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HEARING TO EXAMINE S.747, DIESEL EMISSIONS REDUCTION ACT OF 2019

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

MARCH 13, 2019

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED SIXTEENTH CONGRESS
FIRST SESSION

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HEARING TO EXAMINE S.747, DIESEL EMISSIONS REDUCTION ACT OF 2019

WEDNESDAY, MARCH 13, 2019

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10:07 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (chairman of the committee) presiding.

Present: Senators Barrasso, Carper, Inhofe, Braun, Rounds, Ernst, Cardin, Whitehouse, and Van Hollen.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING

Senator BARRASSO. Good morning. I call this hearing to order.

Today we are here to discuss the Diesel Emissions Reduction Act of 2019, which would extend the program.

Since Congress first created the program in 2005, the program has enjoyed broad bipartisan support. We owe it to our dear friend, the late Senator George Voinovich, from Ohio, and Ranking Member Carper, for working together across the aisle to push for the creation of this program.

The legislation we are discussing today would reauthorize the Diesel Emissions Reduction Act through Fiscal Year 2024, so I want to thank the Ranking Member and his entire staff for their leadership on this legislation over the years. I am pleased to chair the second bipartisan legislative hearing on reducing emissions to address climate change in this Committee in the last 2 weeks.

Like the USEIT Act, the focus of our last hearing, this legislation supports innovation-led solutions to environmental protection. Diesel engine emissions of particulate matter and nitrogen oxides are well known. We have all driven behind an older bus or tractor and experienced the exhaust. This program has gone a long way to reducing those emissions.

States, localities, and private companies can use funds from this program to replace or upgrade diesel engines. These projects could reduce emissions or those pollutants by more than 90 percent. It is astonishing, more than 90 percent.

From 2008 to 2016, these funded projects have reduced emissions of nitrogen oxides by more than 472,000 tons, and the program has reduced particulate matter by over 15,000 tons. These are big numbers. These reductions help improve the air quality for local communities.

The State of Wyoming has used these funds over the last few years to replace old diesel school buses. In fact, school buses have been a major focus of the funding of this project in this legislation. One of our witnesses today, Mr. Dale Krapf, has brought a state-of-the-art school bus to the EPA headquarters just last year. I understand you have been working with Senator Inhofe for, you said, several decades.

Senator INHOFE. That is right.

Senator BARRASSO. Go back a long time.

He also was invited by then Acting Administration Wheeler for an event during Children's Health Month. So I am pleased Mr. Krapf is able to join us today to talk about the positive impact that this legislation is having on children's health in Wyoming and all across the Country.

One of the other benefits of this program is it reduces emissions of greenhouse gases. Upgrading diesel engines reduces greenhouse gas emissions on both black carbon and carbon dioxide. Black carbon has a global warming potential that is thousands of times higher than carbon dioxide over a 20-year timeframe. Through this program, we have reduced black carbon emissions by more than 11,000 tons and carbon dioxide by more than 5 million tons.

This program is going after the gases that contribute to climate change. I emphasize this point because of a false narrative out there that Republicans haven't put forth solutions to climate change. That is simply not true. This program is a great example of bipartisan policy that has reduced emissions now for over 10 years.

Our USEIT Act is another. That bill would support the buildout of both carbon capture and direct air capture projects. Importantly, it would support the infrastructure we need to move carbon dioxide from where it is captured to where it can be used for commercial purposes. That might mean injecting it into oil wells or using it in making building materials or feeding it into greenhouses.

In addition to those pending bills, I would also remind my colleagues abut the FUTURE Act. The Clean Air Task Force called that bill, which passed a year ago, one of the most important bills for reducing global warming pollution in the last two decades. I would also note the successful bipartisan work this Committee has done to promote advanced nuclear energy.

I and many of my colleagues on this Committee support these initiatives and this Committee will continue to lead on this important issue. When we work together, we can solve and we can show that we can promote American leadership, grow our economy, and lower our emissions.

