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Laying Green Groundwork:

How Climate Policy Sequencing Can Work for the United States

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Executive Summary

US climate policy has long oscillated between carbon pricing and green industrial policy. Initially favored by policymakers, carbon taxes failed politically in 2009. Industrial policies, such as the Inflation Reduction Act (IRA) of 2022, gained prominence recently. Historic policy challenges stem from underestimating decarbonization complexity, ignoring the realities of trial-and-error learning from policy experiments, and failing to account for the growth model fundamentals of the United States. Research shows both carbon taxes and industrial policies are effective, especially when sequenced; i.e., decarbonization is most successful when industrial policies (carrots) precede carbon taxes (sticks). The US growth model is heavily consumption-driven with carbon-intensive consumption complicating immediate carbon pricing. Thus, sequencing policies to align with growth drivers can reduce social, economic, and political backlash. In that context, investments targeting clean consumption create the ideal conditions for potential future carbon pricing.

Introduction

US climate policymakers' relationship with green economic policy instrument choice is erratic at best. For decades, climate scientists, policymakers, and economists alike agreed that carbon pricing was the main solution to decarbonization. Carbon taxes would raise the price of emissions and act as a disincentive, causing actors from firms to households to green their behaviors in the face of higher costs. However, after a failure to adopt a carbon price in 2009, the instrument was largely abandoned (Mildenberger 2020). In the years that followed, industrial policy emerged as the chosen solution (Allan and Nahm 2025). Investment in targeted sectors would green US infrastructure and political coalitions. Now, after coordination and timing issues with the implementation of industrial policies like the Inflation Reduction Act of 2022, skeptics are emerging on that front as well.

But it would be a mistake to assume that means these experiences were failures. Policymakers should acknowledge that decarbonization is difficult and requires trial and error and intellectual humility. Global decarbonization has yet to occur meaningfully, and thus, we cannot say for certain what sets of policy instruments will work in the end. That uncertainty means not abandoning a policy the moment that it seems not to work but, instead, engaging in clear-eyed planning for the socioeconomic impacts of decarbonization.

For future green economic policies to be successful, policymakers must take into account the fundamentals of a country's growth model and national macroeconomic structure. According to this argument, policies like carbon taxes are not one-size-fits all, but require targeted sequencing given the uniqueness of every national economic context.

The Brief, Mercurial History of Federal Climate Policy Instrument Choice in the US

The idea of carbon taxation[1] emerged in response to the energy crises and inflation of the 1970s and was intended to decrease consumer demand for fossil fuels (Meyer 2021). Conveniently, the problem of climate change gained salience soon thereafter in the late 1980s, and the carbon tax solution became married to the climate problem. It helped, in particular, that supply-side economic policies (Popp Berman 2022) were becoming the norm in the US government, and carbon taxes found congruence. Adding a price to greenhouse gas emissions was irresistibly simple and offered a "set-it-and-forget-it" solution. Policymakers did not have to plan and tackle the problem of decarbonization in a way that considered the social, political, and engineering complexities involved in a massive economic transition. Carbon pricing was a silver bullet.

The first significant attempt at setting a carbon price was the American Clean Energy and Security Act of 2009. After passing the House, the bill was blocked by a bipartisan Senate due to fears—some real, some imagined—of economic harm. Ever since, carbon pricing has become relatively unpopular in the United States. Green industrial policy[2] emerged and eventually gained popularity, tackling climate change not by fixing markets through changing prices, but by shaping markets through public investment (Tucker et al. 2024). The state would be the main actor guiding green investment, helping industries along, and facilitating decarbonization. After Joe Biden became president, Democrats applied those ideas and passed the Inflation Reduction Act of 2022 (IRA). Its adoption was seen as a great political success (Floyd 2024).

