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How Industrial Policy Gets Done

Frontline Lessons from
Three Federal Officials

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About the Roosevelt Institute

The Roosevelt Institute is a think tank, a student network, and the nonprofit partner to the Franklin D. Roosevelt Presidential Library and Museum that, together, are learning from the past and working to redefine the future of the American economy. Focusing on corporate and public power, labor and wages, and the economics of race and gender inequality, the Roosevelt Institute unifies experts, invests in young leaders, and advances progressive policies that bring the legacy of Franklin and Eleanor Roosevelt into the 21st century.



Introduction

The Biden administration has advanced the most active industrial policy for the civilian economy since Franklin D. Roosevelt’s presidency.¹ This includes grant and loan subsidies for industries the US strategically wants to promote, such as clean energy and semiconductors. In particular, new programs were launched at three different agencies: a \$6 billion [Office of Clean Energy Demonstrations](#) (OCED) and an [Office of Manufacturing & Energy Supply Chains](#) (MESC) at the [Department of Energy](#) (DOE); a \$27 billion [Greenhouse Gas Reduction Fund](#) (GGRF) at the Environmental Protection Agency (EPA); and a \$39 billion [CHIPS Program Office](#) at the Department of Commerce (DOC). DOE benefited from funds under the 2022 Inflation Reduction Act (IRA) and the 2021 Infrastructure Investment and Jobs Act (IIJA), the EPA’s efforts were funded under the IRA, and DOC’s work was financed in the 2022 CHIPS and Science Act.

To get a better understanding of how these new programs work, what problems they’re trying to solve, and what hurdles they’ve encountered, we caught up with three of the architects of Biden’s new industrial strategy: [Kate Gordon](#), who served as senior advisor to Energy Secretary Jennifer Granholm from 2021 to 2023; [Satyam Khanna](#), who served as senior advisor for the GGRF at the EPA from 2023 to 2024; and [Aaron “Ronnie” Chatterji](#), the “CHIPS czar” at the National Economic Council and Department of Commerce from 2021 to 2023. What follows is our conversation from the summer of 2024. It provides valuable insights into what it means in practice to [build state capacity](#)—i.e., to ensure government is able to achieve the objectives the people set for it, in a manner that is democratic, equitable, and informed.

Top Takeaways

- The turn toward industrial policy resulted from trial and error by organizers, policymakers, and academics in the years following the 1990s and 2000s wave of globalization.
- Federal agencies are plugging gaps in private markets, because the latter can’t or won’t coordinate economy-wide transitions in energy systems, invest in needy communities at the necessary scale and speed, or account for national security concerns.
- A major factor slowing down implementation of the new industrial policy programs was the need to translate the general language of statutes passed by

¹ The Roosevelt administration’s most paradigm-shifting effort in this vein was the National Industrial Recovery Act’s National Recovery Administration, which attempted to build industry-specific codes to promote fair competition and labor rights. These codes included production targets. NIRA—part of what scholars call “the First New Deal”—was overturned by a conservative Supreme Court in the mid 1930s. Roosevelt’s Second New Deal would shift to more “arms-length” regulation of business, an approach Biden generally followed by running most of his initiatives through the tax code—a fiscal strategy that courts have generally allowed. See Tugwell, Rexford G. *The Democratic Roosevelt: A Biography of Franklin D. Roosevelt*. Doubleday, 1957.



Congress into precise definitions and strategies that agencies could defend internally and externally.

- Workforce development and economic development programs—far from distracting from core industrial policy goals—are core to helping investments overcome supply-side constraints.
- The programs have been successful, leading to major US investments by all five of the top global chips companies, creation of new state green banks, and the launch of major battery manufacturing hubs.
- There are reasons to believe that these investments will be resilient to changes in the makeup of government.
- To continue to make progress, investments in state capacity must be made on an ongoing basis.

TODD: Before we dive into the meat of our conversation, give our readers a sense of your background leading up to your time in federal service, and how you ended up having a front-row seat to this big industrial policy experiment.