I would now like to turn to Ranking Member Carper for his opening comments.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thanks, Mr. Chairman. I have been looking forward to this day all year and am thrilled to be alive. It is a beautiful day outside, sunshine, blue skies, and we have a great bipartisan coalition supporting the legacy of George Voinovich, one of my all-time favorite Governors. We served as Governor together for 6

years and then here in the U.S. Senate, in this room, on this Committee.

George's wife is still alive. I get to talk with Janet on her birthday every year; call her on her birthday in Cleveland. She sends her love.

Some of you may recall George was not just a U.S. Senator from Ohio, he was not just a Governor from Ohio, he was not just lieutenant Governor of Ohio, he was not just mayor of Cleveland, a lot of people said he saved Cleveland, and he was, I think, county auditor before that. He did it all. And he served here sort of like the conscience of the Senate, and was just a great role model for all of us as Democrats and Republicans on how we can work together and get things done.

One day he said to me, I forget what year it was, but I had been here a couple years as a Senator, I came in 2001, and he said to me, Tom, how would you like to be my lead Democrat on legislation that, as our Chairman has said, will actually reduce soot, reduce particulate matter, NOx, black carbon, and CO2? How would you like to be my lead Democrat? I said, I am not interested. Actually, I said I would be very interested.

He laid out what it was and it was what turned out to be the Diesel Emission Reduction Act, where we actually have the ability to use a relatively modest amount of Federal money to leverage a whole lot of other money from State and local sources, from private sources, in order to reduce emissions in the air and using American technology that I think our folks from Corning may have actually developed in the beginning.

So here we are, create American jobs, reduce harmful emissions, with a little bit of Federal money, leverage a whole lot of other money. I think for every dollar that we have in the Federal side we leverage about three dollars, as I recall, from other sources, public and non-public. My staff tells me that for every dollar we spend in Federal money we get about $13 worth of value in terms of health benefits and economic benefits.

What is not to like about this legacy from George? I am thrilled to find a package that, with George's departure, Jim Inhofe stepped up. Actually, he was an original cosponsor of the bill too way back in the beginning, but Jim has been a great champion of this and we are grateful for his leadership on this, and his team and his staff.

I just want to say to my staff a special thanks. To our witnesses, welcome.

I have a statement I want to admit for the record, but as the Chairman says, this is another good example of how we can work together and get stuff done. We have been doing it through DERA for a number of years, but he mentioned the USEIT Act, which I think has great potential, and the FUTURE Act, which is another one that we worked on.

There are a number of things that we are working on together. A lot of people say, oh, you never get anything done in Congress these days. Well, beneath the radar screen we actually do. It doesn't make news, but it is good news, and I am happy to celebrate the good work that has been going on and will hopefully continue to go on for some time to come.

Thank you, Mr. Chairman. I would ask unanimous consent that my full statement be admitted to the record.

Senator BARRASSO. Without objection.

[The prepared statement of Senator Carper follows:]

Opening Statement of Senator Tom Carper
EPW Full Committee Oversight Hearing on "Hearing to Examine S. __, Diesel Emissions Reduction Act of 2019."
March 13, 2019

Mr. Chairman, thank you for convening today's hearing to examine yet another way we can come together on a policy that is a win-win-win for clean air, our climate and our economy.

In today's hearing, we will be focusing on legislation that reauthorizes a program that is near and dear to my heart—the Diesel Emissions Reduction Act, or DERA.

I would like to say thank you to my DERA co-pilot, Senator Inhofe. Senator Inhofe has been a staunch supporter of DERA since day one. I greatly appreciate his continued support and the hard work of his staff on this legislation.

I also thank our cosponsors from last Congress who have joined us again this year, Chairman Barrasso and Senator Whitehouse. Chairman Barrasso and his staff teamed up with us last Congress to make DERA work even better, and I appreciate his strong support.

I also would like to say thank you to our new cosponsors this year, Senators Sullivan, Booker, Capito, Gillibrand, Cramer and Van Hollen.