Implementing the IRA itself, however, has been a mixed experience for the US government. Nonmarket coordination for industrial policy, in particular, is notoriously difficult for governments because of missing information (Schmidt 2025), long-term uncertainty, regulatory capture, general complexity, and more. Furthermore, the United States had built its capacity, financing, and institutions around service sectors, importing goods, construction, and consumers—not industrial manufacturing, making industrial policy a challenge (Nahm 2025). Some key scholars—including former Biden climate officials—are now arguing that the United States should return to carbon pricing to compensate for the weaknesses of the IRA (Bistline et al. 2024).

[1] A **carbon tax** involves the state setting a price on the production and consumption of carbon emissions, with the intent to disincentivize fossil-fuel energy use.
[2] **Green industrial policy** is defined by the state investing in and guiding industries and sectors toward decarbonization and low-carbon production.

A Sequencing Approach to Climate Policy

To move forward, however, let us back away from these two poles of carbon taxes and industrial policy and focus on what we really know. Key and comprehensive research reviewing climate policies implemented around the world for decades across several continents, finds that carbon taxes, more than any other individual policy, decreases carbon emissions (Stechemesser et al. 2024). However, it is worth noting that the bar for this is low, as policymakers are still in early days of bending the curve on emissions. Research also finds that green industrial policies, as well, are necessary for decarbonization because decarbonization involves the production and installation of green technologies (Allan and Nahm 2025; Juhász et al. 2024).

These two policies need not work in isolation. In fact, emerging scholarship finds that they work best in tandem and sequentially. Notably, decarbonization is most successful when governments begin with industrial policies, or "carrots," to generate green technologies and then follow with carbon taxes, or "sticks," to incentivize decarbonization (Meckling et al. 2017). Such an argument is rooted in a historical institutionalist perspective (Thelen 1999), the idea that critical junctures such as the adoption of a policy shape policy feedback, creating new constituencies and precedents that will support future policies. Indeed, empirical research finds that the majority of countries with a carbon price adopted green industrial policies beforehand that "greened" coalitions (Meckling et al. 2015).

This approach is known as **policy sequencing**, which assumes that the order in which policies are adopted can help or hinder desired outcomes.

Both policy camps—carbon tax and industrial policy advocates—risk making the same mistake if they impose their individual policy ideas without considering the material impact of the policies. A complementary relationship among the policy instruments comes to light when taking the fundamental political economy landscape or growth model of a country into account.

Climate Policy Sequencing with the US Growth Model in Mind

What do we mean by "growth model"? When researchers study the growth model of a country, they first decompose the components of Gross Domestic Product or GDP (Baccaro and Hadziabdic 2024) to understand the country's unique "business model," i.e., what drives its economic growth. GDP is measured as a combination of consumption, investment, government spending, and exports. In many senses, a country's growth model can be considered a subvariant of its comparative advantage; it is narrower, focusing not on geography, skills, or institutions, but solely on demand drivers.

To support this investigation, I draw from OECD National Accounts Data compiled and analyzed by Baccaro and Hadziabdic (2024) to decompose the US growth model. US economic growth is categorized as "strongly consumption-led," in that the consumption share of growth exceeds 50 percent. In this case, as evidenced by Table 1, it is unusually high, at 55 percent.

Table 1. Relative Growth Contribution of Growth Model Components, Average 2009–2019

Country	*Consumption*	*Investment*	*Gov. Spending*	*Exports*
USA	**55.50%**	**28.49%**	**1.35%**	**14.66%**
China	33.25%	36.48%	17.37%	12.90%
Germany	2.99%	22.04%	15.96%	59.02%
UK	37.94%	29.42%	-1.09%	33.73%

Note: Values show each component's average contribution[3] to real GDP growth over 2009–2019, not its share of GDP. Contributions are import-adjusted and adapted from Baccaro & Hadziabdić (2024)

Once a valuable growth driver is identified, it is critical to assess the driver's carbon intensity to understand the macro structure of a country's economy. Usefully, one can get more insight by comparing the United States to other wealthy democracies. Here, those countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Table 2 makes clear that household consumption in the United States is comparatively carbon-intensive.

