



BIPARTISAN POLICY CENTER

Testimony on “Better, Faster, Cheaper, Smarter, and Stronger: Infrastructure
Development Opportunities to Drive Economic Recovery and Resiliency”

United States Senate
Committee on Environment and Public Works

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Chairman Barrasso, Ranking Member Carper, and members of the committee, thank you for the hard work and the collaborative process you have led to develop S. 2302, the America's Transportation Infrastructure Act (ATIA). On behalf of the Bipartisan Policy Center, I appreciate the opportunity to express our strong support for this legislation, highlight aspects of the bill that we believe are particularly significant, and suggest a few areas where we would urge the committee to explore additional enhancements. At a time when the need for economic recovery and public investment is more urgent than ever, an approach that focuses on improving the resilience of critical surface transportation systems, accelerating the planning and construction of needed projects through thoughtful permitting reforms, and facilitating the transition to low-carbon transportation and energy technologies to meet the enormous challenge of climate change offers a rare opening to move the country forward on a bipartisan basis—now and for the future.

I wish to make three key points:

- The United States is a world leader in developing the new, low-carbon technologies and innovative infrastructure solutions that will be needed to effectively mitigate and manage the worst effects of climate change. But without smart infrastructure investments now, we may not be able to deploy these technologies in time to reap the multiple benefits they offer—both for reducing our nation's own carbon footprint and for positioning American companies to supply the growing global market for climate-friendly energy and transportation alternatives. A bipartisan vision for “Better, Faster, Cheaper, Smarter, Stronger” **and Cleaner** infrastructure can unite traditional infrastructure advocates and climate advocates behind a shared mission to accelerate large investments in our nation's near- and long-term prosperity, competitiveness, energy security, and quality of life.
- ATIA—by coupling meaningful investments in infrastructure resilience and climate mitigation with commonsense permitting process improvements—presents Congress with the opportunity to score a major legislative achievement. I applaud this committee—especially Chairman Barrasso, Ranking Member Carper, and your staffs—for coming together to debate and negotiate a package of significant policy agreements that together address the profound, immediate need to restore economic growth, modernize our nation's outmoded and decaying surface transportation infrastructure, and lay the foundation for an effective response to climate change.
- Finally, without detracting from the hard-fought progress you have made in this legislation, I wish to identify some additional steps we hope Congress will consider as discussions around infrastructure, economic recovery, and climate change continue. A few targeted enhancements would further strengthen the ATIA as a durable model for pairing the decarbonization of a large and complex modern economy with continued job growth and competitive success.

1. Introduction

The Bipartisan Policy Center (BPC) is a Washington, D.C.-based think tank that actively fosters bipartisan solutions to critical public policy challenges by engaging with good ideas from across the political spectrum. BPC's Energy and Infrastructure Projects work to advance evidence-based, economically viable policies that will accelerate America's transition to a competitive, net-zero-carbon economy.

BPC has an established track record of building bipartisan support for smart policies to address climate change and support clean energy technology innovation. BPC has also led several initiatives to develop and advocate for consensus-driven, cost-effective, and bipartisan infrastructure policies. We have offered reforms to make federal surface transportation programs more performance-driven, more directly linked to clear national goals, and more accountable for results.ⁱ For example, BPC has proposed a new model for infrastructure investment that leverages private-sector capital and expertise, developed recommendations to address aging water and wastewater infrastructure, and offered a pragmatic roadmap for fixing the federal Highway Trust Fund.ⁱⁱ We appreciate the opportunity to share ideas at this hearing and welcome any opportunity to work with this committee as it explores and reconciles differing approaches to funding, financing, and delivering critical infrastructure projects.

The first part of my testimony focuses on three elements of S.2302 that we view as particularly significant and worthy of bipartisan support: (1) public investment on a scale that will meaningfully support economic recovery from the current coronavirus crisis; (2) provisions that directly address the need for emissions mitigation and greater climate resiliency in the nation's surface transportation systems; and (3) permitting reforms that will accelerate the pace of infrastructure investment and the realization of associated benefits. The second half of my testimony explores the link between permitting reforms and the broader challenge of economy-wide decarbonization. The last section discusses opportunities for enhancing ATIA that we would urge the committee and Congress as a whole to consider.

2. Key Elements of the America's Transportation Investment Act

Infrastructure Investment for Near-Term Economic Recovery and Long-Term Prosperity

The Senate Environment and Public Works Committee unanimously passed the America's Transportation Infrastructure Act (ATIA) in July 2019. By authorizing \$287 billion from the Highway Trust Fund from FY 2021 to FY 2025, including \$249 billion for highway formula programs, the bill makes a significant down payment on urgent infrastructure repair and improvement needs at a time when many states and localities are struggling and further federal support is widely viewed as essential to the nation's economic recovery from the coronavirus crisis. We are aware that the legislation still requires accompanying titles from the Senate's Commerce, Banking, and Finance Committees to address transit, rail and safety, and revenue issues, respectively, before it can advance. Therefore, we urge your colleagues on those committees to act quickly so as to enable consideration of a comprehensive package by the full Senate as soon as possible.