In all my years of public service, it's not every day that I've seen programs that generate this much bipartisan support—but, then again, not many programs are as effective and commonsense as DERA.

Our nation still relies heavily on diesel power to transport commuters and kids, harvest our crops and build our infrastructure.
Today diesel engines are found everywhere, from our schools to our ports, and from our highways to our agricultural fields.

Many of my colleagues have heard me say that the great thing about diesel engines is that they last a long time. And the bad thing about diesel engines is that they last a long time.

Diesel engines are reliable and efficient, but older diesel engines are big polluters. Dirty diesel engine emissions are some of the biggest contributors to our nation's smog, soot and black carbon air pollution. These dirty diesel emissions harm our health *and* our climate.

Because of smart emission standards, new and retrofitted diesel engines using American technology are now much cleaner than older diesel engines – over 90% cleaner.

Unfortunately, diesel engines run forever and there is little incentive for a diesel engine owner to replace an engine before it breaks down.

That's why today, more than a decade after diesel emission standards were implemented by the EPA, millions of older diesel engines that lack the latest pollution control technology are still in use and will remain in use for decades to come.

Back in 2005, my very good friend, the late-Senator from Ohio, George Voinovich, came to me with an idea to help solve this problem – he came to me with the idea for DERA.

Senator Voinovich said to me, let's provide financial incentives for people to replace or retrofit their older diesel engines with American-made clean vehicle technology.

He told me that we can dramatically reduce diesel emissions, protect our health and create jobs here at home. I said, "*Sign me up*!" And I've been DERA's strongest supporter ever since.

In 2005, Congress passed DERA faster than I think we've passed any EPA program ever before. This simple idea has turned into one of EPA's most effective clean air program on the books today.

For every dollar spent in the DERA program, our nation sees $13 in economic and health benefits. The emission reductions have helped states meet clean air standards and resulted in more than $12.5 billion in health benefits alone since the program's inception.

From requests for electric school buses, to replacement ferry engines, to simple diesel retrofits, EPA tells us that the requests keep coming in – but, unfortunately, funding for DERA far exceeds the program's available funds.

With millions of dirty diesel engines on our roads, DERA is as important today as it was when it first started. Now, we must work together to ensure that every state, tribe and territory can still benefit from this unique program.

At a time when our country is looking for ways to create jobs, have healthier air and a better climate, cleaning up dirty diesel engines through DERA stands out as a prime example of what works.

Today, I'm proud to continue the bipartisan tradition that started more than 15 years ago with my good friend, Senator Voinovich. I look forward to working with my colleagues to pass reauthorization of DERA this Congress.

Thank you Mr. Chairman, and I thank our witnesses for being here with us today. I look forward to today's discussion.

Senator BARRASSO. Senator Inhofe, would you like to——

Senator INHOFE. Yes, I do. I do. And I would ask the same unanimous consent.

Senator BARRASSO. Without objection.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Everything in my printed statement has been said, but I will use this time—I was talking to Gabe back here. Hold your hand up, Gabe.

We go all the way back to when I was on this Committee in the House. Now, we are talking about 30 years ago. And John Paul Hammerschmidt, I just mentioned to Senator Barrasso and he had never heard of him. Of course, that is the way it is with most of the people, Gabe.

Anyway, the Chairman did talk about all the things we are doing right now that are really good, and so did the Vice Chairman. He mentioned the USEIT Act. I think the recognition that fossil fuels are going to be there and are going to be a part of our lives for at least the rest of my life, maybe not yours, but we recognize that.

But I am going to take advantage of this and say to my friend, Mr. Nagle, to remind people of something nobody knows about, it is the best kept secret in America today, and that is that my State of Oklahoma is navigable. We go all the way from coast to coast. We are out there.

I remember a guy came to me, he was the head of the World War II Veterans Association back when I was in the State legislature, and he said to me, he said nobody knows that we are navigable in Oklahoma; I have a way to do this and we will pay for it. He said, we'll go ahead and we are going to have and put together, if you find a submarine for us, we are going to bring a submarine all the way up the river up to Muskogee, Oklahoma. And I thought, what a great idea.