Kate:

I've spent 20 years thinking about clean energy and climate. I got my start in this work with the [Apollo Alliance](#), a labor and environmental coalition founded in 2003 that [merged](#) into the [BlueGreen Alliance](#) in 2011. In that work, we always saw clean energy industries as just another set of industries, and we needed to think about them in terms of their economic development potential and the competitive nature of a place, its infrastructure, its workforce, and its ability to be connected to off-takers in supply chains and global markets. When Apollo was started, we were importing a lot of natural gas, and there was an energy security interest in developing domestic energy sources. This is pre-fracking, so at the time, that meant we were talking about renewables and other domestic sources. Apollo was asking, how do we onshore those types of industries in a way that could theoretically replace, or at least help to build back, some of the lost manufacturing jobs from the prior few decades? So the Biden administration, for me, was the culmination of 20 years of work and finally, having a president and secretary (in Jennifer Granholm) taking a similar approach. During COVID-19, working with the governor's office of California, I really just felt viscerally how important it was—it is—for us to build up supply chains, for resilience to shocks like COVID-19, but also climate shocks, which are just far more common and will be even more common.



Satyam:

I've been focused throughout my career in economic policy on finding ways to make finance work better for everyday people. Before GGRF, I spent my time in the government developing policies to regulate *private* capital, with roles in the US Treasury at the Financial Stability Oversight Council and the Securities and Exchange Commission.

The passage of the IRA meant *public* capital was about to play a massive role in our financial sector. The IRA appropriated \$27 billion to the EPA for the GGRF, the single largest non-tax investment within the law. Those funds would finance the deployment of clean technologies predominantly in underserved communities, revitalizing areas of the country where markets largely had not reached. That mission and scale really resonated with me. Equally intriguing was *how* GGRF would do that: To coordinate clean technology financing, the federal government was tasked with building a new institutional infrastructure—one that would be responsive to local communities, national in its scale, and global in its impact.

I remember thinking after the IRA passed, "So how are they going to make sure this money gets to where it is supposed to go?" That's the type of question we tackle every day as financial regulators, and I thought applying some of those core principles could help the Biden administration's industrial strategy succeed. Fortunately for me, [Jahi Wise](#), who had just started as the acting director of the GGRF, soon reached out and asked if I could translate my experiences to help build this historic program.

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Ronnie:

I'm an economist by training. I did my PhD at Berkeley and had a strong interest in the intersection between business and public policy. I thought that my career was going to primarily be writing academic papers that only my mom and others pretended to read.

But in the end, I got really interested in how what we did in academia can influence the real world. I realized there was a tremendous opportunity to impact the world through my research. Some of the papers I wrote early on around entrepreneurship and small business and the relationship between business and society did have some of the impact I was looking for.



For some of us in academia, the ability to go serve in government is a tremendous opportunity and something I really recommend to young folks who are in economics or any of the fields that could be relevant—and there are many fields that could be relevant. When President Obama was elected, Christina Romer, who had been one of my professors at Berkeley, became the chair of the Council of Economic Advisers, and they were looking for someone to cover small business, entrepreneurship, and innovation. It was the honor of my lifetime to get that opportunity to join the Obama administration at the CEA. During that time, we were living in the aftermath of the financial crisis, which had really crushed small businesses. And a lot of my job was trying to figure out how to get small businesses back on track and open up lines of credit. I also started to think a lot about high-growth entrepreneurship and how we could accelerate the provision of capital for those businesses. That led me to a really interesting set of lessons about how economic policy works. And I thought I had it all down.

In 2021, I came back into government (after some other experiences including [running for office](#)), and I realized that the playbook had really changed. The economy had changed, and our relationship with our allies had changed. The US-China relationship had fundamentally changed. We were facing a different economic scenario than we had faced in the Obama years, and it required a different set of policy solutions. As chief economist in the Commerce Department, it was my job to figure out what was happening to aluminum, to steel, to lumber. And of course, to semiconductor chips.

When the CHIPS and Science Act passed in 2022, over that summer, we needed someone to go to the White House and be the quarterback for the implementation, along with others. The CHIPS Program Office would ultimately hire over 100 people, but my job at the time was to make sure that different parts of government were talking to each other, finding opportunities for synergy, opportunities for us to tell the story of what we were doing to connect with the American people. And most of all, were President Biden's priorities being reflected in the implementation of the program?