The poor condition of our nation's surface transportation infrastructure is a concern that pre-dates the current crisis and that has provided a rare basis for bipartisan alignment for some years now. In 2017, the nation as a whole received a D+ grade for the state of its infrastructure from the American Society of Civil Engineers. Proportional to GDP, the United States has lagged other developed countries in its rate

of infrastructure investment since at least the 1980s, and the accumulating toll of decades of neglect and disrepair—in public safety, economic efficiency, global competitiveness, and quality of life has continued to grow.

In our view, there could be no better time to meaningfully address these deficiencies than at a moment when the economy is struggling from the fallout of COVID-19, millions of Americans—including particularly many low-wage workers—are out of work, and delayed income tax payments, decreased sales tax receipts, and massive, unanticipated health and public safety expenses have wrecked state and local government finances. Private and public entities alike have faced and continue to face wrenching budget choices despite the emergency assistance provided by the CARES Act, including mass layoffs of employees and delayed or canceled capital expenditures and infrastructure projects.ⁱⁱⁱ Rural, tribal, and other disadvantaged communities, which already faced challenges financing infrastructure improvements, will find it increasingly difficult to service existing debt obligations and finance new projects. Meanwhile, experience from previous crises has repeatedly demonstrated the potential benefits of smart public investment—both in near-term job creation and long-term economic returns. In this context, the well-targeted and certain transportation funding provided by ATIA would be exceedingly valuable as states and localities confront continued challenges in the months ahead.

Investments in Climate Resilience and Mitigation

A global pandemic and climate change represent very different kinds of threat. But in scale, complexity, and potential for far-reaching harm and economic damage, climate change rivals and even exceeds the current crisis for the simple reason that its consequences and cures will unfold on decade- and even century-long timescales. We therefore applaud the committee for its bipartisan acknowledgement that climate mitigation and resilience must be considered as central elements in planning for critical, long-lived infrastructure investments going forward. Among ATIA's most important provisions are those that support innovative low-carbon transportation technologies and make our surface transportation systems more resilient to climate-change-related risks. These risks and their possible impacts on transportation in particular, as summarized by the U.S. Global Change Research Program, are highlighted in the graphic below.



Source: U.S. Global Change Research Program

In recent years, as millions of Americans have seen their lives upended by increasingly catastrophic weather events and natural disasters, climate risks have moved from the realm of the theoretical or

abstract into the very real and tangible present. In fact, 2019 marked the fifth consecutive year in which ten or more billion-dollar weather and climate disasters impacted the United States, including devastating hurricanes, wildfires, and floods.

The overwhelming scientific consensus is that climate patterns will continue to shift and extreme weather events will continue to grow more frequent and severe as warming continues over the decades ahead. In light of these projections, America urgently needs to make investments to protect its \$4.1 trillion in transportation infrastructure assets and to make those assets more resilient to climate conditions that could otherwise reduce their reliability and capacity. As just one example, 13 of the nation's 47 largest airports have at least one runway situated within reach of a moderate-to-high storm surge.^{iv} Rising sea levels and extreme weather put these runways, and other critical infrastructure, at risk. The focus on resilience is essential as the climate is already changing in ways that severely threaten our built environment.

At the same time, the transportation sector itself must do its part to mitigate climate risks and slow the rate of warming by becoming more efficient and by transitioning to low-carbon technologies. Transportation, in fact, is the largest contributor to greenhouse gas emissions in the United States, accounting for 29% of national emissions. While many strategies and technologies must be pursued to effectively decarbonize this highly specialized and complex sector of the economy, multiple expert studies have found that vehicle electrification will need to play a central role as other technology platforms, such as hydrogen, mature. Because of the slow turnover of the personal vehicle fleet, investment in charging stations and other infrastructure to support vehicle electrification will be critical to accelerate consumer adoption of this technology. BPC appreciates the committee's support for vehicle electrification and other low-carbon alternative fuels in ATIA and we look forward to working with you to build on these provisions.

Overall, ATIA authorizes nearly \$10 billion over five years for highway-related climate change mitigation and adaptation programs, with more funding available if state and local governments choose to use a portion of other federal highway grants for related activities. These provisions are summarized in the table below.