I found the USS Batfish in Orange, Texas. It fit the thing just perfectly. So we went down and we started up there. We had to artificially bring it down to get under bridges and then flow it up. We got it all the way up there. And all the time this is taking place, because I used to be controversial and all my adversaries were saying we're going to sink Inhofe with his submarine. We got it all the way up there and it is still proudly sitting in Muskogee, Oklahoma, a submarine, coming all the way from Orange, Texas to Oklahoma.

So, anyway, we have that interest, as Kurt Nagle is fully familiar with, and we want to join everyone else in this cause that we have believed in for a long period of time, so it is nice to be with my friends. It shows that when we put our heads together, we can get things done.

Senator BARRASSO. Let the record reflect that the Senator from Oklahoma used to be controversial, but has mellowed.

[Laughter.]

Senator BARRASSO. Senator Whitehouse, thank you for working on this legislation.

OPENING STATEMENT OF HON. SHELDON WHITEHOUSE, U.S. SENATOR FROM THE STATE OF RHODE ISLAND

Senator WHITEHOUSE. Thank you, Chairman. I cannot match our Ranking Member's durability on this issue over many, many years, but I am very pleased to be a supporter of this legislation and one of its bipartisan cosponsors.

If you look up close at the belching fumes that come out of these older engines and the particulates and the people coughing and waving away the exhaust, you see that this type of legislation can have a real effect in communities, on streets, and in neighborhoods. And if you dial up a couple thousand feet into the atmosphere, you see that the black carbon problem that it ameliorates has a big effect, particularly in northern States where it falls on snow and it changes the albedo, the reflectiveness of the snow; and that is one of the feedback loops that is dangerous with respect to climate change. I think that is one of the reasons that Senator Collins of Maine has supported legislation regarding black carbon.

So both up close and from on high this is a piece of legislation that has very significant and positive effects, and I am proud to be a part of it. I am equally proud to be one of the supporters of the USEIT bill and the FUTURE Act and the nuclear measures that the Chairman was kind enough to recognize.

I would just offer one hesitation, which is that if you add up the effects of this bill, the USEIT Act, the FUTURE bill, and our nuclear reforms, I don't think they get us anywhere near the climate goals that we need to reach. So as much as I enjoy and even treasure our bipartisan work on these issues, I see it as a bipartisanship pilot light burning in the hopes that soon we will be able to do something bipartisan that actually addresses the problem in the way that we need.

So, much appreciation to you, Chairman, for your cooperative spirit on this and others, and much appreciation also to the newly non-controversial Senator Inhofe for his leadership in this area. And to my Ranking Member, much gratitude for his long support.

Senator BARRASSO. Well, thank you.

We will now hear from our witnesses. I am pleased to introduce our three witnesses to the panel today: Mr. Dale Krapf, who is Chairman of Krapf Group Incorporated. Thank you for being here. Mr. Kurt Nagle, who is President of the American Association of Port Authorities; and Dr. Timothy Johnson, Consultant to Corning Inc.

I want to remind the witnesses that your full written testimony will be part of our official hearing, so if you could please keep your statements to 5 minutes so that we will have some time for questions. We all look forward to hearing your testimony.

Mr. KRAPF.

STATEMENT OF DALE N. KRAPF, CHAIRMAN, KRAPF GROUP INCORPORATED

Mr. KRAPF. Good morning, Chairman Barrasso, Ranking Member Carper, Senator Inhofe, and members of the Committee. My name is Dale Krapf, and I am Chairman of the Board of the Krapf School Bus Company, headquartered in southeastern Pennsylvania, a family owned and operated passenger transportation business estab-

lished in 1942. We are now the largest privately held school bus contractor in the Nation, operating in Pennsylvania, New York, New Jersey, Delaware, and Virginia.

I am pleased to support the reauthorization of the Diesel Emissions Reduction Act, or DERA, one of the most effective clean air tools in improving air quality concerns at the local level. I also want to express my appreciation to Senators Carper and Inhofe, original cosponsors of the 2010 and the current reauthorization bill.

