

## TRANSCRIPT

### Environmental Insights

Guest: John Graham

Record Date: April 26, 2021

Posting Date: May 7, 2021

**LINK to podcast:** <https://soundcloud.com/environmentalinsights/electric-vehicles-energy-and-climate-policy-a-conversation-with-john-graham/s-FGjorq0jRTG> OR  
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John Graham: The transition from the internal combustion engine to electric propulsion is in fact underway and irreversible seeds have been set to make this happen. However, the pace of the transition is going to move at very different rates in different parts of the world, and a lot of this depends as much on politics as it does on markets.

Rob Stavins: Welcome to [Environmental Insights](#), a podcast from the [Harvard Environmental Economics Program](#). In this series, I have the pleasure of engaging in conversations with a truly stellar group of men and women with tremendous expertise in environmental economics and policy, some of whom have combined meaningful work in the academic world with very significant service in the public sector, and my guest today personifies that combination in ideal ways.

Rob Stavins: [John Graham](#) is dean emeritus and still a professor at the [Paul O'Neill School of Public and Environmental Affairs](#) at Indiana University. Previous to that, he was dean of the Pardee RAND Graduate School in Santa Monica, California. And before that, he served in the George W. Bush Administration as the administrator of the Office of Information and Regulatory Affairs, known as OIRA, in the US Office of Management and Budget. And prior to that, he was my colleague at Harvard. He was a professor at the [Harvard School of Public Health](#) in Boston, where he founded the [Harvard Center for Risk Analysis](#). John, welcome to [Environmental Insights](#).

John Graham: I'm delighted to be here with you, Rob.

Rob Stavins: So, I'm very interested, and I know our listeners are going to be interested to hear your impressions about contemporaneous environmental and health policy in various administrations, including perhaps in the recent Trump years and now what to expect in the new Biden years. But before we talk about any of that, let's go back to how you came to be where you are and where you've been, and I do mean go way back. Where did you grow up?

John Graham: Born and raised in Pittsburgh, Pennsylvania.

Rob Stavins: And did that mean that's where you went to primary school and high school?

John Graham: Yes, both elementary school and high school.

Rob Stavins: And then college was where?

John Graham: And that was at Wake Forest University in Winston Salem, North Carolina. I went down there hoping to be a golfer and I met real golfers and ended up on the debate team.

Rob Stavins: But you're still a pretty serious golfer as I recall?

John Graham: Oh yes, I'm addicted.

Rob Stavins: And now what did you study at Wake Forest?

John Graham: I studied politics and economics, but truth be told, I spent 80% of my time on the debate circuit. So I was one of the addicted debaters at Wake.

Rob Stavins: I see. And that's a talent you've maintained. Now, from there you went on... Did you go immediately to Duke for a master's degree?

John Graham: Yeah, I was actually in the initial class of two-year MPP students at Duke University.

Rob Stavins: Oh wow. Fantastic. And now from there, did you go directly to Carnegie Mellon or was there some years in between?

John Graham: No, directly to Carnegie Mellon in Pittsburgh for the PhD in public affairs.

Rob Stavins: That's a wonderful degree, a great program. And your dissertation was on what?

John Graham: It was on automobile airbag technology, cost and benefits.

Rob Stavins: And who was on your dissertation committee?

John Graham: Granger Morgan, he's a professor there, and Steve Garber, and a man named Alfred Blumstein.

Rob Stavins: And then you graduated there, and what was your first job out of school?

John Graham: I was a postdoctoral fellow at the Harvard School of Public Health in a program called Interdisciplinary Programs in Health. A Professor Don Hornig ran it. He's a chemist, and I was mixed together with all sorts of environmental scientists and attorneys and policy people. And that was my first year in Boston.

Rob Stavins: And after not very long, you became an assistant professor in the school, right?

John Graham: Correct. Yeah, in 1985, I was a faculty member until I joined the Bush Administration in 2001.