Major Climate Change-Related Provisions in the ATIA
<p><u>Goal: Advance cleaner technologies and innovations</u></p> <p>Provides an average \$200 million annually to develop charging stations for alternative fuel vehicles with an 80% federal share (Section 1401).</p> <p>Supports carbon utilization and air capture research and collaboration (Section 1406).</p> <p>Establishes a federal interagency working group to develop a strategy to transition federal vehicle fleets to alternative fuel vehicles (Section 1510).</p>
<p><u>Goal: Mitigate emissions on roads and at ports</u></p> <p>Provides \$40 million on average annually for competitive grants to advance innovative, integrated, and multimodal solutions to congestion relief (Section 1404).</p> <p>Provides an average \$74 million annually for a competitive grant program to reduce emissions at port facilities by reducing truck idling (Section 1402).</p> <p>Provides about \$600 million annually in supplemental formula funds and \$100 million annually for competitive grants to states to invest in transportation improvements designed to reduce on-road mobile sources of CO2 emissions (Section 1403).</p>

Makes lock and dam modernization or marine highway projects eligible for the National Highway Freight Program if they reduce on-road source emissions (Section 1114).
<p><u>Goal: Open existing funding streams to natural infrastructure and resilience improvements</u></p> <p>Provides a maximum federal share of up to 100% for a project to add protective features to improve resiliency on federal-aid highway or bridge projects (Section 1107).</p> <p>Allows Surface Transportation Block Grant Program funding to be used for some natural infrastructure and other resilience-enhancing projects (Section 1109).</p> <p>Allows a state to use up to 15% of its annual National Highway Performance Program funding to add “protective features” designed to mitigate climate-related risks, including risks from sea level rise, extreme weather events, flooding, and natural disasters (Section 1105).</p>
<p><u>Goal: Create new resilience planning and development incentives</u></p> <p>Establishes the PROTECT Grant program to provide \$986 million on average annually—\$786 million distributed to states by formula and \$200 million distributed competitively—to support adaptation and resilience projects and encourage the development of resilience improvement plans (Section 1407).</p>
<p><u>Goal: Prioritize resilience in emergency relief</u></p> <p>Amends the Emergency Relief program definition of a natural disaster to include wildfires and sea level rise (Section 1106).</p> <p>Requires DOT to incorporate resilience into Emergency Relief projects (Section 1523).</p>

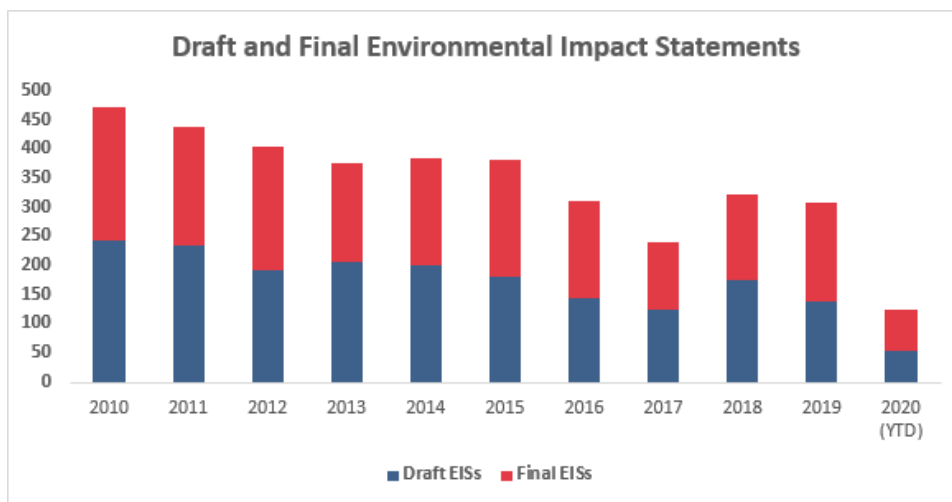
Permitting Reforms to Accelerate Project Delivery

Our nation’s track record of delivering infrastructure projects is mixed. As a democracy that respects private ownership and local government, we should be proud that American citizens have a voice in decisions that affect their families and communities. I have always felt that “infrastructure envy” based on totalitarian regimes’ ability to quickly build major facilities was misplaced if that ability was premised on a lack of concern about democracy. In this country, by contrast, regulatory processes work reasonably well to balance the desires for speed and effective public engagement. Examples certainly exist of major projects that failed due to local opposition despite the significant regional benefits they offered, but by and large most highway projects move forward once they have financing. That said, the complexity of current U.S. permitting processes leaves substantial opportunities for improvement that would increase predictability, shorten the time to project delivery, and reduce costs while still providing for robust consideration of public and environmental concerns.

The federal government’s online permitting dashboard lists over 60 possible permits and other approvals that infrastructure projects may require from 12 different federal departments—separate and apart from environmental reviews under the National Environmental Policy Act (NEPA). State and local agencies typically require additional project approvals, covering everything from state environmental issues to local building codes to utilities and construction.