I am here today on behalf of the National School Transportation Association, the trade association for private school bus contractors around the Country. Private companies provide over one-third of the Nation's public school bus service. I was proud to serve as president of NSTA from 2003 to 2005, and today my son Blake serves in that same role. Another son, Brad, also serves on the NSTA Board.

My family business has been successful not just because we have followed sound business practices, but because our focus has always been on our communities and, most importantly, our precious cargo, the children we transport to and from school every day. We have a saying in our industry, that we bleed yellow, which signifies our commitment to the safety of the children we transport.

School transportation is a uniquely American industry and is part of our Country's commitment to free public education. Each day, nearly 500,000 school buses transport over 26 million children to and from school, more than inner city and intercity bus transportation, rail and aviation combined.

School buses help ease congestion, help save energy, and reduce pollution by taking an average of 36 cars off the road for each trip. Taken together, this represents 17 million fewer cars and a savings of 20 million tons of CO2 each year. Further, the technology of today's school bus is tremendously improving, incorporating not only clean engine and emission reduction technology, but also the most advanced safety features, all designed to protect the children on and around the bus and the air they breathe.

According to DOT statistics, the school bus is the safest form of transportation, bar none. Our commitment to safety and the children's health is not only focused on preventing accidents, but also protecting the overall health of the kids on the bus or waiting for the bus, at the bus stop or at the school. That is why we have been an early and strong and consistent supporter of the DERA program, and even before that the Clean School Bus program. Over the last decade, NSTA, through our D.C. representatives, has helped lead an informal coalition of not just school bus interests, but also representatives of other sectors who support the reauthorization of the continued funding for the DERA program.

Funding can be used for projects to purchase newer, cleaner vehicles or equipment, repower older equipment, or retrofit equipment with the latest after treatment technologies. The program is technology agnostic, meaning that all types of clean vehicles and equipment are eligible, including diesel, propane or natural gas, electric or hybrid, and it supports vehicles and equipment in all sectors, from tug boats to transit buses, locomotives to school buses.

Seventy percent of all the funds go to EPA, with 30 percent going directly to support State programs. EPA administers grants

through the regions on a purely competitive basis, with a goal of funding the projects that produce the highest benefits. We are proud of the progress that has been made, and especially the school bus sector has probably been the single largest sector to benefit from the program since the program was established.

Communities around the Country benefit by having new or retrofitted buses to take children to and from school. We have worked with EPA to help pioneer access to grant funds to both public and private entities using the authority in the Act to fund projects through nonprofit entities working to improve air quality and transportation safety.

However, because the grants can be a challenge for a small rural school district or their transportation contractor, we pushed for language in the last reauthorization bill to help streamline the process through the use of rebates as a way to get the funds to where they are needed quickly and efficiently.

The EPA School Bus Rebate program allows local school districts and companies under contracts to those districts equal access to funding for taking older buses off the road and replacing them with newer buses that often can emit at least 95 percent less pollution than the ones being removed. I am delighted that Krapf School Bus received one of those rebates in 2017.

Some have questioned why a program that was originally authorized in 2005 is still needed. The answer is simple: it still works and it produces benefits well in excess of cost. Diesel vehicles are the workhorses of our economy and they last a long time. In our school bus fleet in Pennsylvania, we work hard to get newer vehicles into service, but we also helped take over a county system in Virginia where the buses were considerably older. Some States operate systems where the average age of the bus may be more than 15 years old. That means there are many buses in those States older than 15 years as there are newer buses. DERA helps communities get those older buses off the road, cleaning the air in the process and also improving transportation safety.

We believe the program is still extremely valuable and needed, and we strongly support its reauthorization as provided in the legislation introduced earlier this week by Senators Carper, Inhofe, Barrasso, and other members of the Committee.

Thank you for the opportunity to be here today and to speak in support of the bill before the Committee. I would be happy to answer any questions. Thank you.