Rob Stavins: There's so much we could talk about, but first I'd really like to turn to your time running OIRA in the Bush 43 Administration, where I believe your tenure exceeded that of anyone else who's held that position. Is that correct?

John Graham: Well, I don't know the exact facts, but I was there a good five years, which is a long tenure for a political appointee.

Rob Stavins: It certainly is. Now, can you share with us at least one of the high points and maybe also one of the low points of your time directing OIRA?

John Graham: Well, I would say one of the high points was we were working to revitalize the corporate average fuel economy program which sets the fuel economy standards for cars and light trucks. And we thought we had everybody in the White House on board with our program, and then the Vice President's office indicated that they had objections to the program.

John Graham: So, we had to actually go into the Oval Office and make our case to President Bush. And when I did so, it was apparent that the president and the vice president were not totally on the same page on this issue, but we were able to persuade the president to move forward and we did so, and now it's a very important part of the program that the federal government has on fuel economy and on carbon dioxide control.

Rob Stavins: Now, if that's one of the high points, what would it be a low point you might recall of your time at OIRA?

John Graham: Well, that's a good question. I remember a low point being that we were required by Congress to develop a study of the impact of immigration law on people with limited English proficiency. And we made a case in this draft report that if you could get more people to be literate in English, to put more emphasis on government resources, making sure that people were proficient in English early on when they entered the country, including people who were working and in the country illegally, that this would be good for the economy, it would be good for these people and their families themselves.

John Graham: But the people in the White House felt that the report would be viewed as too paternalistic and would not be received positively by the Hispanic population. And President George W. Bush was a very... I think he had a strong record with the Hispanic population and he guarded that very closely. So we had to trust that. And the report ended up being kind of trimmed down 80% and so forth and so on. And that was very demoralizing to me and my staff who had worked on that report.

Rob Stavins: Sure. Now, you went into the government directly from academia, from Harvard. As you think back now, is there anything you wish you had known when you started the position?

John Graham: Well-

Rob Stavins: That you didn't-

John Graham: Yes. That's a great question. I would say, first of all, that in hindsight, I wish I had had done a stint on Capitol Hill as a staff member for a couple of years and learned the way of Washington. Because when I went to Washington, I did not have significant experience, and it took me a good 18 months to two years really to learn the job and to understand how to be effective in the administration. And I had not served on the campaign either, so I didn't have a network of friends and colleagues in the administration who I had been in the campaign with either.

Rob Stavins: Did you have a chief of staff that could be helpful in those ways, or other people?

John Graham: Yes. I had a wonderful guy named Paul Noe. He was from the Senate and he was a staff member there for Senator Fred Thompson from Tennessee, who was critical in my confirmation process. And then I had a second staffer, Ronnye Stidvent, who was from Austin, Texas, and she had worked in the governor's mansion with then-Governor George W. Bush.

Rob Stavins: When I think back about your time at OIRA, one of the things that stands out in my mind that I've taught in my class actually each year are the set of important changes, reforms that were put in place for regulatory impact analysis, I believe in September of 2003, if I have my timing correct. Do you remember that?

John Graham: Yes. That's OMB Circular A-4, a very obscure little technical document.

Rob Stavins: Not so obscure to you and me.

John Graham: No, it's a very important document for the agencies. The cost benefit analysts in the agencies, this is a document that's important in their discussions with OMB.

Rob Stavins: Now, one of the ways in which there were modifications was to begin to add a 3 percent discount rate to the previous 7 percent discount rate for intergenerational policies, and then to suggest that perhaps an even lower one might be used for intergenerational assessments. Can you say something about what the thinking was that led to that?

John Graham: Well, you have to keep things in mind here in terms of the timing and the thinking within the economics community on the discount rate. There was a strong group of people who favored 7 percent on the grounds that it represented kind of the interest rate on private capital if you look at it over a long period of time. Then there were people interested in a rate that was representing sort of time preference as reflected in long-term treasury, its low risk treasury bonds, but then there was also a growing concern that for long-

term intergenerational problems that maybe neither of these two discount rates was appropriate. But the thinking at the time was not really all that crystal, and the economics community, quite frankly, they were in disagreement internally at the time we developed that guidance. So we had lots of views.

