

Building a Greener U.S. Future: Insights and Actions



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 Greenbuild

A woman in a green dress is crouching in a sunlit forest, watering small plants with a metal watering can. The background is a dense forest with tall trees and sunlight filtering through the leaves.

Could 2021 be the year when the world emerges from one global crisis and starts making significant progress against another one?

The conditions of the past year, including widespread stay-at-home orders that contributed to a reduction in road transport activity and lower fossil fuel consumption, triggered the largest drop in global energy-related CO2 emissions since WWII – estimated at [11% in the U.S. alone](#) and around [6% globally](#). However, as our COVID-fatigued communities began to emerge from virus-related restrictions, emissions have [rebounded strongly](#).

In the meantime, the damaging impact of climate change remains an enduring challenge that won't be erased by efforts that take place in a single year. It's also one where simple, isolated solutions will not be enough to effectively address the full complement of contributing factors. As such, it will take consistent and unified intervention on multiple, global fronts to maintain the small gains experienced in 2020 and scale them significantly enough to preserve the livability of our planet.

As executive director Dr. Fatih Birol, stated in the IEA report, “If governments don't move quickly with the right energy policies, it could put at risk the world's historic opportunity to make 2019 the definitive peak in global emissions.”

In the U.S., the Biden Administration is aiming to put such interventional policies in place. In addition to rejoining the Paris Climate Accord, the President has unveiled an ambitious [sustainable infrastructure and equitable clean energy plan](#), with a strong focus on three key areas:

- 1** Ensuring the U.S. achieves a 100% clean energy economy and net-zero emissions no later than 2050
- 2** Building a stronger, more resilient infrastructure economy – including measures to prevent resiliency investments from disproportionately harming communities of color and low-income communities
- 3** Implementing energy efficiency standards for buildings, homes, and appliances that will contribute to community-wide improvements in energy usage

But what will it take to enact the lofty goals outlined in this proposal? And what can sustainability industry leaders start doing today to prepare for the impending regulatory, attitudinal, and process shifts these initiatives will require?

We reached out to experts in sustainability design, construction, energy, government, and other relevant industry sectors to get their perspectives on the plan and what needs to happen for these plans to move off the drawing board and into practice. In the following report, we've summarized their top priorities, insights, and recommendations.

Re-Engineering and Recharging Our Energy Reserves

According to the draft proposal, the U.S. is looking to make an historic investment in energy-efficient technology, systems, materials, and infrastructure that will address the country's previous sustainability bottlenecks, unlock its full clean energy potential, and create new jobs to stimulate the economy. The plan also includes establishing a technology-neutral Energy Efficiency and Clean Electricity Standard (EECES) for utilities and grid operators.

The goal here is to improve air quality and reduce emissions resulting from the use of fossil fuels, while making it both easier and more fiscally attractive for businesses, workers, and citizens, alike, to adopt and comply with these new standards.

But what does the picture look like from an operational standpoint? And how will the push towards decarbonization, greater energy efficiency, and energy standardization shape the work that industry professionals want to achieve in 2021 and beyond? Here are some perspectives from our experts...



Keep your eyes open for funding opportunities

The Biden plans are just reinforcing how important it is to make new net-zero carbon emissions the focus and the frame for how we think about energy-related components. Yet, there's also the potential for a very large amount of money to flow into these projects. So, we're making sure that our clients are aware of those potential opportunities. We're watching as ideas get turned into legislation, and legislation gets turned into programs, to make sure we're preparing them and their projects to be ready to go once those resources become available.

— Kim Vermeer, President and Co-founder,
Urban Habitat Initiatives

Cooperation will be key to change management

We need to look at this as a significant opportunity to mitigate greenhouse gas emissions through energy efficiency, electrification and, of course, a carbon-free energy supply. When we think about doing different things differently, change is not always easy. We need deeper collaboration among the people who design buildings, the people who operate buildings and, of course, the people who use buildings to produce the emissions results this plan is looking to achieve.