[The prepared statement of Mr. Krapf follows:]

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STATEMENT OF MR. DALE KRAPF
CHAIRMAN OF THE BOARD, KRAPF SCHOOL BUS
SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE
MARCH 13, 2019

Chairman Barrasso, Ranking Member Carper, Senator Inhofe and Members of the Committee, my name is Dale Krapf, and I am Chairman of the Board of Krapf School Bus, headquartered in Southeastern Pennsylvania. The company is a family-owned and operated passenger transportation business established in 1942 by my parents, George and Eleanor Krapf. Beginning with two school buses, we are now the largest privately held school bus contractor in the nation, operating in Pennsylvania, New York, New Jersey, Delaware, and Virginia. In 2017, we celebrated our 75th anniversary.

I am pleased to provide testimony today in support of the reauthorization of the Diesel Emission Reduction Act or DERA, one of the most effective clean air tools in improving air quality concerns at the local level. I want to express my appreciation to one of the original cosponsors of what was always a bipartisan bill, Senator Carper, who together with former Senator George Voinovich (R-OH) introduced DERA in 2005 and was a leader on the 2010 reauthorization and is the lead sponsor of this year's bill. Also, I want to thank Senator Inhofe who was an original cosponsor of the 2010 reauthorization bill and is the lead Republican this time as well.

I am here today on behalf of the National School Transportation Association (NSTA), the trade association for private school bus contractors around the country. Private companies provide over one-third of the nation's public school bus service. I was proud to serve as President of NSTA from 2003 to 2005 and today, my son Blake serves in that role and another of my sons serves on the NSTA Board.

My family's business has been successful not just because we have followed sound business practices, but because our focus has always been on our communities and, most importantly, our precious cargo—the children we transport to and from school every day. We have a saying in our industry that we "bleed yellow," which signifies our commitment to the safety of the children we transport.

School transportation is a uniquely American industry, and it is part of our country's commitment to a free public education. Each day, nearly 500,000 school buses transport over 26 million school children to and from school – more than inter-city and intra-city bus transportation, rail and aviation combined. School buses help ease congestion, help save energy and reduce pollution by taking an average of 36 cars off the road for each bus in service. Further, the technology of today's school bus is tremendously improved, incorporating not only clean engine and emission reduction technologies but also the most advanced safety features, all designed to protect the children on or around the bus and the air they breathe.

According to DOT statistics, the school bus is the safest form of surface transportation today – bar none, including walking, biking, transit, driving in parent's cars or teens driving themselves. Our commitment to safety and children's health is not only focused on preventing accidents but also protecting the overall health of the kids on the bus or waiting for the bus at the bus stop or at school.

That is why we have been an early, strong and consistent supporter of the DERA program and even before that, the Clean School Bus program. Over the last decade, NSTA, through our DC representatives, has helped lead an informal coalition of not just school bus interests but also representatives of other sectors to include, truck, rail, construction and water transport as well as public health and environmental advocates who support the reauthorization of and continued funding for the DERA program.

Reports done by EPA demonstrate the effectiveness of the DERA program. Every Federal dollar is typically matched by $3 in non-federal funds. Further, every dollar invested returns between $5 and over $20 in health and other benefits. The program helps promote a host of new technologies, which are typically and almost entirely domestically developed and domestically built.

Funding can be used for projects to purchase newer, cleaner vehicles or equipment, repower older equipment or retrofit equipment with the latest after-treatment technologies. The program is technology agnostic, meaning that all types of clean vehicles and equipment are eligible including diesel, propane or natural gas, electric or hybrid and it supports vehicles and equipment in all sectors from tug boats to transit buses, locomotives to school buses. 70 percent of all funds go to EPA with 30 percent going directly to support state programs. EPA administers grants through the regions on a purely competitive basis with the goal of funding the projects that produce the highest benefits. Only technology that has been certified as effective is eligible, but the program also helps in the development of newer technologies by creating an incentive for manufacturers to obtain the required certification of effectiveness.