TODD: You each played key roles in the development of OCED, MESC, GGRF, and the CHIPS Program Office. Before we get into the messy realities of implementation, let's pretend you're talking to my undergraduate Intro to Economic Policy class. This is of course simplifying things a lot, but if you had to describe these offices as fixing a "market failure," what would it be? Or put differently, what were private markets not doing on their own that the government now aims to do through these programs?

Kate:

I'm not the first person to say this, but climate change is *the* big market failure. Unlike local pollutants, when you emit a ton of carbon, you're emitting it into the global atmosphere, and the impacts are all over the place. It isn't tied to the individual firm the way that pollution has been traditionally, or in the way that we've regulated pollution traditionally. At the same time, those impacts, the time scale, doesn't work with our existing systems: Carbon stays up in the atmosphere and has a very long half-life, so the impacts can be felt decades later, and you don't have the immediacy that our existing system is designed for.

In the case of climate, what we've realized is that the solutions are less in terms of individual firm regulation, and more about shifting the entire economy from one built on a set of fossil fuels that are the major contributors to creating climate change, to a whole new type of industry and set of industries. It's a perfect place for government to be involved and de-risk that shift for industry and communities, to use different tools—including procurement, grants, and loans—to make it less costly and painful to do the transition.

Satyam:

GGRF is intended to sharply increase the supply and pace of capital going toward financing the deployment of commercial clean technologies, primarily in low-income communities. The government's investment is crucial because our markets have historically underserved low-income and disadvantaged communities, and investors have often sought shorter-term returns than green projects have been able to deliver. The result is a green financing gap.

Congress might have patched that with a one-off subsidy. But what was needed was patient capital that was willing to find and have faith in these communities and projects, opening the door to more investment. That's where GGRF steps in.



The clever, and often overlooked, part of GGRF's design is that it creates an institutional infrastructure for clean technology financing. You can think of the GGRF institutions—its grantees—as nodes in a network, which share capital and knowledge with each other, sub-grantees, and the larger market. This kind of market coordination mechanism does not exist today, especially not at the national scale that GGRF enables. That's one of the reasons why these funds are expected to mobilize hundreds of billions of dollars in private investment. So years after the initial funding has been spent, this network can continue to drive America's energy transition.

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Ronnie:

Econ 101 says that we shouldn't do industrial policy! The only thing I heard in grad school and most of undergrad was, it's picking winners, and you shouldn't do that. So that conversation quickly ended. Of course, you have to remember I graduated from undergrad and PhD at the time of peak globalization. When I got back to the administration though, I found a lot of people changing their view on economics. In Econ 101, you learn the tools and understand that markets can do really amazing things. But in Econ 102, you should be encouraged to think about market failures and how to correct them.

In the case of chips, the failure is geographic concentration of a really important input in a part of the world that we're not sure we can always rely on to get reliable supply, which is the problem that was revealed during the pandemic. When this kind of situation happens, Econ 101 starts to break down because you can't just turn the switch on and start producing semiconductors again, or trade potato chips for computer chips. When that piece of infrastructure or an input is so important to the global economy and to our national security, you need to think about how to address market failures, and often the answer is going to be with public investment. That's what set the stage for CHIPS and the \$52 billion program.



TODD: Stepping back from the ideal version in the classroom, the reality is that Congress authorized creation of these programs, as part of a legislative process few would argue was perfect, where much was left on the cutting-room floor from the original [Build Back Better framework](#). What were some of the toughest things your agencies had to do to translate the original motivating policy models, what Congress authorized, into something you could actually operationalize? And how did you attempt to build in guardrails to ensure that the benefits from these programs were widely shared in recipient communities?

Satyam:

Like any federal program, you begin by asking, "What did Congress direct us to do?" Our basic task was to translate roughly 700 words of statutory text into a competitive grant process. What was notable about GGRF was that the agency would not be directly investing the money. Instead, most of the funds would be distributed through intermediary nonprofit institutions. And we know from recent experience that this dynamic can affect economic outcomes. Studies have [shown](#) that Paycheck Protection Program relief during the COVID-19 crisis, for instance, varied based on which intermediary financial institutions deployed the funds. That meant we needed policies and guardrails at GGRF institutions to more efficiently move the money from point A to B.