John Graham: So the way we looked at it, maybe for purposes of sensitivity analysis, you should include a lower rate, just so the decision makers understood it. But at the time, the economics was not speaking with a single voice.

Rob Stavins: Right, you didn't replace the 7 percent discount rate with the 3 percent.

John Graham: No.

Rob Stavins: You added it.

John Graham: Right. Right.

Rob Stavins: So they both would be used, right?

John Graham: And if there was a lower than 3, then the analysis would have been done with three rates.

Rob Stavins: Right. Right. Now, that all turns out to be quite important in the context of subsequent climate change policies, in particular, for estimating a what's known as the social cost of carbon. The Obama Administration used your 3 percent discount rate. The Trump Administration adopted the 7 percent discount rate. Biden, in his first couple of weeks in office, went with an interim estimate, which again uses a 3 percent discount rate. He set up a one-year taskforce to reassess the social cost of carbon. And the indications are that they may adopt a 2 percent discount rate, which would actually double the current social cost of carbon from 51 dollars to approximately 100 dollars a ton. Had you anticipated anything like that at the time that you were making these reforms?

John Graham: No, I think it's fair to say that we were not anticipating the social cost of carbon issue. And remember, this is early in the Bush Administration.

Rob Stavins: Right.

John Graham: And we had actually just removed the United States from the Kyoto Protocol, which had been negotiated under the previous administration. So, this was not like an intentional way of foreshadowing it. And remember, there are lots of impacts that you can have on future generations that are unrelated to climate change, and even some of the conventional air pollutants have impacts on young children and on pregnant moms and their issues there about whether the same discount rate should apply. So, we were viewing it in a more general context.

Rob Stavins: Yeah, no, that's turned out to be very important. If you look at the Obama era Clean Power Plan, which was later stayed by the Supreme Court while Obama was still in office, if you look at the domestic benefits that they were estimating for the year 2030, 94 percent of the estimated economic benefits of the Clean Power Plan were not due to reduce risk of climate change, were due to reduced emissions of small particulate matter, PM 2.5, probably not a surprise to you.

John Graham: No, and I had worked and collaborated with a number of the scientists at the Harvard School of Public Health who were pioneers on the PM 2.5 issue. In fact, I invited several of them, including professor Doug Daugherty, to come brief the key people in the Bush White House on the latest science on PM 2.5 in health. And that would later become important in standards we did on control of diesel exhaust and control of sulfur dioxide from coal fire power plants.

Rob Stavins: Now, another element of the reforms was so-called formal probability analysis, or what's often called Monte Carlo Analysis. Can you say something about what the thinking was for that?

John Graham: Yes. So, at the time, it was very common for agencies to do sensitivity analysis, where they would take each kind of uncertain variable in the analysis and vary it over its plausible range and then see what the results would be for the overall net benefit comparison of policy alternatives. But sometimes you had five or six variables that were uncertain, and just moving one of them one at a time didn't necessarily give you a full picture of the overall uncertainty. And that's where we went with the idea of actually doing simulation of uncertainty from all of the uncertain inputs.

Rob Stavins: And in fact, that type of analysis, Monte Carlo Analysis, is exactly what's been used for the estimates of the social cost of carbon, where I think they do, I think it's just 10,000 runs to generate the probability distribution, and then they find various levels, the mean estimate, the 95-percentile level, et cetera. So that's turned out to be very important in an ongoing basis in the government.

John Graham: Yes. And unfortunately, it's not as widely used as we'd like to see it used. We had it started going at several agencies, and actually, the Department of Transportation was even more aggressive about its use than EPA, but EPA was pretty good about it too, but then it kind of phased out during the Obama years, except, as you say, for the social cost of carbon.