There is no single source of information on the time or costs involved in reviewing and permitting infrastructure projects. Most federal agencies track only the number of environmental impact statements (EISs), which represent the most comprehensive and rigorous level of review. An EIS is required for less than 1% of infrastructure projects and federal actions—specifically, those expected to have the most significant environmental impact.^v According to a Council on Environmental Quality (CEQ) review of EIS timelines, the median time to completion—from “notice of intent” to “record of decision”—was 3.6 years. The average of time to completion was 4.5 years, skewed by a handful of projects that

exceeded 10 years.^{vi} The CEQ found that median EIS completion times for the U.S. Department of Transportation's (DOT's) modal agencies were even longer: 6.6 years for the Federal Aviation Administration, 6.85 years for the Federal Highway Administration, and 4.18 years for the Federal Transit Administration. Between 2010 and 2019, federal agencies issued about 184 draft EISs and 180 final EISs annually.



Source: Environmental Protection Agency^{vii}

Despite extensive anecdotal evidence, there is little substantive data to pinpoint where in current permitting processes projects tend to languish, nor to identify who is most responsible for delays. The reality is that the outcome and speed of the process largely depends on the type of project, how it is prioritized, public expectations, and the commitment of all public officials involved. Recent success in permitting major projects, such as the Tappan Zee Bridge in New York and the rebuilding of the collapsed I-35W bridge in Minneapolis, demonstrate what can be accomplished if public officials are aligned in sharing a common purpose and are held accountable by public interest. Lack of funding/priority, local controversy, and project complexity can also delay the EIS process, NEPA reviews, and permitting broadly.

Despite these data gaps, there is evidence that unnecessary delays in the permitting process occur and are costly to both the public and private sectors. Direct costs can go up if the costs of materials, supplies, and labor rise during a delay. There is also a public cost to delaying needed infrastructure improvements, as older facilities may produce more emissions or break down more often. Permitting delays may also increase political risk, because the longer a project stays in the review phase, the higher the likelihood of unforeseen changes in public policy, priority, or support. In BPC's work examining the potential to increase private sector infrastructure investment, we concluded that the most obvious challenge was the lack of good, investment-grade projects. However, we concluded that this weak project pipeline was connected to the uncertainty that results from long permitting processes—particularly when those processes extend beyond the tenure of the political leadership and circumstances in place when the project is conceived. “Political risk,” which is a polite way of describing the fear of stranded investment due to changes in political leadership, was consistently cited as a barrier to investment. While one can fairly defend the current system for eventually getting most needed transportation projects built, we must contend with the likelihood that the long timeframes in our permitting processes are casually related to our nation's vast underinvestment in critical infrastructure.

Historically, there has been strong bipartisan support for incremental and common-sense improvements to the environmental review and permitting process. For example, such measures were included in transportation reauthorization bills passed in 1998, 2005, 2012, and 2015.^{viii} Moreover, Republican and Democrat administrations have authored generally consistent guidance documents, issued executive orders, and launched other initiatives designed to improve the NEPA process.^{ix}

I commend the committee for working in a bipartisan way to build on these past efforts and further improve the process for approving federal projects. To accelerate project delivery and project approvals, and to create a more efficient, transparent, timely, and predictable process that attracts greater private investment, ATIA would:

- Codify the bipartisan components of “One Federal Decision,” consolidating permitting decisions for major infrastructure projects into a single environmental document with a review schedule set by the federal lead agency.
- Encourage federal agencies to complete their environmental review process within an average of two years.
- Require all authorization decisions for a major project to be completed within 90 days of a record of decision.
- Require a new performance accountability system for tracking major projects that includes setting schedules for the environmental review process, determining whether established schedules are being met, and documenting the amount of time taken to complete the environmental review process.
- Require DOT to work with other federal agencies involved in transportation projects to identify categorical exclusions, which, if applied by the other federal agencies, would accelerate project delivery.
- Allow metropolitan planning organizations and state DOTs to use social media and other web-based tools to encourage public participation and solicit public feedback as part of transportation planning processes.

Efforts to accelerate permit review processes are often challenged out of concern that increased speed will erode key environmental protections. However, BPC believes that the reforms in AITA are consistent with the criteria that define effective environmental review and public engagement:

- New procedures judiciously align with existing permitting initiatives, guidance, and regulations.
- Critical environmental protections and opportunities for meaningful and early public engagement are not undermined.
- Full transparency in tracking adherence to permitting timetables, and costs of environmental reviews and delays, are used to hold federal agencies and project sponsors accountable.
- Agency staff have the training, support, and resources needed to successfully develop appropriate internal policies and compliance procedures.

More broadly, concerns about accelerating new infrastructure development must be balanced against the cost to the environment of keeping degraded, outdated facilities in public use and delaying the introduction of new, cleaner, and more resilient infrastructure. When one peels back all the competing arguments, we are left with the fundamental question of whether new infrastructure investment is locking the nation in to an unsustainable high-carbon economy or directing our nation’s economic might and technological prowess toward a low-carbon future. BPC believes that the key to realizing our

common economic and ecological aspirations requires aligning incentives for infrastructure modernization in ways that further other core policy goals. The magnitude of the climate challenge, in particular, demands such alignment. How the infrastructure investments and permitting reforms in ATIA can help advance a larger clean energy agenda is the subject of the next section of my testimony.