— Gautami Palanki, VP of Sustainability,
Howard Hughes Corporation

Lead by example

The draft climate and infrastructure plan has encouraged me to focus more than ever on my firm's efforts to "lead by example" by designing cutting-edge electrical systems that help to minimize carbon emissions and continuing to build our expertise in this rapidly changing environment. The effects of climate change have become clearer to my community, urgency is growing, and the timeframe to respond is shortening. To that end, I'm continuing to focus my time on developing concepts and groundbreaking designs in key areas that support those efforts, such as net-zero energy, PV/battery technology, microgrids, building electrification/decarbonization (including kitchen electrification), and smart electric vehicle charging strategies.

— David Kaneda, Principal and Thought Leader,
IDeAs Consulting

Get grid-smart about electrification and integration

I think the electric grid in the future is going to be increasingly important, especially once we find ways to better integrate it with transportation systems. There's also a heavy emphasis on research and development, and that of course will also benefit the industry – just as it has in the past – but in a more pronounced way.

— John Mlade, Director of Sustainable & Healthy
Environments, Wight & Company

The green building industry is going to need to learn about the grid. The carbon on the grid changes significantly, depending on the day and year and where on the grid you are. Building designers (especially all-electric buildings) have a role to play to enable grid-friendly buildings that can help the greater grid integrate more cost-effective renewables faster.

— Shanti Pless, Senior Research Engineer,
National Renewable Energy Laboratory

Making Resilience Equitable

Investment in renewable energy technologies and other innovative solutions is a great starting point. But to truly make meaningful strides against climate change, the solutions and approaches we implement need to be both multifaceted and available to everyone.

That includes disadvantaged populations that often bear the brunt of pollution and those living in low-income communities, older existing buildings, or in areas that are becoming increasingly vulnerable to climate-related disasters such as fires and floods.

While resilience needs can vary widely across different geographies, landscapes, and community populations, the Biden proposal does aim to account for environmental justice in its plans. Those plans include upgrading, retrofitting, and weatherizing buildings and homes, bolstering and building cleaner energy supply chains, and spurring the construction of 1.5 million affordable and sustainable homes and housing units.

But will the measures outlined adequately address resilience needs, let alone enable implementation in ways that are truly equitable and affordable? Here's what our experts had to say...



The economics need to add up

The plan I think does not have enough emphasis on existing buildings...In the housing sector, there's money for a million rental homes or a combination of preservation retrofits and new creation, and there's a target of half a million homes for low- and moderate-income homebuyers through either creation or renovation. But that's basically what we already produce in one year. So, you can see that that's not going to really address resilience from a housing perspective.

— Kim Vermeer

The cost of buildings continues to get less and less affordable. However, the cost of renewable energy (wind, solar, batteries) continues to get cheaper and cheaper. We need to deploy all the cost-effective solutions we have as fast as possible, and also scale up R+D to focus on ways to reduce the first costs of delivering more green spaces and zero-carbon buildings, especially in disadvantaged communities that lack affordable housing solutions.

— Shanti Pless

Take investments out of the silos and into underserved communities

To me, it was profound in that the plan diverges from the standard, siloed view that thinking about climate and thinking about the economy need to be kept separate. I agree with climate policy analyst Ali Zaidi when he said that the output of good economic policy is good climate policy. You can't have one without the other – just as you can't have environmental justice if you don't have social justice. And the success of all of these factors is necessary for global success around sustainability.

— John Mlade

I think urban communities have been under-resourced and no one's really invested in them, especially regarding the sustainability efforts. If you look at a lot of sustainability projects – LEED Gold, LEED Platinum projects – those are typically not located in urban environments. We really need to change that conversation, so that those underserved, marginalized communities actually are being invested in a sustainable, resilient way and, in turn, those investments can build up those communities and help make them whole again.

— Edward Bartholomew, Principal, Bartholomew Lighting

Set precedents that future generations can evolve

Design professionals are building the cities of the future. Our generation of development professionals is at the table making decisions that will determine the success of these climate goals. The United States is setting an economy-wide target of reducing its net greenhouse gas emissions by 50% by 2030, and buildings, as we know, are a great contributor to achieving these goals. So, buildings that have been designed today must set the precedent for not only meeting but exceeding these targets. There is tremendous opportunity to showcase innovation and design, and also maximize the existing technologies available to deliver healthy and resilient spaces.