Rob Stavins: Right. Now, thinking back, you began your academic career at Harvard in 1983 during the Reagan Administration. That was succeeded, I'll say this for our younger listeners, by the Bush 41 Administration that I was engaged with in terms of the [Clean Air Act Amendments in 1990](#), then the Clinton Administration, then the Bush 43 Administration, where you held this very important role at OIRA, then the Trump Administration, and now the Biden Administration. There's a lot of change over those. And what I'm interested in is in terms of the attention of each of those to the use of rigorous risk analysis in regulatory affairs, how would you comment or even maybe rank, if you're

willing to, how would you comment on that set of administrations? We've got Bush 41, Clinton, Bush 43, Trump, and now Biden.

John Graham: Well, I think the first thing you'd have to say is that the most important change that occurred in that whole period was in the very first of the administrations, and that was under Reagan. And the important change that was made was that a regulatory agency was not permitted to actually publish their proposed and final rules in the Federal Register without the approval of OMB. So that created the mechanism that allowed, over the next several administrations, the improvements in cost benefit analysis and risk analysis to occur because OMB was ultimately the agent inducing a lot of that improvement. So I think you have to point really to that as the signature thing that happened in that entire history.

Rob Stavins: Now, not all our listeners will be aware of what the process is. Can you sort of describe either by way of example or in general how it is that an agency such as EPA proposes a regulation, does an analysis, OMB reviews it, go back and forth. How does that all work?

John Graham: Well, in theory the way it works is there are two opportunities for OMB and for all federal agencies to review the work of a sister federal agency. So, if EPA is developing a regulation, the Department of Energy may have comments, or the Department of Agriculture may have comments, and OMB was designated as the place to kind of referee all these comments and to submit them all back to the agency.

John Graham: And from the standpoint of the regulatory agency, OMB delivers what's called the dreaded pass back, and that's all the comments from all these agencies that have to be fixed before the proposal can be published for comment or before a final rule can be actually issued and promulgated. So, it's a very important part of the rule-making process of the federal government.

Rob Stavins: You've probably been in touch with some of your successors running OIRA. Can you comment on some of the succeeding administrations or the prior ones, Bush 41 and Clinton, or the Trump Administration?

John Graham: Well, there was a down period during the Reagan years where there was a lot of resistance to regulation coming from OMB that got into cross hairs with key people in Congress, both the Senate and the House. And there were threats to kind of zero out the budget for OIRA. And at that time, the OIRA administrator was not even a Senate confirmed official. So it was merely a political appointee of the administration without a Senate confirmation.

Rob Stavins: Oh, I didn't realize that.

John Graham: Oh yes. So, at the time, there was a compromise reached and they called for greater openness and transparency about how OIRA does its work, and they

also created the Senate confirmation requirement for OIRA administrators. It turns out under father Bush, Bush 43, there was a never a OIRA administrator confirmed by the Senate. There was a very strong nominee from Vanderbilt University, a law professor who was named, but he was never actually confirmed.

Rob Stavins: Oh, I didn't know that either.

John Graham: Yes. So, it wasn't until the Clinton Administration that the whole process settled down and became more professionalized. There was a very important executive order issued by President Clinton that narrowed and focused the mission of OIRA. It kept the basic structure I described that was in the Reagan Administration, and there was a very successful administrator of OIRA, Sally Katzen, through those periods. That was a very stabilizing period for OIRA. And then from then on, I think it's been a very well-respected office by both political parties.

Rob Stavins: Yeah. I've had the pleasure of working with Sally closely as a fellow board member of [Resources for The Future](#), the Washington think tank, although she's just retired from the board, although as you know Sally and I know Sally, retirement is not something that's in her basic lexicon, I think.

John Graham: No, she's a ball of energy.

Rob Stavins: Then your successor during the Trump Administration then was appointed to very important appellate court in Washington, right?

John Graham: Yes. She's on the DC Circuit Court of Appeals. And she took the seat that was vacated when the Supreme Court nomination was made. And his name is slipping me right now. He's a member of the court. And so that was an extremely important position in the early Trump years.

