U.S. Environmental Protection Agency
Environmental Financial Advisory Board

Greenhouse Gas Reduction Fund
Mobilizing Private Capital Speaker Series

Public Minutes

September 19, 2024

Location: Virtual

Respectfully submitted by Edward H. Chu, EPA Designated Federal Officer
Certified as accurate by Kerry E. O'Neill, Chair, Environmental Financial Advisory Board

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Purpose

The U.S. Environmental Protection Agency's (EPA) Environmental Financial Advisory Board (EFAB or Board) is an advisory committee chartered under the Federal Advisory Committee Act (FACA) to provide advice and recommendations to the EPA on creative approaches to funding environmental programs, projects, and activities. The purpose of the webinar was to explore strategies for leveraging Greenhouse Gas Reduction Fund (GGRF) resources to attract private capital investment in zero emissions transportation projects, with particular focus on low-income and disadvantaged communities (LIDACs). Zero emissions transportation refers to modes of transport that do not produce any direct emissions of pollutants or greenhouse gases during operation. This includes a variety of technologies and approaches aimed at reducing the environmental impact of transportation.

The webinar was announced in the *Federal Register*; see https://www.govinfo.gov/content/pkg/FR-2024-08-27/pdf/2024-19239.pdf

To view the agenda, see https://www.epa.gov/system/files/documents/2024-09/efab-ggrf-webinar-agenda-zet.pdf

Welcome and Review of Agenda

Ed Chu | EFAB Designated Federal Officer

Ed Chu opened the webinar and welcomed participants. He said that today's webinar is the second in a planned series of three public webinars being conducted by the Environmental Financial Advisory Board, in response to its charge from the Office of the Greenhouse Gas Reduction Fund (OGGRF) at the EPA. He said a summary and recording of the first webinar that was held in July is available on the EFAB public website. Ed Chu emphasized that the meeting is a public meeting, and said that per the *Federal Register* notice, the Board is not accepting oral statement during the event. He further explained that the Board is accepting written comments during or immediately following the webinar, which the public can submit by emailing efab@epa.gov. He stated that no written public statements were received in advance of today's meeting.

Office of Greenhouse Gas Reduction Fund Opening Remarks

David Widawsky | Office of Greenhouse Gas Reduction Fund Director

David Widawsky thanked Ed Chu and members of EFAB and expressed his appreciation for the collaboration and support the Board has provided the OGGRF, to help understand and explore more deeply one of the Greenhouse Gas Reduction Fund's (GGRF) three primary goals. He provided a quick summary of the program, a part of the Inflation Reduction Act, in which Congress enabled a historic $27 billion investment to mobilize financing and private capital to address the climate crisis, ensure the country's economic competitiveness and promise energy independence while delivering lower energy costs and economic revitalization to communities that have been historically left behind to mobilize financing and private capital to address the climate crisis.

David Widawsky explained the GGRF programs - the National Clean Investment Fund, the Clean Communities Investment Accelerator, and Solar for All - and highlighted the priority areas for the billion National Clean Investment Fund to include Net Zero Buildings, Zero Emission Transportation and Distributed Energy Generation. He underscored that today's conversation would focus on enhancing a supporting zero emission transportation, and said he looked forward to hearing some of the expertise and insights that were brought to the table for today's conversation.

GGRF Mobilizing Private Capital Charge

Lori Collins | EFAB GGRF Mobilizing Private Capital Workgroup co-chair

Lori Collins introduced herself as the founder of Collins Climate Consulting and a member of EFAB. She then described the GGRF Mobilizing Private Capital charge objective: *to provide advice regarding the execution and achievement of the GGRF's key objective to mobilize private financing and private capital to stimulate additional deployment of projects that drive greenhouse gas and air pollution reductions.* She explained that the webinar series would focus on three priority project areas for GGRF: Distributed Energy Generation, Net Zero Buildings, and Zero Emission Transportation. The Board agreed to convene experts in each of these arenas through three to four public expert gatherings to discuss capital mobilization, points of entry for financial leverage, and the scope and scale of private financing.

Lori Collins then introduced Dave Mullaney as the moderator of the discussion. She said Dave Mullaney is the Chief Transformation Officer at TruCurrent, a microgrid, mobility and virtual power company owned by Distributed Sun. She explained that Dave focuses on integration of solar, battery storage, electric vehicle (EV) supply equipment and charging infrastructure. Dave previously was a principal and member of the carbon free transportation team, where he focused on fleet electrification, particularly for trucks, and on logistics decarbonization. He also worked at Deutsche Bank in Hong Kong as a member of the Equity trading team and at UBS as a member of the structured derivatives group. Lori Collins thanked Dave Mullaney for his extensive time pulling together the group and thanked the panelists for their time to prepare and join the conversation.