3. Infrastructure Investment and Permitting Reform as Part of a Larger Clean Energy and Climate Agenda

The United States is in the beginning stages of a dramatic energy transition. The scale and pace of the transformation required to avoid potentially dangerous levels of warming is difficult to overstate and fundamentally different from the rate of change observed in recent periods of technological progress, even compared to the rapid gains seen in wind and solar energy deployment. A permitting framework designed to support accelerated progress to low- and net-zero carbon systems must look very different from today's pattern of slow and cumbersome approvals for major projects. Larger commitments of public and private resources will also be needed. The engineering firm Wood Mackenzie has estimated that fully decarbonizing the U.S. power grid, for example, could cost \$4.5 trillion.^x Similarly, a major national utility recently concluded that achieving its own target of net-zero carbon emissions by 2050 would require an "unprecedented and sustained pace of capacity additions."^{xi} Specifically, new generation capacity would have to be added over the next three decades at a pace more than double the rate this utility had added generation over the past three decades.^{xii}

Members of this committee appreciate far better than most what it will take to achieve net zero emissions across the U.S. economy in the next thirty years. Success will depend on our ability to implement a national strategy with multiple complementary elements, which can be summarized as follows:

First, we must maximize the potential of all existing zero-carbon technologies. The current pandemic and economic crisis are threatening key aspects of the renewable energy supply chain. Congress must help confront these challenges as we can ill afford to lose ground in the deployment of renewable resources. Similar attention must be devoted to sustaining a role for nuclear power.^{xiii} Nuclear energy currently accounts for more than half (55%) of the carbon-free electricity generated in the United States and is an essential piece of any pragmatic plan to decarbonize our energy system quickly.^{xiv} While thankfully this is not a hearing about wholesale electricity market design, many existing nuclear plants are economically challenged partly due to the failure of the market to value their zero carbon attributes. This disadvantage has been further exacerbated by recent decisions of the Federal Energy Regulatory Commission (FERC). Simply put, the challenge ahead of us is immense. We must preserve and double down on all mature, commercially available forms of non-carbon power.

Second, we must increase the pace of energy innovation in America. The United States does not yet possess the technological capacity to decarbonize our energy systems consistent with the demands of a modern economy. And the challenge of decarbonization on a global scale is even more daunting when one factors in growing energy demand in developing economies. BPC's American Energy Innovation Council (AEIC), which includes CEOs from a variety of industries, has developed specific recommendations for scaling technology innovation to address climate change while also supporting economic growth. A key conclusion from this effort is that expanded federal investments in research, development, demonstration, and deployment are needed – and must be scaled appropriately. For over

a decade, the AEIC has consistently called for a tripling of federal energy innovation budgets. We have been encouraged by bipartisan legislation introduced in the Senate, including Chairman Barrasso and Senator Whitehouse's USE IT Act ("Utilizing Significant Emissions with Innovative Technologies Act"), Chairwoman Murkowski's and Senator Manchin's American Energy Innovation Act, and the bipartisan Nuclear Energy Leadership Act. All of these pieces of legislation would take significant steps toward laying the groundwork needed to make real progress on climate.

Third, we must rediscover the capacity to deploy "first of a kind," breakthrough technologies here in the United States. In the past, the AEIC has proposed a new federal approach to support the demonstration and commercialization of advanced energy technologies. For the United States to meet ambitious mid-century decarbonization commitments, some combination of innovative technologies such as advanced nuclear, zero-carbon fuels, long-duration electricity storage, and carbon capture and storage must achieve widespread commercial deployment. This requires first demonstrating new technologies at scale to prove their technical and economic viability, which can be a challenge for capital-intensive and complex energy technologies, especially if they operate in highly regulated commodity markets that do not appropriately value their beneficial attributes. Given the hurdles to private investment in large-scale energy technology demonstration projects, there is a role for the federal government to help promising innovations navigate the proverbial "valley of death" between invention and commercial deployment. Significant thinking has gone into how the government might provide this support most effectively, in many cases drawing from AEIC case studies that outline lessons learned from past efforts, including the successful demonstration of utility-scale solar in the United States and mixed results from the Department of Energy's carbon capture and storage (CCS) demonstration programs.^{xv} The AEIC has recommended new ways to manage future projects more effectively via new authorities, as described in a recent review of the Clean Energy Deployment Administration proposal.

Finally, we must speed the deployment of new non-carbon energy production, transmission, and transportation technologies. This last imperative is the one most closely linked to the infrastructure legislation the committee is considering today. Most policy proposals aimed at accelerating the deployment of climate-friendly energy technologies have focused on economic factors—in other words, on making these new technologies more cost competitive. This remains an important focus because, although a variety of state and federal provisions are already in place to incentivize low-carbon energy production and use, additional efforts to value carbon emissions performance will be required to efficiently deploy promising technologies at scale.