Rob Stavins: Now, I don't want you to get away without talking about a very important part of the Biden Administration's announced infrastructure and climate policy. I can't actually call it proposed legislation because it's actually a fact sheet or a set of Q&A's, although the longest one I've ever seen for such a fact sheet, and that is support for charging stations for electric vehicles across the United States. You've thought a great deal about EVs. And in fact, Edward Elger has just published your latest book I believe, ["The Global Rise of the Modern Plug-In Electric Vehicle: Public Policy, Innovation, and Strategy,"](#) a very comprehensive broad approach. How did you get into that? And then I want to know something about the key messages that come from that book.

John Graham: Well, I have had a long-standing interest in the auto industry. As we discussed, I actually did my dissertation on automobile airbag technology.

John Graham: When I was working for George W. Bush, we were very convinced that the electric vehicle was not a very cost-effective technology, and we resisted strongly California's efforts to mandate so-called zero emission vehicles, and they really had in mind electric cars. But what has happened is the spillover of lithium-ion battery technology from consumer applications to the auto industry is now creating enormous excitement and innovation in the auto sector, and that's the stimulation for the book.

Rob Stavins: In the book, which, again, with the subtitle of public policy, innovation and strategy, that sounds like there's a lot of breadth there and a lot of important messages. So, what are some of the key takeaways?

John Graham: Well, one of the key takeaways is that the transition from the internal combustion engine to electric propulsion is in fact underway and irreversible seeds have been set to make this happen. However, the pace of the transition is going to move at very different rates in different parts of the world, and a lot of this depends as much on politics as it does on markets.

Rob Stavins: And what do you think about the Biden Administration's approach, which is, as I understand it, is to, A, provide subsidies, this is what they're proposing anyway, providing subsidies for a very large number, although not ultimately sufficient number, of charging stations across the country, possibly I think looking also at rebates for the purchase of electric vehicles, and also talking about improvements in the electricity grid, which many people would say will be necessary for higher degrees of penetration of EVs. What do you think of that set of policies?

John Graham: Well, it tracks very closely the success that Norway as a country has had in promoting electric vehicles, and they're now at about 80 percent electric vehicle penetration of the new vehicle fleet. That compares to like 6 percent in China, 3 percent in the United States. Now, Europe has gone in a similar domain and you've got Germany and the UK now are above 10 percent electric vehicle penetration. So, this is one of these cases I find it fascinating where the industrial policy strategies, which many Western economists regard as in disrepute, they are in fact the standard approach to making a big change in an industry like this, and I think that's what's going to have to happen. Now the details about whether the Biden Administration gets it right, it's far too early to judge that.

Rob Stavins: And over what period of time did Norway go from zero to 80 percent electric vehicles?

John Graham: From about 2010 to 2020, and most of the progress was 2015 on.

Rob Stavins: That's a remarkably short period of time, isn't it, to achieve that?

John Graham: Yeah. And one of the things they did is they taxed internal combustion engine vehicles, which as far as I have heard, is not part of the Biden Administration plan. It turns out at purchase, you can save 5,000 dollars by buying an electric car in Norway.

Rob Stavins: No, the Biden plan is one that involves, as they like to say, carrots not sticks.

John Graham: Right. Yes.

Rob Stavins: And the T word does not appear anywhere. In fact, something else, if you read, I don't know if you've had a chance to read the new nationally determined contribution of the United States under the [Paris Agreement](#). It was just released last week at this climate summit that took place. The word or the concept of legislation does not appear. As someone said to me, it would give the impression to a reader that didn't know otherwise that there was only one branch of government in the United States.

John Graham: Yes. Wow, that's interesting. Yeah, I think it's obvious though that they're going to need to have some congressional action to supplement the regulatory approaches. And I think they have a good shot at getting some legislation that will be related to climate change if they can... I think they only need to pull together several Republicans, but it's very hard to make... You've had more experience than I have at that and it's going to be fascinating to see how the politics works out.