GGRF Mobilizing Private Capital Zero Emission Transportation Session

Dave Mullaney | Chief Transformation Officer, TruCurrent

Dave Mullaney said he wanted to take a few minutes to frame the discussion the group is going to have on mobilizing capital for transportation electrification, with a view on where we are in transportation electrification, where we have come from, and where we still need to go in relation to bringing capital into the market. Dave Mullaney provided several points of sector expansion for context:

- The last couple of years have been successful in transportation electrification, especially in the light duty vehicle category.
- Sales of EVs reached nearly 10% of all vehicles in July 2024, so we've seen great growth.
- With the support and work done through the Inflation Reduction Act, the national charging network has grown, with Direct Current Fast Charge plugs expanding from 17,000 to 45,000 – almost 3 times the original amount – during the last 3 years.
- JD Power says the ownership and operation of EVs is more cost effective than internal combustion engine vehicles.
- The ecosystem of EV manufacturing has experienced a renaissance.
- The domestic battery manufacturing ecosystem has expanded, largely motivated by production tax credits coming from the Inflation Reduction Act as well as domestic content requirements for eligibility of vehicle subsidies, and it is now expected to have one terawatt house of battery manufacturing capacity online in the US by 2028.

He underscored that while the sector has progressed, it will need further investment to keep the transition going, and that it's necessary that private capital come into the market as part of the transition. Dave Mullaney then introduced panelists to address how the transition can play out. First, he introduced Michael Baer, a Managing Director at NuGen Capital Go who focuses on mobility analytics and deploys capital to electrify vehicle fleets across America. He then introduced Anita Molino, a Founder and Managing Partner of Bostonia, a real estate and infrastructure investment firm, which has extensive experience in capital markets focusing on real estate, energy projects, finance, and securitization. Finally, he introduced Andy Prindle who is the Co-Portfolio Manager and Head of Originations at Foundation Credit, a finance firm focused on originating U.S. middle market infrastructure debt.

Private Capital Mobilization in the Zero Emission Transportation Space – Experts

Anita Molino | Founder and Managing Partner, Bostonia
Topic: Overview of ZET Sector

Anita Molino opened her discussion by highlighting Bostonia's involvement in the energy and infrastructure finance world for more than a couple of decades and said she has seen the sector from all angles. She said that capital market participation is important and that she's thrilled to hear that, this time, such participation is really a mandate to seek out. She suggested that if public funds can get levered up to scale across the country, we can accomplish a whole lot. She underscored the $55 trillion in private capital outstanding in the U.S. as of July 24th, 2024. Anita Molino emphasized a few key lessons learned that are critical for mobilizing private capital:

- *Structured Financing:* Anita Molino suggested the financing needs to be structured correctly to take advantage of the best capital for the best opportunity that can best service a successful outcome, and that many of the projects are public-private partnerships, or public, public private partnerships, and equity and debt both would play in the transactions.
- *Source of Debt:* Anita Molino said that on the debt side, one of the lessons learned from prior transactions is that there's sometimes a propensity to turn to the tax-exempt municipal market by public borrowers, whether or not they are looking to provide most or all of the financing or participate together with the private equity. She explained that if the tax-exempt debt is priced at 3% to 4%, and the taxable debt is 7% or 8%, it's natural to say let's do everything we can with tax-exempt debt. Anita also went on to say there are a lot of other factors that go into the deal structuring and tax-exempt, at the end of the day, may not end up being the cheapest solution when looking at the totality of the project including some of the limitations of tax-exempt issuances (e.g., cost, procurement rules, possible delays, etc.).
- *Source of Equity:* Anita Molino distinguished between traditional cash equity and equity coming in via the tax equity benefits and direct pay mechanism under the Recovery Act. She also pointed to cash grants as a source of equity. Anita Molina underscored a lesson learned: cash grants are often made available at the completion of the project, which is a factor often overlooked in putting together a transaction.
- *Credit Risk:* Anita Molino said that credit risk also plays a big factor in transactions. If a smaller contractor performs work the essential construction risk can become a major factor in putting the whole financing package together. She said these deals require more equity that can absorb certain risks that are difficult for the public sector to take on. She explained that for public-private partnerships, the risk sharing agreement must be decided upfront, so clear agreement on the risks and which of the parties will assume them. In the EV space, she said there also continues to be some technology risk for battery technologies and there must be agreement on who takes the technology risk.