We certainly did not start from scratch. The IRA has its own set of guardrails, and federal grant law governs the program. But a few aspects of the agency's approach stood out. The first was enumerating clear program goals. Those were: (1) reducing greenhouse gases and other air pollutants; (2) delivering the benefits of investments primarily to low-income and disadvantaged communities; and (3) mobilizing financing and private capital. These objectives, which were rooted in the statute, would anchor not just the agency's design and selection decisions but also how the institutions would ultimately invest the money.

Second, the IRA directed the EPA to run a competitive grant process. We announced [three complementary competitions](#) to award \$27 billion in funding: [\\$14 billion](#) to national nonprofit financing institutions, [\\$6 billion](#) to community lending-focused nonprofits, and [\\$7 billion](#) in grants mostly to states, cities and tribal governments. We released highly detailed Notices of Funding Opportunity (NOFOs), requiring our nonprofit applicants in particular to demonstrate everything from their investment strategies to track records to risk management plans to governance. This encouraged a strong set of applicants to come forward and made sure that we were transparent about our evaluation criteria.



Third, the NOFOs also served as a means by which we previewed those [policies and guardrails](#), the result of extensive stakeholder outreach. They included “priority” project areas as defined by the EPA; the application of [Justice40](#) as a floor for GGRF’s investments; nonprofit governance guidance to embed expertise and accountability; local community feedback mechanisms; and much more. These now bind the recipients through recently finalized federal grant contracts.

Finally, we knew our successors would need to monitor these institutions. That’s why the EPA will be requiring recipients to regularly disclose detailed data on exactly how they are investing this capital. This transparency, in the Brandeisian spirit, will also be an important source of public accountability.

Kate:

The Department of Energy, historically, has been a research and science agency. If you saw the movie [Oppenheimer](#), the marbles going in the jars is the beginning of DOE—the original nuclear processing sites that turned into the national labs. It’s a very research-y agency, and hasn’t dealt with too many infrastructure bills. Suddenly, with IIJA, there’s [\\$62 billion of money](#) to do big deployment projects. That was a sea change moment for the agency, so we had to rethink a lot of things. For context, the annual appropriation for all federal energy and water programs had been about [\\$45 billion](#) in prior years, so it was a large amount of money coming into the agency.

Secretary Granholm made a decision to fundamentally shift a number of things around the agency to take on this clean energy economy function, including creating the [Office of the Undersecretary of Infrastructure](#), where OCED, MESC, and a Grid Deployment Office now sit. This is a huge agency, with about [11,000 federal employees](#) and more than 100,000 contractors, so it was a big deal. While shifting these building blocks around, we realized that you’re doing project-by-project decision-making in these very wonky technology offices. The Secretary was concerned that we would be sending lots of money out the door with just a technical and engineering evaluation, like what DOE does with nuclear projects, for instance, but not a lot of attention to the economic development side of the conversation. We wanted to know: Is this project going somewhere that makes sense? Will it be competitive? Will it be viable? Is it going to work in that particular community, with that particular workforce? There were some guardrails in the legislation for labor, depending on project size. We did a giant spreadsheet of the 60 programs that went to the Department of Energy and whether there was language calling out any particular community, whether that’s tribal communities, distressed communities, coal communities, and other energy communities. We realized that we were going to have to be tactical about identifying a more coherent and consistent way to ensure that projects would create real benefits on the ground, and not result in a situation where we put a whole new set of industries in place, and then they all shut down, which is the worst nightmare. That resulted in us



creating this community benefits plan structure, which is a pseudo-procurement-like process where you get points the more ambitious you are on the development side. That's how the grant programs worked.