Rob Stavins: It's going to be challenging, for sure, in the Senate. And the regulatory approaches could face a much more difficult time now than they did in the Obama years, even the same regulation, because now, there are the 245 federal judges appointed by Mr. Trump, plus the 6-3 majority of conservatives in the Supreme Court, meaning, I would think, that there will be less deference given to the agencies to interpret federal statutes under the Chevron rule. What do you think about that?

John Graham: Well, in my book, one of the comparisons I make is to how durable science and technology policy are in China and in Japan and in Europe compared to the United States. We have a strong tendency in the United States to be ping-ponging from one administration to the next about... President George W. Bush was very interested in hydrogen. President Obama was more interested in lithium-ion batteries, and it's very difficult to have a sustained major transition of a sector like the auto industry when you have that kind of political instability in approaches to policy. So, we really do need some durability in our policy towards the auto sector.

Rob Stavins: That's a very important point. And when I talk with climate negotiators from other countries, including China, but also our European allies, the word that they often use when they describe going from one administration to the next in terms of the US position on the international dimensions of climate is the word

whiplash, and they just find it extremely difficult because of this back and forth from one administration to another. And that's what you're describing.

John Graham: Well, yes. And if you just look out one election to the mid-term elections coming up, I think there's a significant chance you're going to see a majority of Republicans in the House of Representatives, and that's going to complicate the rest of the Biden Administration.

Rob Stavins: Let me finish with this question, and stepping back from all of this, John, to think about something which has not been going back and forth, which seems to be continuous and gradually increasing, and that's the importance given to the problem of climate change by young people. And I'm not referring exclusively to the youth movements in Europe and the United States that were quite prominent in 2019, but in general, I mean, I think obviously when I went to primary school and high school, the phrase climate change didn't go up. I think when my kids went to primary school and high school, I'm not so sure it came up, but when people go to primary and high school today, climate is a big issue. And young people, according to the surveys, take climate change much more seriously than older people.

Rob Stavins: A big question in my mind, and maybe you can comment on this, is whether that's a cohort effect or an age effect. Are they going to become more conservative, as many people do, as they get older, or does this mean that the attention given to climate change is going to continue to grow and grow and grow as a result of the youth? What do you think?

John Graham: I think it'll continue to grow, and I've been seeing that from the vantage point of a board member of the [Alliance for Market Solutions](#), which is an NGO in Washington dedicated to promoting a national carbon tax as a replacement for federal regulations. And we focus on conservatives and Republicans in Congress. And we find that the younger members are much more interested in this issue, much more likely to be wanting to engage in it. And even in my home state of Indiana, we have both of our senators, who are relatively young senators in the seniority of the Republican side in the Senate, they're both very strong advocates of a national carbon tax. So anyway, I'm saying that the nature of the debate may change between how you address climate change, not whether you address climate.

Rob Stavins: That's interesting, and potentially very important. And that's what we've seen with other policy debates in the past, such as with acid rain, that it evolved from is it a problem to be addressed, to how are we going to address it? And then that turned out to be the [1990 Clean Air Act Amendments](#) from the George H.W. Bush Administration, and we'll probably see a similar evolution you're saying here.

John Graham: Exactly.

Rob Stavins: So, with that, John, I want to thank you again for taking time to join us today. We could have gone on as far as I'm concerned for an hour or two hours, but this has been delightful, from my perspective at least.

John Graham: And the same sentiment is here. Thank you so much, Rob.

Rob Stavins: Thanks again to our guest today, [John Graham](#), professor and former dean of the [O'Neill School of Public and Environmental Affairs](#) at Indiana University, an important contributor to public policy from his former vantage inside the White House.

Rob Stavins: Please join us for the next episode of [Environmental Insights: Conversations on Policy and Practice](#) from the [Harvard Environmental Economics Program](#). I'm your host, [Rob Stavins](#). Thanks for listening.

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