Anita Molina ended by saying that all financial markets (private equity, private debt, municipal debt, capital markets) have different rules around procurement laws, legal policy, etc. so it's very important to align these rules upfront to avoid some of the bumps in the road.

Michael Baer | NuGen Capital Go
Topic: Medium and Heavy-Duty Transportation Market

Michael Baer introduced NuGen Capital Go as a renewable energy investment firm that has owned renewable assets since 2009. He said NuGen views the EV space today as similar to where the solar market was in 2009, suggesting the EV market faces similar challenges, opportunities, and questions as the solar market faced then. Michael Baer said NuGen's main focus is to support public and private medium heavy-duty fleets to electrify. He outlined several inherent challenges in the space relative to leveraging private capital.

- *Scale:* Michael Baer said that Fortune 500 companies with logistics arms or large logistics companies will expand their EV fleets using their own balance sheets or through a line of credit. He said most of the opportunities with climate and equity goals are in small fleets, meaning a fleet owner or a fleet management company with three to five trucks or last mile delivery shuttles that require small transactions. Michael Baer said the resulting question is: "How do we pull together small transactions in an affordable way to reduce transaction costs?"
- *Capital Cost:* Michael Baer said the capital cost of an electric medium or heavy-duty vehicle is significantly more than a comparable diesel of fossil fuel vehicle and pointed to acceleration of these smaller fleet investments in markets that have state incentives. He gave the example of a $500,000 for which the state may provide $200,000, which puts the cost on parity with diesel.
- *Long-term residual value for EVs:* Michael Baer said that because EV technology is so new, banks and even insurance companies don't understand how to underwrite residual value from a risk standpoint. He also suggested that a fleet owner need to know what percentage of the total cost it will get at the end of a lease for example.
- *Contract durability and uniformity:* Michel Baer said that fleet management companies with one to five vehicles often have contracts with bigger logistics or storage companies that last only one to three years. He suggested that these contracts need to have longer durations, similar to a power purchase agreement, that they need uniformity in order to support the issue of an asset backed security or securitization of a number of vehicle leases.

Michael Baer then explored how capital providers might use project finance principles and apply them to the EV sector. As an example, he suggested the EV sector could consider a service-based business model that uses a charge per mile or charge per kilowatt hour as the basis for revenue. He also suggested residual value guarantees, first loss equity, or any kind of first loss investment product would be valuable to the investment community. He underscored that leasing models are well understood and could be readily applied to EV businesses. Michael Baer ended his discussion by suggesting that long-term contracts and leveraging the Clean Commercial Vehicle Tax Credit across a large number of EVs could have major benefits for the sector.

Andy Prindle | Managing Director, Foundation Credit
Topic: Public Infrastructure Finance

Andy Prindle opened with an overview of Foundation Credit - an infrastructure credit fund focused exclusively on lending to public infrastructure projects in the U.S. He began the conversation with an overview of the $5 billion Federal National Electric Vehicle Infrastructure (NEVI) program, which was created as part of the infrastructure bill to allow for federal dollars to subsidize the construction of broad network of electric fleet (EF) charging stations on Federal highways. He explained that the capital is spread over five years and allocated based on population size, highway miles and EV charging, or adoption rates.

Andy Prindle said that one of the key inhibitors to deployment of this capital has been the inability of contractors and developers to bring this large 80% subsidy capital forward to the point where they can borrow against the dollars in a way that is efficient and allows them to build the station. He underscored that it’s great to have 80% of a project subsidized by the Federal government, but if that 80% doesn’t come in until the project is completed, that creates an equity gap and a financing gap. Andy Prindle highlighted Foundation Credit’s response to this financing gap, whereby it provided $50 million of financing against a pool of already awarded NEVI grants. He said this financing allowed the developer to bring those dollars forward to provide for the construction of what will ultimately by 75 or 80 different projects. Andy Prindle suggested that it’s imperative for government to subsidize construction of stations in places that may not be economically viable when developed but are critical from an overall absorption perspective and provide EV consumers the comfort that stations will be available across U.S. routes to provide efficient and cost-effective charging.