This is compared to the [Loan Programs Office](#), which is very iterative—like a bank evaluating loans, going through your entire history and asking you a billion questions—where development questions fall into broader ones on project viability. And it's also different from the tax credit programs under the IRA, where it's a huge series of individual tax decisions, most of which are not made by the Department of Energy. They're made by the IRS. DOE engaged with that through guidance to the IRS on how to evaluate the projects, how to define what an energy community is (because you got a 10 percent additional tax credit if you're a project in an energy community). One element was, does 25 percent or more of your local tax base come from fossil fuels? That's a hard question, because the IRA doesn't specify property taxes or school taxes or county taxes. We had to think about that—what does that mean? What does brownfield investment mean? That's not defined in federal law. Everyone's super frustrated that the implementation took so long, but this is an example of why it took so long, because there were all these items that were not defined, and the agencies had to figure them out in a way that worked to the satisfaction of the IRS, which needed things to be super specific. They are not energy experts; they need a checklist, basically, so they can conduct audits and enforce the law.

Ronnie:

The CHIPS Act was born out of bipartisan compromise. Both sides saw that chips are really important for the economy and jobs. You saw this during the pandemic, when shortages cost the American economy hundreds of billions of dollars, and one-third of core consumer price index and price inflation was driven by automobiles, which had a lot to do with the shortage of chips. The government's missiles, drones, military and security equipment rely on semiconductors—really anything that has an on and off switch. And so for those reasons, people came together and said, we ought to make a massive investment, one we've never done before in a single industry (or at least not for a long time), to build massive foundries in the United States. We designed some of the most advanced chips, but we didn't make any of them. For a long time, economists didn't think that arrangement was a problem.

There were only three companies in the world that were making the most advanced chips—Taiwan Semiconductor Manufacturing Company (TSMC), Samsung, and Intel. And there were less advanced chips made by maybe 30 other companies. Each segment has its own market structure. The biggest challenge for the CHIPS Program Office, led by [Mike Schmidt](#) and his team, was to figure out how to take the original intent of what Congress was looking for and translate that into a real program. The best place to study that is a [February 2023 document](#) that laid out the strategy. If you're ever in the position to do big things like this, it's always great to write down your intention and



strategy. You can make it public and let people judge you by the goals. What are they trying to achieve, and are they multifaceted?

Building a massive chip fab [fabrication plant] in a location like Arizona or Ohio or North Carolina isn't just a simple investment. It's going to have a huge impact on the surrounding community. It has an environmental impact. It's going to drive demand for skilled labor. It's going to impact the community colleges, the housing markets, transportation. One of the challenges in implementation is people are just looking for that ribbon cutting, wanting to hear about how much this factory is producing. But you can't think of this as a narrow business case because we know business is integrated in society, and any CEO would tell you that, right?

One of the big questions with the CHIPS program was, do we have the workforce that we need? And so two things became really clear. One is, can we train people to be semiconductor technicians? We have got community colleges to buy into the idea that we can train folks through these programs, and we've seen over 30 programs either started or expanded.

The other piece is, are these jobs attractive? I'm a parent. I understand that for many workers—women, men, all parents—the ability to have childcare can be a big determinant of whether something's a job you can do or not. People talk about how great a salary is, but are they talking about the other aspects of the job? And so, in the first notice of funding, we asked for a plan for how the companies would provide affordable childcare. There was a lot of public debate about that, but I always maintained that it was not going to prevent any company from applying. And that's been proven right. Hundreds and hundreds of statements of interest, and there's no evidence that I've seen that anything about childcare is holding companies back. Why was I confident about that? When you actually talked to companies, they weren't talking about childcare. They were thinking about things like permitting, which is really important, and the links with the community colleges, to make sure they had the right people, and global competitiveness. All the things business cares about. Anyway, most of the companies in this industry were already providing care in their facilities in other parts of the world. It's an area where businesses aren't going to complain much, even if the press gloms onto it.

We've always done multiple things with big policies in the United States, and we've also had policies result in unintended consequences. The idea that you could do multiple things with a major piece of legislation—economic development, education, etc.—that's just the way policy works. The idea of a simple rifle shot that just does one thing is unrealistic.



TODD: It's now summer of 2024, and the offices you helped stand up have now actually started obligating funds to projects around the country. What are the top lines of what they've achieved so far, and is there a project or projects that you think do a particularly good job of showcasing the promise of these new offices?

Ronnie:

I won't pick one because some projects have received preliminary terms, but the money has not yet been allocated to them, including some of the big projects that Intel, Micron, Samsung, and TSMC are doing around the country.

