide, one of the ways that we've done that is really taking a look at our compliance policies. One of the ways companies can get a little bit sideways is you can have mountains and piles of paper and you can have lots of rules that tell all of us how we should behave. But if we don't get to the why, if we don't really explain to our associates what are we trying to solve for, then how do we expect you to show up. If we don't empower our associates to be able to talk to their families at the dinner table about what are the mission and values of Moderna that matter, and why does that change how they may or may not act, we're not going to get the behavior that we expect and behavior that you deserve.

And so we've simplified our compliance framework to lean in on principles, 4 very simple principles: we protect patients; we value our communities; we safeguard our company; and we build trust. And that is core to our compliance philosophy as we continue to move forward. We've started a soft launch on social media, lots of engagement internally and that policy will continue to roll out for the balance of the year.

If we go to the next slide, though, it's not just our internal-facing policies, it's what are the standards and expectations that we have of our third parties. Third parties present a significant portion of risk for organizations. And so for us, we've implemented a third-party code of business conduct, which outlines the expectations we have of our suppliers, which are the same as we have for ourselves.

Debbie gave an example just now about how we're leaning in with our third-party suppliers around our commitment to net zero. We've also launched a sustainable and responsible procurement program and an assessment of current key suppliers around all of the range of fundamental issues that one would expect, so we can make sure as we're selecting our partners, that they live our values and that the partners that we have continue to do that even through the exercise of audit rights.

If we go to the next slide, transparency from Moderna is key. I think you've heard that from everybody who's spoken today. And as we lean in, we've had our first-ever ESG report published this year. This is our first ever ESG investor call. I hope you've enjoyed getting to hear from so many talented people around this organization who live this passion for ESG in each of the areas that we work.

But we want to make sure that we continue that transparency. And so this year, we've disclosed our 2021 EEO-1 report that gives clear insight into our work force diversity. And as you heard from Tracey, those statistics are 50-50 if we look at our broad workforce. We have trade association disclosure, and we've been very clear that Moderna will not give to political campaigns.

We've also just today talked about our GHG 2021 Scopes 1 and 2 data subject to verification, but wanting to put that in the public domain so you all know where we're starting and where we need to go. And so where are we going? As we think about the next steps, this is a key one, this continued engagement that we have with each and every one of you, whether it's on this call after the call, after you have a chance to look again at our ESG report, let us know what's missing, what did we get right, where were we not where you want us to be. Because for us, we want to make sure that we're hitting the mark for you.

We'll continue to work on developing ESG metrics and framework, and you'll see more for that from us in the coming 12 months. And we're continuing to assess additional ESG reporting frameworks as everyone seems to have a standard to find the right standard for us as Moderna as we report.

Can we go to the next slide? With that, I have the privilege of turning the call back to Stéphane. Stéphane?

Stephane Bancel - *Moderna, Inc. - CEO & Director*

Thank you so much, Shannon, and thank you so much, team. As you can see, we could have spent the entire day walking you through a lot of those topics that we are very passionate about. And I really encourage you to reach out if you want to learn more through Lavina's team in Investor Relations. They'll be happy to organize answers, but also meetings, if necessary with any of those leaders.

So as you can see, we're very excited. We really believe that with this mRNA, amazing information molecule, Moderna could become the most impactful life science company in the world based on this mRNA operating system. We really do strive to build a very special company that is responsible to all stakeholders. We want to set the examples and help raise the bar not only within the industry but also across industries. I think you got a good sense for our framework today.

Again, I would like, today but also in the future, through our discussions, feedback from you on how we could improve things, what best practice you see across industries and the across members of the biopharmaceutical industries because we're extremely committed to this.

So with this, let me turn over back to Lavina for her to moderate the Q&A. Thank you.

QUESTIONS AND ANSWERS

Lavina Talukdar - *Moderna, Inc. - Senior VP & Head of IR*

Great. Thank you, Stéphane, and thank you to all our presenters today for giving the audience a view into our ESG efforts thus far and reiterating our commitments to our ESG strategy for the future. As Stéphane just mentioned, I'll moderate the questions that are coming in from the audience on the webcast. I'll start with the first one, but please if you do have questions, submit them online in the chat function.

The first question is how does Moderna plan to eliminate emissions from your operations, both existing and future?

Stephane Bancel - *Moderna, Inc. - CEO & Director*

So I'll take that one, Lavina. So on the environment, I think our #1 priority, as Debbie said, we have a chance to build a lot of new sites, is to first use the best technology that exists out there in terms of allowing us to use less energy. So better HVAC system, better insulations of a building, better materials.