— Gautami Palanki

Laying the Foundation

Without the right foundation to support them, none of our industry's green community goals will be achievable, let alone sustainable over the long term. So, it's notable that Biden's plan calls for a far-reaching investment in a trustworthy, innovation-driven infrastructure that will "lay a new foundation for sustainable growth, compete in the global economy, withstand the impacts of climate change, and improve public health, including access to clean air and clean water."

But can the infrastructure improvements and economic stimulation the President envisions truly progress from ideal to implemented reality? With so many links to connect across a vast and complex supply chain, success will depend on accelerated innovation, new research into fossil fuel alternatives, and cooperation among parties with conflicting interests on a scale that's never been attempted before.

What mind shifts and process changes will be necessary to make it happen? And in what ways will green building professionals in the U.S. and abroad need to expand their understanding of the work to be done and where to focus their contributions for the greatest impact? Here are some observations and ideas from those on the front lines...



Broaden the definition of what we're building

I know this is part of the discussion in Washington, but it's really time to redefine what infrastructure means. There was a time when it was just about the roads, bridges, ports, railways... But when it comes to what is needed in order to be a productive society with economic growth potential today, of course internet needs to be on that list. Infrastructure has increasingly become also social infrastructure. It's absolutely essential that this plan recognizes that times have changed and that we need to broaden the definition, in response.

— Elena Bondareva, Strategist, Advisor, and Director of Pollinate Group and the William J. Warden Foundation

Invest in our human infrastructure

Training is really critical, and I'm encouraged to see that this infrastructure plan actually has a good training component because the smart buildings of today will need to be maintained. We can train whole new groups of people to commission and maintain those buildings to make them work better. When we think about sustainability and buildings, it's like a big sailboat: There are a lot of components, a lot of things happening, a lot of systems that have to talk to each other. To bring alignment around all that and deepen understanding of how it all works together requires good training. It's a great opportunity to train (and retrain) a whole new workforce on sustainability.

—Edward Bartholomew

View transportation in terms of people, not vehicles

We seem to finally be understanding how to design places for people, rather than for cars. Our city streets that have been turned into outdoor spaces for people and businesses during COVID is a feature we should be doing more of

— Shanti Pless

Take a look beyond our borders and boundaries

We need to look at this holistically and not solely through a green building lens. Obviously, we need to do what we can to push this effort forward, particularly in the service of electrification of buildings and cleaning up the electric grid in our transportation industry. We have so many natural resources in the U.S. that are not fossil fuels that are untapped and that are renewable. This infrastructure plan is going to go a long way to building the good energy mix that's right for each region of the country, whether that's hydro, solar, nuclear, geothermal, or what have you. How to use your natural resources effectively for the environment that you're in, those are lessons where we can learn a lot from what countries like Iceland and Costa Rica are already doing.

—Danielle Wilmot, Manager of Implementation, Blue Ocean Sustainability

Complications will be tough to unwind without unified legislation

Just as Tesla has been the catalyst for forcing automobile manufacturers to commit to switching over their product lines to all-electric vehicles, key builders and electric utilities could help to create similar changes. However, the fossil fuel industry is HUGE, powerful, and provides around 5.6% of U.S. employment according to PWC. I am concerned that without some type of legislation to drive them, these changes will not happen fast enough. Switching our economy from fossil fuel to renewable energy will be difficult; and, undoubtedly, firms and individuals stand to get hurt and will fight change. Unfortunately, there is unlikely to be a one-for-one replacement of coal mining jobs with photovoltaic installation jobs in West Virginia or fracking jobs with wind turbine jobs in North Dakota. Not only do federal, state, and local governments need to get on board and coordinate their efforts to quickly identify what works, share successes, and adopt best practices, the government will need to find ways to support workers in industries that become obsolete. That will be tremendously difficult to accomplish.

— David Kaneda

The Real-World View

There's no single right way to approach the environmental, social, industrial, or financial challenges stemming from climate change. And this is acknowledged in the Biden plan, as it touches on a great number of the critical issues that both sustainability experts and policy activists have long been advocating for.