Table 2. Comparing Annual Carbon Consumption Across Wealthy Democracies

	Average contribution of household consumption to GDP growth	*Average per capita emissions (metric tons)*	*Fossil fuel energy (% of total electricity use)*	*Energy use per capita (kg of oil equivalent)*	*Cars owned per 1000 people*	*Petrol price (USD)*	*Miles driven*
USA	**1.88**	**19.03**	**82**	**6804**	**797**	**2.91**	**8077**
Average (without USA)	1.08	9.1	69	4032	580	5.95	3873

Note: Data on per capita emissions, fossil fuel energy, energy use, and cars are from the World Bank. Petrol price data is from Bloomberg and driving data is from the World Resources Institute. Consumption

[3] Note that data show each component's import-adjusted contribution to **GDP growth**, not its share of GDP. The difference is critical. For instance, because government spending grew slowly over 2009–19, its contribution appears small even though its GDP share is large.

Data are from the OECD. All data is from most recent year except consumption and emissions data, which are averages calculated from 1979 (the business cycle peak year for many of these countries) to 2018. Reproduced with permission from Driscoll, Daniel. 2025. "The US Dollar and Decarbonization: Exploring Constraints." *Finance and Society*, May 13, 1–14. https://doi.org/10.1017/fas.2025.10.

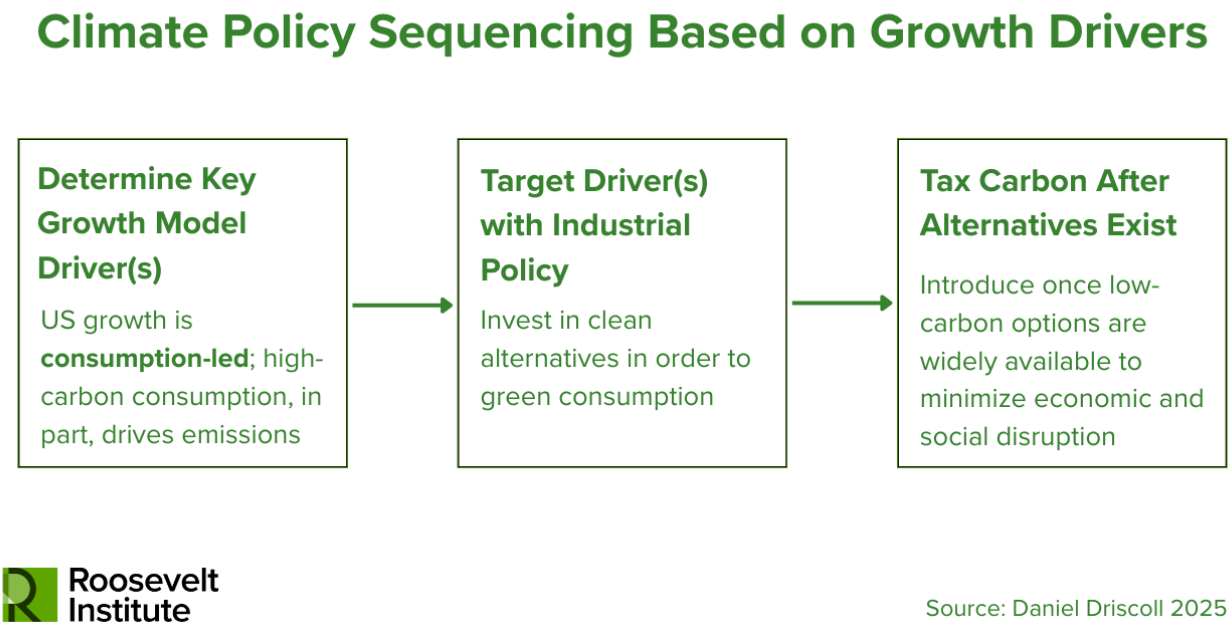
US consumption is more linked to GDP growth in the US than compared to other countries. Furthermore, US citizens emit more carbon per capita, use more fossil-fuel energy in electricity, consume more energy generally, own more cars, purchase cheaper petrol, and drive more. Thus, US consumption, linked to the country that is the largest import market in the world and holds status as the global reserve currency, is also comparatively carbon-intensive (Driscoll 2025). What might that mean for policy sequencing, then, when the primary growth driver is *also* comparatively carbon-intensive?