However, there is an equally critical and challenging conversation that does not generate nearly the same attention as the debate over incentives, taxes, and mandates. An honest assessment of our nation's complex permitting and siting regulatory structure quickly reveals that we are not positioned to fully capitalize on American leadership in the invention and development of breakthrough clean energy technologies. Even with well designed-market based incentives, the United States will continue to fall short in actually deploying these technologies if our regulatory processes prevent us from siting and building new systems in time to make a difference. Though focused on the transportation sector, provisions in the ATIA to spur forward-looking infrastructure investments and improve the siting process can provide a model for similar modernization efforts across the broader economy.

The need for new models is well illustrated by the experience of the renewable energy industry, which has made great strides over the last decade and is quickly becoming an indispensable part of America's carbon-free energy portfolio. Since the advent of the modern wind industry in the 1990s and the launch of the utility-scale solar business two decades ago, the U.S. power sector has been revolutionized by

low-cost renewable energy. The DOE's Energy Information Administration notes that wind power capacity grew by 24% annually between 2000 and 2018.^{xvi} Likewise, in the last decade alone solar energy development grew at an astounding average annual rate of 49%.^{xvii} And yet, despite this rapid growth and unprecedented levels of new investment, the contribution of wind and solar still stands at less than 10% of total current U.S. electricity generation.^{xviii} This suggests that even higher growth rates would have to be sustained year over year to achieve a target of net-zero greenhouse gas emissions by mid-century.

Clues to the role of siting and permitting frameworks in enabling this kind of growth can be found by looking, for example, at offshore wind. As other parts of the world, most notably Europe, have developed a successful offshore wind industry, progress toward developing this renewable resource in the United States has been slow—for reasons that have more to do with regulatory constraints than technology barriers. Our nation has a tremendous offshore wind energy resource—representing more than 2,000 gigawatts of power potential, nearly double the size of our nation's current electricity system. Moreover, offshore wind could deliver large amounts of clean electricity to the country's largest population centers along the eastern seaboard, where new capacity is needed most. In the Northeast and Mid-Atlantic states, ambitious state procurement activity together with technology improvements,^{xix} have prompted efforts to develop some 25,000 megawatts of offshore wind capacity—in a region that currently has very little wind generation and that lacks the transmission infrastructure to connect offshore wind resources to the existing grid.^{xx} Unfortunately it has become apparent from these efforts that the current regulatory system and permitting process is slow and struggling to reconcile the perspectives and needs of stakeholders as diverse as the commercial fisheries industry, coastal communities, and the U.S. military. In addition, the lack of an active U.S.-based offshore wind industry means that an entire supply chain and resource development business must be built from scratch. Manufacturing facilities, modernized and expanded ports, and transmission systems must all be sited, permitted, and financed with the corresponding regulatory frameworks necessary to enable to these significant investments.

Similar hurdles apply to other low-carbon technologies that will be needed for effective carbon mitigation. The International Energy Agency has estimated that meeting global climate goals will require an enormous expansion of renewable energy (up to 74% of electricity supply) along with increased nuclear production (up to 15%), and CCS (roughly 7%).^{xxi} At the same time, significant deployment of new carbon capture utilization and storage (CCUS) technologies will be needed to address emissions from remaining conventional energy sources, which can be expected to continue to play a role for some decades to come, especially in industrial applications. A recent National Petroleum Council (NPC) study found that “the United States is uniquely positioned as the world leader in CCUS and has substantial capability to drive widespread deployment.”^{xxii} The United States currently deploys approximately 80% of the world's carbon dioxide (CO₂) capture capacity (largely from anthropogenic sources).^{xxiii} However, this 25 million tonnes per annum (Mtpa) of CCUS capacity represents less than 1% of U.S. CO₂ emissions from stationary sources. The NPC study concludes that achieving CCUS deployment at scale means increasing CO₂ capture by an additional 350 to 400 Mtpa within the next 25 years.^{xxiv} To enable this more-than-ten-fold increase in CCUS deployment, the United States will also need to dramatically expand its CO₂ pipeline network. By way of putting this challenge in perspective, it is worth noting that the nation's existing network of roughly 5,000 miles of operating pipeline was built over a period of 50 years.^{xxv} The NPC estimates suggest that future investments in pipelines and supporting infrastructure for purposes of CCUS deployment would have to expand by an order of magnitude in far less time.

Put simply, I believe the national imperative to decarbonize our economy will require greater federal authority to advance critical projects despite local opposition. In making sometimes necessary tradeoffs, however, I also believe that certain place-based assessments must be strengthened in order to advance an effective, enduring, and equitable climate solution. There is clear evidence that communities of color have borne a disproportionate burden of environmental harm from past energy and infrastructure siting decisions, especially when compared against economically disenfranchised white communities. This history must not be brushed aside nor repeated as we seek to deploy the clean, green, resilient systems that will be necessary to protect our future. Many of the new energy facilities we'll need can be expected to create jobs, grow the tax base, and improve the quality of life in surrounding communities. In other cases, however, national and global benefits may come at a cost to local communities. These costs must be shared equitably.