But while the initial response from the environmental activist community has been encouraging, other experts are questioning whether it's focused on the right efforts and will, ultimately, be capable of driving a meaningful impact.

Though many of the key details will likely be revised, replaced, or reprioritized as the draft plan works its way through the legislative process, here are just a few of the initial obstacles, omissions, and opportunities our experts pointed out...



We need to break out of siloed thinking

What really strikes me is that it's so broad and touches on so many theories, yet I think we each get stuck in our own siloed sectors. For example, my clients build a lot of affordable housing, so I tend to focus on the US Department of Housing and Urban Development and its available resources. But there will also be opportunities flowing through the Department of Energy... and the transportation department is focused on equity and transit-oriented development. So, I think our industry really needs to take a look through our periscopes and see what else is out there and begin to understand how we might be able to tap into multiple channels of programs and funding.

— Kim Vermeer

Clarity of message is needed to create clarity of purpose

I was in Germany on a green building learning and exchange tour for women leaders in the industry. What struck me was that everyone we spoke to all knew what the guiding rules were for energy production. Everyone said to us "20% by 2030." It was just this really strong, clear message with a target that everyone understood. I hope that we can have some similarly simple, clear messaging around rules and actions for the U.S.

— Kim Vermeer

Integrity and accountability must factor into the financial equation

I think folks will need to operate with a level of integrity that is hard to achieve when there's so much money on the table. What I fear will happen is that municipalities, school districts, you name it, will be given a large sum of money and feel compelled to spend it immediately because they have it. And certainly, if given the time, all of these groups can identify needs, I'm sure, that would exceed the amount that they're going to be given. The longer that recipients delay in spending the money, the more pressure they're going to be under to just pull ideas together and it's going to be a flurry of activity simply to spend the money rather than conducting an intentional needs assessment.

— John Mlade

It's critical to bridge the diversity divides

I hope that in some of the policies that are being developed there will be more transparency on how they will invest in underserved communities and bring more diverse participation into the bidding process for contractors that are utilized on these projects.

— Edward Bartholomew

Embrace innovation – but mind the timeline

I believe that the most important step missing from the plan is a detailed timeline for reaching carbon neutrality, with interim goals and a national commitment to reaching them. It's going to take time to identify, beta test, and select strategies that can work on a national scale, so the sooner we get started the better! The country needs to rapidly convert to making all buildings – both new and existing – high performance and work to find ways to make the energy that buildings use carbon-free. That can be anything from an onsite solution coupling an onsite photovoltaic system with batteries and smart controls to allow a building to use its own renewably generated electricity 24/7, to developing utility-scale sources that can provide carbon-free utility power 24/7. Utilities need to be brought more aggressively into the equation for more effective coordination of building and grid power sources. As it becomes clearer that the industry truly is changing, more firms will embrace using innovative solutions to solve the problems.

— David Kaneda

Sustainability is an interconnected issue

One thing I haven't seen is an explicit mention of cybersecurity. At the moment, the east coast is in the middle of a gasoline crisis caused by a ransomware attack. Hospitals, banks, a lot of the targets of this infrastructure plan have also been targets of ransomware and other cyberattacks. I would hope that in the specific allocations of funding, there will be an allocation for cybersecurity as part of that broader definition of how we modernize and update buildings for greater sustainability. We can have the best green, digital technology and infrastructure in the world, but how we will keep it from being vulnerable to attack is something that needs to be a little bit more explicitly spelled out.

— Danielle Wilmot

There's significant consideration about the benefits of reducing emissions from federal actions, which includes standards, investments, incentives, taxes, programs, and the support of innovation. Leveraging this commitment as a unifying force – one that reaches across everyone involved in designing, operating, and managing buildings will be critical...It's going to take a lot of coordinating efforts between the public and private sector. I know it's possible, we just need to overcome the initial friction that comes with all change management. At the end of the day, an integrated lifecycle approach is no longer going to be an option, it will need to be the prerequisite.