I'll take the big picture: I hope that the funds are allocated. I hope that the companies reach their milestones. We [have the top five most advanced companies](#) in the world, all building in the United States. We're the only geography that can say we have all five. This shows you something about the attractiveness of the US market, what we have to offer, and also just what policy can do. We are going to make multiple bets to reduce risk, have milestones, make sure we can claw back the money if the milestones aren't met, and generally make sure we don't just focus on one part or one kind of chip, but the whole industrial spectrum.

Satyam:

What you can expect to see with this money are commercial technology projects like distributed energy generation and storage (think residential and community solar and associated storage), building decarbonization (for instance, high-efficiency HVAC systems and heat pumps), and zero-emissions transportation (like electric vehicle charging and purchasing). Those are mature, proven technologies, widely in use today, that we know can deliver tangible benefits for local communities.

What's exciting already, though, is how markets are adapting in anticipation of this coming influx of capital. Green banks are sprouting up at the state and city levels; investors are lining up to finance tens of thousands of projects; and firms are developing innovative ways to grow these markets. Going forward, having more robust commercial markets will also further incentivize investment in pre-commercial clean technologies. That signal from the government to the market is yet another powerful, but often overlooked, effect of this program.

The top-line achievement is that the EPA, with GGRF, is now one of the most formidable players in climate finance.



Kate:

We're still in a place where not a lot of the biggest things have been built. At least from the energy perspective, battery manufacturing is the most interesting, with a through line from the president's executive order about critical industries being reliant on geopolitically problematic supply chains, to an economic development strategy to reindustrialize the country in places that have existing facilities and workforces. And the first set of projects have the [community benefits plans attached](#) to them.

There are some emerging hubs that are interesting, like [Moses Lake in Washington State](#). Projects are locating there not because of cheap labor (or however those decisions were made in the past), but because of the significant amount of clean hydropower. Moses Lake got two of the first 21 awards in the battery program, and that's more than anyone else got. It's not a race-to-the-bottom, right-to-work state. Or take West Virginia, where projects are being built on an existing industrial spot, which used to be a steel plant. These are really intentional strategies. From a climate perspective, I like the focus on building on existing industrial infrastructure. One of the things the US has done traditionally is a lot of greenfield development, industrial development pushing out into undeveloped places where there are fewer people to complain, and the land is cheap, and that actually does have climate implications. It's great to consider, instead, let's not turn our back on our existing built environment—let's actually build on it and leverage it.

TODD: What comes next for these offices, and how might their work play out differently if we see changes at the top of the executive and legislative branches?

Satyam:

The most important development is that the money is out the door. Congress required the EPA to obligate the funding by September 30, 2024, and the agency met that deadline when it [awarded](#) funds to eight major nonprofits, as well as dozens of states, cities, and tribal governments. This positions GGRF institutions to begin investing in projects now. As a result, the benefits of this program are about to accrue to people, businesses, and communities across the country—in red and blue states alike. That will serve to bolster GGRF's appeal, much like we've seen with the IRA more broadly. So I'm optimistic that these institutions will be a lasting part of our markets.



Kate:

On the optimistic side, I think it's very unlikely these will get overturned. There is so much money going out. A lot of [red states are capitalizing on it](#). One of the things I did during my time at DOE was go to this big [Wyoming federal funding summit](#) that the governor and the two senators put on. They brought in people from all these different agencies to talk about federal funding availability. This is a state where both senators voted against both the infrastructure bill and IRA, and yet the two senators were hosting this summit. There's a lot of political posturing around these bills, because people say that this is industrial policy and picking winners. But in reality, most of the people on the ground are very supportive of them, and it would be a political mistake to go against them.

But the thing that keeps me up at night is the combination of [Chevron doctrine being overturned](#) and the potential dismantling of the administrative state. Implementation of these laws requires a significant amount of federal agency involvement, especially the IRA, which requires all those tax decisions. It's a rolling process, and you're constantly auditing, and you're constantly checking whether it's working. That requires a significant presence of people at the IRS, and so I worry about that. I worry about the inability to implement.