Policy Sequencing Targeting Growth Drivers

The explicit nature of the US growth model has often been ignored in historic episodes of US climate policymaking. The American Clean Energy and Security Act of 2009 (ACES), for example, did not fully consider the carbon-intensity of consumption. US policymakers proposed decarbonization through a carbon price which, indirectly, impacted US household consumption, the most valuable growth driver. As fossil fuels currently support roughly 80 percent of US energy use, adoption would have raised the price of key inputs to the US economy such as driving internal combustion engine cars or cooling and heating buildings. Such a measure would have the potential to negatively impact consumers, particularly lower-income households who spend a significant portion of their monthly budgets on energy. Thus, unsurprisingly, when the proposed carbon price potentially indirectly inhibited a fundamental growth driver—consumption—it quickly gained bipartisan opposition and faded on the Senate floor. According to congressional documents analyzed in *Why Carbon Taxes Failed* (forthcoming, Oxford University Press), both Republican and (some) Democratic senators were concerned about energy prices increasing and those impacts on their constituents.

The IRA, while imperfect, was a great long-term answer to transforming the carbon-intensive nature of US consumption. Green industrial policy and investment can target consumption through the electrification of grids, deployment of renewable technology, and expansion of clean transportation options. The IRA invested in all the above. It also promised to work sequentially and offset the potential equity issues surrounding decarbonization by offering clean and affordable alternatives to lower- to middle-income households—who might have dealt with increased costs of energy prices with the immediate adoption of a carbon price (Driscoll 2023). Thus, if given time, the IRA has (or at least had) the potential to not only transform the carbon-intensive nature of US consumption, but also aid the adoption of a carbon price that can further drive decarbonization.

Figure 1.



The so-called One Big Beautiful Bill (OBBB) of 2025 compromises not just decarbonization through that lens, but the US growth model in general. A recent Princeton study finds that, through compromising the growth of clean energy, the bill will raise energy prices and cost US consumers billions annually (Jenkins et al. 2025).[4]

All in all, the IRA should be reinstated in full for US economic competitiveness, energy justice, and decarbonization. It supports the dynamism of the US economy with future green technologies, it invests in clean energy alternatives to support consumers and equity, and it builds a greener constituency that can eventually handle a carbon price.

[4] It's worth noting that while limiting subsidies for investment in and production of electric vehicles, energy using solar power, and more, the OBBB, interestingly, doubles down on subsidies for production of solar photovoltaic wafers and other components.

Conclusion

Making climate policy sequencing work for the United States means taking the macroeconomic structure of the country (its growth model) into account. This practice is rarely intuitive for policymakers, who tend to focus on possibilities rather than constraints. This brief does not argue for structural determinism or ignoring possibilities and agency. It simply argues that it is useful to understand constraints *first* and then work on what is possible *second*. Growth model theory and GDP decomposition, thus, deserve a seat at the policy planning table.

Future research might consider which US bureaucratic agencies would most benefit from incorporating and leveraging such knowledge. The Office of Information and Regulatory Affairs, for instance, helps develop and review policies and could flag policy measures that might face challenges if they are significantly misaligned with the country's macroeconomy. With national macroeconomic structure in mind, policymakers can better navigate and comprehend the challenges ahead with policy implementation, impact, and stickiness.

Decarbonization itself necessitates a dramatic economic transition. Leveraging all available information about the economic present will help inform what is possible in the economic future.

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