— Gautami Palanki

The biggest thing I think that is missing, from my perspective, is the health aspect. We've been talking about healthy buildings, especially in the age of COVID, as a solution. I'm very much convinced that advocating for the health in the infrastructure, in the buildings, in the refurbishments that are mentioned in the plan, will be absolutely essential... We know now that buildings aren't just places where we house people. Healthy buildings are a human right. I would like for us as an industry to articulate the impact of the built environment on public health. To move towards that as a community, we need to start thinking about systems change – not just on a building-by-building level, but also involving regulation and policy change. Connecting to the health narrative is how we, perhaps for the first time ever, have a real opportunity to activate self-interest and compel people to pursue sustainability.

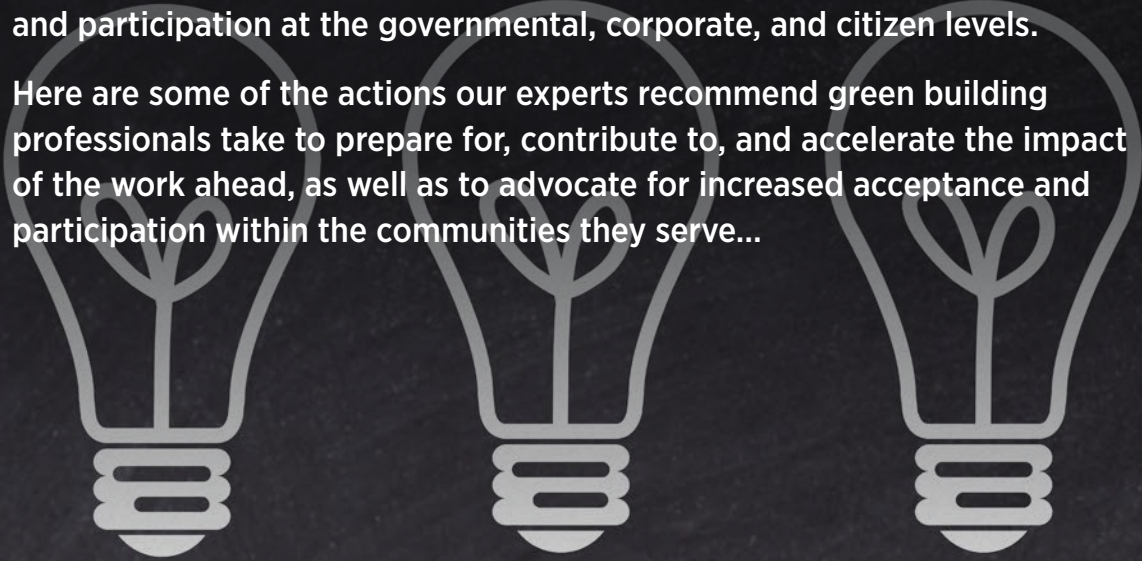
— Elena Bondareva



Actions and Advocacy

Of course, for President Biden's proposed plans – or any other environmental legislation – to succeed, it will require a coordinated and collaborative effort across all sectors of the sustainability industry, as well as widespread support and participation at the governmental, corporate, and citizen levels.

Here are some of the actions our experts recommend green building professionals take to prepare for, contribute to, and accelerate the impact of the work ahead, as well as to advocate for increased acceptance and participation within the communities they serve...



Approach alignment through empathy and systemic benefits

From a systems perspective, there are leverage points that are really challenging to change. Even from a cultural standpoint, we currently find ourselves in a very polarized, adversarial society, where folks may rail against this plan without really understanding what's in it or how it impacts their community. I think approaching this with a level of respect and decorum for opposing viewpoints is going to be important because we all need to embrace these efforts collectively. That the coal miner's union currently endorses the Biden plan speaks volumes. I don't think enough people heard that sound bite, but it's an incredibly powerful endorsement that goes beyond the bipartisanship typically at play.

— John Mlade

I think it's time for everyone – from HVAC suppliers and distributors to mainstream real estate developers to financing organizations in the building sector – to think about how they can contribute, not just a few enlightened architects or developers. Everyone in the process of delivering and operating buildings has a role to play, and we can all do more.

— Shanti Pless

Continually educate, advocate, and participate

First, educate yourself! Read and do research on the science. After that, get involved! Some of the ways I have personally gotten involved include speaking at conferences on building design-related climate change issues, serving on GSA's Green Building Advisory Committee, serving on the state AIA's Committee on the Environment, serving on my local planning commission, advising local utility companies on electrification strategies, advocating for stretch codes in local cities and, lastly, helping clients to understand the rapid rate and scope of changes that are happening due to climate change issues and helping them to develop cost-effective strategies to get ahead of those changes.