Andy Prindle then explored the issue of residual value when underwriting fleets of EV vehicles. He said that even if fleet owners or lessors are large government entities or universities who are willing to sign longer four- or five-year contracts that have low levels of credit risk due to the ability of the borrower to make payments over the contract period, the question of residual value remains a huge hindrance for underwriters. He said that a large captive fleet that gets used daily is a prime candidate to drive significant absorption into the EV market. However, he also pointed out that these large fleets aren’t necessarily part of the market today. He reinforced that many EV fleets today are small scale – three to five trucks – which creates economy of scale challenges for the field.

Andy Prindle said that to create an efficient capital market structure that allows people to invest in EVs at scale requires people to think about uniformity and certainty in an emerging market that does not have a long history of transactions. He stressed again the importance of government intervention and guarantees or other types of subsidies as a mechanism to reduce risk. He rounded out the presentation by saying that a lot of the infrastructure in the U.S. is financed at the local municipal level with varying types of government subsidies, loans, and local regulations, and that the EV space does not currently include significant amounts of private capital.

Panelist Discussion

Dave Mullaney opened the panelist discussion by suggested that Andy Prindle’s example of lending against the NEVI program is a great example of how public and private sector capital can mix to go after a shared goal. He said the government does not have a great way to evaluate the credit risk of counterparties so it ends up paying afterwards, but when private capital can provide liquidity at the front end, that's a good model.

Andy Prindle underscored that Foundation Credit's NEVI program engaged with a single developer counterparty which helped to create uniformity across 17 different transactions. He stressed that unique facets of each of the transactions created significant underwriting and due diligence hurdles for Foundation Credit's team which ultimately impact transaction friction and costs. Dave Mullaney referenced the similar issue raised by Michael Baer in working to underwrite small fleets of EV trucks where sub-economies of scale with the same transaction friction manifest.

Dave Mullaney then posted the question: *What are the key investment opportunities where capital really has to flow in order for the system to unlock and what are specific opportunities that would maximize the ability for a system to emerge at scale that is cost effective?*

Anita Molina said that if a regulatory entity wanted to encourage people on the original equipment manufacturer (OEM) and investment sides, it would need to start by taking the riskiest pieces off the table, and that's where you need to subsidize. She suggested that the government has historically done a very good job of this by providing first loss (e.g., grant and tax equity) capital. She also highlighted a hedge on the residual value risk would be key to make the debt world much more willing to lend at scale. Anita Molina also suggested that in the real estate sector there are residual value insurance guarantees available that unlocked private capital markets by taking risk out of early deals. She further suggested a switch from grant-based subsidy to a more scaled strategy that lowers capital costs in the market through creating first loss guarantees may not ultimately require spending dollars if the risks don't materialize.

Michael Baer further addressed the need for standardization and economies of scale in the EV market. He pointed to the many examples of standardization across real estate, commercial development, housing, car purchases, credit card, etc., and asked how to get that kind of scale happening in the electrified transportation market. He suggested to look at the Power Purchase Agreement (PPA) for solar and underscored that almost all banks will now lend against this PPA. He suggested the EV sector could explore a per mile type of approach, with the early models receiving government assistance as the private sector gains experience and data. He pointed to an example in India where municipal transportation agencies issued a tender offer asking for cost per mile and best bid. Michael Baer said that this transferred a lot of the risk to the city itself who then became owners of the vehicles which they leased to operators for a known cost per mile.

Dave Mullaney posed another question: *If you could design one product or specific implementation strategy that would be high yield to unlock this market, what would your top vote be?*

The panelists offered the following suggestions:

- Mechanism to provide up-front capital;
- First loss reserve;
- Residual value guarantee;
- Contract guarantee for small business fleets; and
- Uniform portfolio of contracts.

Dave Mullaney brought up the idea of Electrification as a Service (EaaS) and pointed to a charging station built by Volterra that had a guaranteed EaaS from a major ride sharing service. He said the emergence of these models is especially important especially for the owner-operator when the capital costs are prohibitively high and the risk of ownership is prohibitively high. He concluded that ultimately these types of models could enable lower cost business models. Anita Molino then reinforced the point of understanding the major risks in the project and allocating those risks to the involved parties most able to handle the risks.

Michael Baer added that, in the EaaS model, early adopters have found that most of the capital expense in developing charging stations is the land acquisition. He said that has led to many cases of big private equity firms acquiring land acquisition under the thesis that it doesn't matter if the charging station works out or not, the land is going to be valuable. Dave Mullaney said that we have seen public-public-private partnerships where a municipality provides vacant land to partially underwrite the land acquisition part of the development expense.