Ronnie:

I think it's different for CHIPS than for the IRA. There's strong bipartisan support for CHIPS. Republicans and Democrats might disagree on certain parts of it, but there's a core base of support and agreement.

The industry is cyclical. You're going to see ups and downs. You're going to see a company report bad earnings or revise their projections about how many chips they're going to sell. This is natural, but it's a long game, and I think it's on track. I think people see that.

The next step is bringing more people into government who understand where the industry is, how government can be used effectively. It's also about developing case studies and metrics so we learn what worked. We can also learn from the rest of government. When I hear what people are thinking about, when it comes to [green hydrogen hubs](#), the [National Science Foundation engines](#), the [Economic Development Administration Tech Hubs](#), there's much that we can learn from each other.



TODD: How have your experiences in government changed the way you think about industrial policy? If you could wave a magic wand and change the offices' mandates, or create a complementary set of tools in other parts of government, what would be on your short list?

Satyam:

A few lessons stand out. First, industrial policy is a long-term marathon, but near-term milestones are essential to the project of explaining the benefits of these initiatives. For example, GGRF will shape markets for potentially decades, but the federal government needs to be demonstrating—regularly and creatively—how these investments are paying dividends to local communities along the way. Making sense of the wealth of incoming data from IRA investments, and telling those stories, will be a crucial part of the next chapter of industrial policy.

Second, effective national policymaking will need local infrastructure to get projects done. Engaging state and city leaders, and drawing in capital from community financial institutions, is a major part of the next phase of this work. Again, GGRF serves as a good example—the institutions that will deploy these funds will leverage local capital and input, and the program's success hinges on continued federal-state cooperation.

Third, personnel is critical. Industrial policy implementation is multifaceted and complex, and requires a broader set of skills to solve. The federal government has exceptional talent, but agencies need to be able to tap into that expertise across the board. We could improve policymaking if agencies were to draw more flexibly on that expertise across the government and from outside.

Ronnie:

We need really smart analytical tools at the government's disposal to understand supply chains and understand where the bottlenecks are. Because certain industries are so layered in the value chain and companies are interspersed within them, it is really hard to figure out what the pressure points are. We have intuitions, but we don't have enough data. Robust data would make it easier to do our job and figure out where supply chains were actually resilient and where they worked.

Kate:

I'm a very tactical person. I'm still on the [Secretary of Energy advisory board](#), and we are doing a project to interview people inside and outside on how the community



benefits plans are working. It's amazing. We're doing a feedback loop to the secretary and giving her a report in October. One of the things I had not thought about, but I've now heard many times in these conversations, is how the Department of Energy has completely changed as an agency. We rebuilt the agency, but, at a place used to negotiating research contracts, we forgot to hire any negotiators to negotiate project contracts. The skill set of negotiating on-the-ground projects with project developers turns out to be a big missing piece of this whole puzzle. I think other agencies probably have a lot of that, like DOD and DOT—but DOE, not as much.

Also, I wish there was a more effective mechanism for the agencies to work together. The world doesn't work in terms of siloed appropriations to specific technologies. The world works where you're in a community and you're looking at a big investment of money for some big federal project, and that means all of a sudden there's a housing shortage, and all of a sudden prices go up, and all of a sudden there's a school question, and all of a sudden there's issues on reclamation and remediation of the prior site to do the new thing. And then you have to think about all of the surrounding safety net issues. Yet every one of those things is done in a different place, with different timelines, with different appropriations. I would love it if Congress could create more mechanisms to do that stuff in a coordinated way. The [regional commissions](#) in Appalachia and other regions are a super interesting potential tool to do that, but they don't exist in every part of the country, and they have varying levels of power. Why does that matter? It matters because it hurts people, but it also matters for fiscal reasons. If you create a project with federal money and don't think through all the implications of that project, and it fails for whatever reason, then you're paying unemployment claims, you're paying relocation costs. You're dealing with fallout from the thing. There are real implications to these things failing.

Finally, we're doing all this work through the tax code, but we don't do nearly enough on the technical assistance and capacities. This is really a governmental problem. I do not think philanthropy is the answer to that question, because there just isn't enough funding from that sector to meet all the needs for technical assistance and capacity building that exist across the country.



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