— David Kaneda

The success of any plan is really determined by its implementation. Carbon emission reduction is a science-based, technical conversation; it needs to be translated into actionable elements that help people understand how carbon impacts their everyday life. At the end of the day, ongoing education is going to be key to driving change across the entire supply chain and lifecycle of the building environment. I really feel people want to be a part of this change. We just need to give them the tools, so they feel comfortable in their ability to deliver on it.

— Gautami Palanki

Create standards that make processes easily replicable

I think it would be very helpful if, as the programs are being developed, leaders are able to come up with some standardization around the solutions and approaches, so that every team and every project doesn't have to figure out what to do from scratch.

— Kim Vermeer

Embed equity into decarbonization

Centering equity within this effort toward a sustainable economy is really important... making sure that we have diverse participants working and on these sustainable projects and that decarbonization has equity embedded into it. And I think there's an opportunity to address that by increasing the pipeline of diverse students coming into the industry, as well as empowering those who are already in the industry – raising and amplifying those voices to increase their participation.

— Edward Bartholomew

Ditch the idealized vision and choose a starting point

There are some complaints that the plan doesn't go far enough on some climate specific policies. There's good breadth, but I think it's really important not to let the perfect be the enemy of the good here. I think this gives us a really good starting point to reap some rewards, show some benefits over the next couple of years, and then use that as leverage to move forward and push even further in the future. This plan represents an investment. It's an investment that will pay out returns for many, many years and decades after that initial investment is made.

— Danielle Wilmot

I think we all have to get over our egos around these issues. So many of us who are technical engineers, architects, scientists, we like feeling like the smartest people in the room. If we actually want people to take what we've worked on for decades and run with it, create value out of it, and empower others in our communities to make it their own, we have to start stepping back. We still demand such great agreement on issues, as opposed to just taking action. We need to switch the conversation to, what are the easiest things to get done? What is it that the community needs to start doing what we all know is the right thing to do? As a community we need to find these alternative [approaches]. Whether it is tools, messaging, stories... Seeing Lady Gaga on TV, saying, hey, healthy spaces matter... All of that is significant. What will it take for our end users to actually absorb this, rather than us continuing to preach to the choir?

— Elena Bondareva

Transform Intentions Into Actions

The Biden Administration has laid out a high-level plan, but at present, it lacks many of the concrete details that each industry sector will need to build their plans around. In response, a number of professionals within the sustainable design community grouped together and crafted a letter of response to the Build Back Better program, which further defines the goals and outlines specific action items they see as critical to achieving meaningful results.

The proposal addresses relevant issues related to energy, resilience, social equity, and human health from multiple vantage points and offers guidance on how to put the consortium's six key principles into action:

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| 1 | Enhancing Federal Building Standards | 4 | Electrifying to Achieve a Carbon-Free Grid |
| 2 | Stimulating Building Reuse and Upgrades | 5 | Promoting Material Health and Product Transparency |
| 3 | Promoting Healthy Housing and Resilient Communities | 6 | Promoting Healthy Schools For All |

For more details and the full complement of action items, you can [view the full letter here](#).

Let's Take The Next Steps Together

While Biden's plan is far from a done deal and specific initiatives have yet to take shape, there are plenty of steps Green Building professionals can take to prepare, adapt, and respond to the priorities outlined thus far.

The conversation will certainly continue in the weeks and months ahead – including at this year's Greenbuild International Conference & Expo in San Diego on September 21-23, 2021. [Register today](#) to join us in person or via our virtual platform.

In the meantime, here's another way you can unite with your industry peers who are leading the call to environmental action: Become a member of [Greenbuild Insider](#) for access to exclusive events, networking opportunities, and our full library of on-demand CE-accredited courses.

As a member, you can also view full interviews with some of the experts who contributed to this report, as well as more original content and updates on the exciting strides and innovative projects your industry colleagues are producing on these fronts – and many others.



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