4. Additional Considerations for S. 2302

The committee's vote to advance S. 2302 is welcome evidence of the bipartisan support that exists for meaningful and practical steps to address both climate change and regulatory reform. As the bill moves forward, we urge committee members and the full Congress to consider additional measures that would further strengthen S. 2302 along both these dimensions and that, in our view, likewise have the potential to attract broad bipartisan support. Our suggestions are summarized below.

Consider key provisions from the House bill (INVEST in America Act): Several provisions in the House bill would complement the objectives of S. 2302 and are worthy of consideration in conference. For example, the House bill codifies DOT's "Every Day Counts" initiative to provide technical assistance and education on speeding up project delivery. We also support provisions of the INVEST in America Act that would authorize significant climate-related investments and provide \$83.1 billion to ensure that states, cities, tribes, territories, and transit agencies can continue to administer their programs, advance projects, and preserve jobs in the aftermath of the COVID-19 pandemic. Importantly, this "year one" funding would be made available at a 100% federal share. Finally, the House bill calls for the creation of a new Office of Transit-Supportive Communities within the Federal Transit Administration to coordinate transit and housing projects within DOT and across the federal government. Given the affordable housing crisis we face, spurring increased housing development around transit hubs, particularly developments that can capture the land value of transit-oriented development, is long overdue.

Reauthorize FAST-41: A key provision of the current highway authorization—FAST-41—will expire in 2022. FAST-41 is designed to improve the federal environmental review and permitting process for certain "covered" infrastructure projects through the creation of an interagency council empowered with tools and resources to improve the timeliness, predictability, and transparency of federal project approvals. The law also required the use of the online Permitting Dashboard, a website that tracks project permits and reviews, to help hold agencies publicly accountable.

FAST-41 applies to a variety of infrastructure projects, including renewable or conventional energy production, electricity transmission, pipelines, and broadband. Importantly, it is also the best mechanism in current law to help speed up infrastructure investments, including decarbonization projects. This success will help set the stage for new green infrastructure/clean energy projects and, if expanded, could apply to others. Therefore, it will be important to reauthorize FAST-41 and explore opportunities to enhance its effectiveness, expand its scope, and maximize its benefits.

Launch a pilot program to test innovative practices for environmental reviews: Former Rep. Bill Shuster (R-PA), who served as chairman of the House Transportation and Infrastructure Committee and authored BPC's report on extending the gas tax, released draft legislation in July 2018 authorizing a new pilot program that would permit waivers from certain federal rules and regulations for a select number of projects that adopt innovative practices. Examples of such practices include using innovative technologies that enable more effective public participation in decision-making and focusing on environmental and transportation outcomes rather than processes. Such a pilot could test and advance practices that both expedite project delivery and improve results.

Expand NEPA assignment programs: Congress and the administration should work together to encourage increased delegation that harmonizes state and federal permitting processes. The resource demands on federal permitting review are going to increase considerably as we modernize our nation's infrastructure with massive new energy production technologies and distribution networks and states will have a major role to play in effectively advancing more localized projects and infrastructure maintenance programs.

The "assignment" of certain NEPA authorities to states has proven successful in permitting highway projects. In fact, the Federal Highway Administration has agreements currently in place for Alaska, Arizona, California, Florida, Ohio, Texas, and Utah to assume NEPA responsibilities. According to the California Department of Transportation, NEPA assignment resulted in significant time savings, reducing the time for document processing (from notice of intent to final EIS approval) by a staggering 124 months. Similarly, the Texas Department of Transportation estimated an average time savings of 25%. With NEPA assignment and its attendant benefits increasingly well documented, DOT should consider how to encourage further uptake and offer lessons learned to other federal agencies. DOT also previously sought comments on a pilot program, authorized by the FAST Act's §1309, that would take a step further and allow states to substitute their environmental laws for NEPA when equally stringent. However, this rulemaking has not yet been finalized.

Improve asset management: Infrastructure providers often accumulate various assets such as land, rights of way, and buildings over the course of decades of building and operating infrastructure. Yet too often, governments do not have a full and in-depth accounting of all these assets. Before billions of public dollars are spent rebuilding infrastructure, a clearer understanding of baseline conditions and infrastructure needs, as well as climate-related vulnerabilities, is needed.

Preparing such an inventory is not without cost, but that expenditure would be dwarfed by the benefits that can be achieved in improved efficiency, transparency, new revenue generation, and disaster avoidance. Further, a comprehensive inventory can help mitigate the parochial political risks associated with project selection and prioritization, as it would provide an independent, technical basis for reviewing the state of public assets.