I remember when we built Norwood, there was some heated discussion, and I think I can see Stephen smiling, about what level of investment we'll make, because remember, we decided to build the site in 2016. And I remember, we actually invested an extra $5 million into the building in Norwood so that we would really build it to the best standards we could because we're going to live with that plan for the next 20 years.

So as the team is building Canada, and Stephen was actually in Montreal on Monday for groundbreaking and U.K. and Australia and Kenya and the ones to come, there are more to come, we want to make sure as we speak to the team too, that we use the best possible technology and innovation happening from other companies to reduce the use of energy on the site, number one.

Number two is around the source of energy, of course. We've used carbon offsets in Cambridge and in Norwood so far, as we've announced earlier for the source of energy that turned out green already. And we already strive to work with our suppliers of energy to make sure that we move to using 100% green energy. So those are the key things we are working on, Lavina, in terms of minimizing the impact of our physical sites.

Lavina Talukdar - *Moderna, Inc. - Senior VP & Head of IR*

Thank you for that. Our second question, I believe, Shannon, this one is for you. Do you have a supplier code of conduct in place?

Shannon Thyme Klinger - *Moderna, Inc. - Chief Legal Officer & Corporate Secretary*

We do. As I just mentioned, we've just launched our third-party code of conduct. More coming soon. So thank you for the question.

Lavina Talukdar - *Moderna, Inc. - Senior VP & Head of IR*

Thank you. Our third question, probably for Stephen. Thank you for this very enlightening presentation. I would love to know how Moderna works together with local communities and health care experts on specific diseases. For instance, Lassa fever occurs in a number of regions where health care providers have gained increasing knowledge of the disease over the past years. Does Moderna work together with them in developing vaccines, drawing from their lived experience and expertise?

Stephen Hoge - *Moderna, Inc. - President*

Thank you for that question. And I think the short answer is yes. So as Hamilton described, we have a number of different ways we try to engage with experts and communities in bringing forward vaccines against neglected or underserved diseases like Lassa. So some of that involves collaborating with those who've been studying the disease for the longest groups like IAVI and others, where they can bring unique capabilities in helping us design the potentially most effective vaccines.

But then a big portion of it, what we're trying to accomplish with mRNA Access is to enable research in those communities that are closer to the disease and enable development in those communities as well. And so Lassa is a specific example, there's tremendous expertise being developed in Africa, in terms of the epidemiology of that and the potential for a vaccine. And we're very happy and open to engaging with those experts as we try and advance a Lassa candidate vaccine as well as experts, as I said, in global institutions who understand the best of vaccine design. Our approach with mRNA Access is to engage the world in solving these problems.

Lavina Talukdar - *Moderna, Inc. - Senior VP & Head of IR*

Thank you for that very thorough answer, Stephen. Our next question is also for you, Stephen. Which modality is MS tied to, again? The chart that was increasing R&D investment slide wasn't clear.

Stephen Hoge - *Moderna, Inc. - President*

So multiple sclerosis. There are -- there's an evolving set of data that suggests to us and we're believers in that multiple sclerosis is really a long-term sequela in many cases of Epstein-Barr virus infection or EBV, for sure. EBV, there have been publications as recently as last fall. And I'll point you to our Vaccines Day even this year, where we had presentations from academic experts who've been studying that and been able to draw some pretty powerful links between the risk of being infected with EBV, particularly in early adolescence and developing MS later on in life.

And so we have an Epstein-Barr virus vaccine, which is trying to both prevent infection but also prevent the long-term sequela. Now the first place we're looking at that is in something called mono, infectious mononucleosis. But over time, we very much intend to develop that vaccine more broadly against all the diseases that EBV is associated with and perhaps causally linked to, including multiple sclerosis.

Lavina Talukdar - *Moderna, Inc. - Senior VP & Head of IR*

Excellent. As we are now at time, thank you, everyone, for those submitted questions. As Stéphane mentioned before, if there are additional questions, please do not hesitate to reach out to the IR team, we're here to help. And I want to again thank everyone who is listening online as well as all of our presenters. Thank you so much for your participation.

Stephane Bancel - *Moderna, Inc. - CEO & Director*

Thank you, everybody.

Shannon Thyme Klinger - *Moderna, Inc. - Chief Legal Officer & Corporate Secretary*

Thank you. Bye.