Environmental Financial Advisory Board Discussion

Barry Hersh said the GGRF program focuses on access in low- and moderate-income communities and in rural communities where it can be harder to do business. He referenced the Community Reinvestment Act where banks are required to make investments in the communities they serve, including low- and moderate-income communities. He asked if anyone sees special difficulties or special opportunities in serving different kinds of communities.

Andy Prindle pointed again to the NEVI program as an approach to ensure the build-out of charging networks on the interstate system including in rural areas where it wouldn't be economically viable otherwise. He suggested that the low-income side of the equation can be more complex because the upfront cost of the vehicles is more significant and so the market needs to have this burden borne by someone. Build-out of fleets in dense urban areas is a good example where the benefits flow to everyone. He reinforced that the EV build-out process will be business driven and it's mainly going to be small private businesses investing heavily in electrification, since vehicle utilization in the U.S. is overwhelmingly small business.

Anita Molina said that there are potential important roles for other government agencies like the Housing and Urban Development (HUD) and others to make EVs work. She gave the example of a low-income multi-family housing environment that required a minimum number of charging stations to provide for proper insurance and guarantees and suggested that HUD might partly underwrite the cost of charging to create an inexpensive solution.

Dave Mullaney suggested that the lower availability of off-street parking in lower-income communities as a major barrier to EV adoption, making investments in these areas in need of additional investment support for charging infrastructure.

Lori Collins then asked a question on behalf of EFAB related to the timeline for back-end payment of grants or tax equity that comes in at the end of the project.

Andy Prindle said that it depends on the counterparty to the transaction. He said in the case of NEVI grants, the program is relatively specific in that the dollars have already been allocated from the Federal government to the state Departments of Transportation (DOT) and they are sitting on the state DOT balance sheets. The payments come once construction is complete – generally in three to six months. He said that there are other programs at the Federal, state, and local levels where lenders build in significantly longer cushion around certification and reimbursement.

Joanne Landau said that she is in the real estate business and she recently assessed a major 4,000-person development advanced by a major development firm in Tarrytown, New York that has very limited charging capacity. She asked if expanded charging is starting to occur in the transportation areas.

Andy Prindle said he assumes that lack of charging stations is because the developers aren't required to put them in. He said no developer is going to build them unless they have demand on the rental side for them or they're told by a permitting agency that they have to build them. He referenced his office building in Los Angeles where the charging station capacity has expanded dramatically in response to tenant demand and said that, in a multi-family property, if the tenants are pushing demand, then the building owner will build them.

George Kelly asked about the public-private partnerships and specific state regulatory and procurement processes that prohibit private ownership and public-private partnerships.

Anita Molino said that she has run into specific states with prohibition of use of public-private partnerships.

Andy Prindle suggested that EV infrastructure is not an area that government has owned and operated in the past because it didn't exist. He said that, in the NEVI example, it's all public-private partnerships where state DOTs are running procurement processes to find private developers to build stations. He further explained that, in some cases, the developers are working with private gas station chains to build EV infrastructure at those gas stations and, in others, they are identifying ideal sites for stations. He said he thinks it's a cost-effective model and a good way to build out a larger charging network over time. He concluded by suggesting the current approach is leading to a unique asset class where there isn't significant pushback and inertia from the government.

Wrap-Up

Lori Collins | EFAB GGRF Private Capital Mobilization Workgroup co-chair

Lori Collins wrapped up the session by thanking the panelists and moderator for taking their time and bringing their expertise to the conversation. She underscored that it's very helpful to get innovative ideas about how to take things learned in other types of financing and apply them to the transportation sector. She specifically thanked Dave Mullaney for the significant amount of work he did to pull the conversation together. She then thanked the EFAB members on the call and David Widawsky and Ashley Allen Jones from EPA. She said the EFAB will host one more session in mid-November on distributed energy generation.

Adjourn

Ed Chu | EFAB Designated Federal Officer

Ed Chu thanked all participants, particularly the EFAB members, for their voluntary time to help the EPA and the Federal government. He reminded everyone to submit written comments by sending them to efab@epa.gov where they would be captured and posted with the webinar materials to the EFAB website. He reiterated the upcoming webinar scheduled for November and said the specific dates would be published in the Federal Register Notice at least 15 days in advance. He then closed by reminding EFAB members that the next full board meeting is scheduled for October 2024 and it would be an in-person meeting that would be announced in the Federal Register shortly.