While state DOTs are still required to develop a risk-based transportation asset management plan and are encouraged to address resilience as part of that process, more could be done. Congress should incentivize state and local governments to complete comprehensive asset inventories as a condition for receiving federal assistance. Recipients of federal funding would then need to compile a centralized registry of all assets, including data on current condition, expected maintenance and operations costs through the asset's remaining useful life, the cost of replacement, and the potential impact of a failure. While ATIA—particularly in Section 1206—attempts to relieve the burden of federal rules and regulations on less dense and populated states, all recipients of federal funding should abide by asset

management best practices. Such assurances are needed to extract the most value from the expenditure of precious federal resources and to break the cycle of deferred maintenance that has created today's massive infrastructure liabilities. Congress should support these efforts through the provision of supplemental technical assistance, planning grants, and other resources to help with compliance.

Incentivize life-cycle cost analyses: In construction, forecasting upfront costs and long-term maintenance costs for an infrastructure project is called "life-cycle cost analysis." While it may seem intuitively obvious that project developers would want to know how much it will cost to build and keep a project in a state of good repair, existing incentives often encourage undue focus on low-cost construction over longer-term operating costs and project durability. Effective life-cycle cost analysis becomes all the more important as we face the need to adapt to extreme weather and recover from deadly, damaging natural disasters.

In distributing federal funding, state and local applicants should demonstrate that they have fully accounted for the long-term risks of planned projects and selected the project delivery model that provides the best value over the life of the project. Because rural and disadvantaged communities often lack the resources and capacity to perform such analyses, Congress should create a capacity-building program for infrastructure development, either as a standalone office or within existing federal agencies, and designate specific funding for rural technical assistance.

Revisit the "critical corridors" model: Section 368 of the Energy Policy Act of 2005 attempted to designate corridors for critical infrastructure on federal land, including oil, gas, and hydrogen pipelines, and electric transmission. The purpose of these provisions was to empower five federal agencies to work collectively on any necessary environmental reviews and incorporate the designated corridors into relevant agency land use and resource management plans. This statute has not been effective in supporting the development of energy infrastructure as originally intended. The corridor routing and spacing constraints, in particular, have remained problematic – especially in the east. As agreement builds over the imperative to decarbonize our economy, it will be necessary to revisit these challenging questions about how to balance the preference for local control with the need for coordinated regional and national investments in clean energy.

5. Conclusion

Our nation is at a defining crossroads. On the current course, infrastructure debates will continue to serve as a proxy battle over climate change. Absent a meaningful bipartisan commitment to prioritize low-carbon investments, opposing sides will continue to pursue national policy goals indirectly by battling over individual infrastructure projects. Neither the environment nor the economy is well served by this outcome. Instead, S. 2303 provides an opportunity to unleash massive investments that will rebuild and modernize our transportation infrastructure while helping to position the economy to achieve ambitious climate mitigation goals. At this moment of economic distress, the benefits of a new vision for forward-looking investment in America are hard to overstate.

Indeed, the most important and ultimately encouraging aspect of S. 2302 may be that it signals an inflection point, in which the combination of the current economic crisis and the growing climate crisis creates a new basis for bipartisan cooperation and action. Facing similarly daunting challenges at previous points in our nation's history, a willingness to think big and build big—from the construction of the interstate highway system to the space race—laid the foundation for generations of continued

prosperity and global economic leadership. We believe the current moment calls for a similar level of national ambition and resolve. The constructive vision embodied in the ATIA represents an enormous improvement over the decade of destructive partisanship that has prevented our nation from charting a realistic path forward on climate change. For too long we have allowed our economic future to be held captive to “magical thinking”—across the political spectrum. In this caricature of extreme perspectives some have ignored or otherwise delegitimized the imperative for climate action. Others have embraced the unserious view that a solution can be achieved quickly by transitioning to sole reliance on renewable resources, without considering land-use and reliability concerns, or resolving the siting challenges that have plagued conventional energy projects. These extremes have produced only paralysis and acrimony as both sides focus on the irresponsibility of the other rather than seeking common ground.

In this context, I believe the progress that S. 2302 represents in terms of a new bipartisan approach to transportation infrastructure has broader implications—for the economy as a whole and for all aspects of energy infrastructure. Passing it would be a highest-common-denominator reflection of what is before us—and a needed reaffirmation of what America can still accomplish if we come together in a can-do spirit to face the giant challenges that lie ahead.

Endnotes

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^{xxiii} Ibid. These projects span multiple industries, including natural gas processing (~17 Mtpa), synthetic natural gas production (3 Mtpa), fertilizer production (2 Mtpa), coal-fired power generation (1 Mtpa), hydrogen production (1 Mtpa), and ethanol production (1 Mtpa).

^{xxiv} Ibid.

^{xxv} Ibid.