We are proud of the progress that has been made and especially that the school bus sector has probably been the single largest sector to benefit from the program since the program was established. Communities around the country benefit by having new or retrofitted buses to take children to and from school. We have worked with EPA to help pioneer access to grant funds to both public and private entities using the authority in the Act to fund projects through non-profit entities working to improve air quality and transportation safety. However, because the grants can be a challenge for a small rural school district and their transportation contractors, we pushed for language in the last reauthorization bill to help streamline the process through the use of rebates as a way to get the funds to where they are needed quickly and efficiently.

The EPA's School Bus Rebate program allows local school districts and companies under contract to those districts equal access to funding for taking older buses off the road and replacing them with new buses that often can emit 95% less pollution than the ones being removed. I am delighted that Krapf School Bus received one of these rebates in 2017 which we used to purchase the bus I was happy to bring to DC to highlight the benefits of the program with then-Acting EPA Administrator Andrew Wheeler on October 1 of last year as part of the agency's commitment to protecting children's health.

We have developed a wonderful working relationship with the EPA at every level from the current and past Administrators to the career staff at headquarters and around the country. We share in their commitment to the DERA program and the larger goal of clean air and protecting children's health.

One issues we continue to work on is ensuring the broadest possible access to the funding for companies providing transportation services to local school districts. The 2010 Amendments to DERA modified eligibility to allow private entities under contract to eligible governmental entities to have equal access to funding, but EPA has only allowed that in the case of the rebate program, not in the grant program. We have worked with EPA to allow private companies to apply through our nonprofit trade association, but limitations on the number of applications allowed for any one entity, even for an entity that is applying on behalf of a national membership, has again limited our access to grant funds. These are issues we will continue to work with the agency to address.

Some have questioned why a program that was originally authorized in 2005 is still needed. The answer is simple – it still works and produces benefits well in excess of cost. Diesel vehicles are the work horses of our economy and they last a long time. In our school bus fleet in Pennsylvania, we work hard to get newer vehicles into service, but we also helped take over a county system in Virginia, where the buses were considerably

older. Some states operate systems where the average age of a bus may be more than 15 years old. That means, there are as many buses older than 15 years as there are newer than that. DERA helps communities get those older buses off the road, cleaning the air in the process and also improving transportation safety.

We believe the program is still extremely valuable and needed, and we strongly support its reauthorization as provided for in the legislation to be introduced week by Senators Carper, Inhofe, Barrasso, and the other Members of this committee.

Thank you for the opportunity to be here today and to speak in support of the bill before the committee and I will be happy to answer any questions you may have.

Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing to Examine the Diesel Emissions Reduction Act of 2019"*
March 13, 2019
Questions for the Record for Mr. Krapf

Chairman Barrasso:

1. What has been your experience working with the U.S. Environmental Protection Agency (EPA) on the Diesel Emissions Reduction Act (DERA) program?

   As I indicated in my statement, the agency has been very good to work with. They have been open to our suggestions along the way and supportive in helping us to apply for funds. And let me add that, this has been the case in both Democrat and Republican Administrations. This is especially the case with the school bus rebate program. However, I would be less than candid if I did not say that the grant program is much more difficult to navigate for those unfamiliar with Federal grants. Small private companies who can't apply directly, must work with either a governmental entity or an eligible nonprofit entity such as our trade association. Many small companies need as much help as possible to submit a qualified application. I would encourage the agency to focus more attention to trying to streamline the application process and to help applicants, particularly smaller private companies, to submit a good application.

2. While the DERA program has generally been a success, there is always room for improvement. Is there a way that EPA could streamline and improve its administration of the program?

   I think the law gives the agency a great deal of flexibility and we need to constantly work with the agency to refine how the program is administered to try and streamline the application process. One area I recommend they look at is the access to funding by private entities that provide contract services to public institutions like our schools. The amendments to DERA enacted by Congress in 2010 specifically allow the agency to treat private school bus contractors, who are under contract with a local school district, to be treated the same as a public or nonprofit entity and eligible for DERA funding. EPA has implemented that in the administration of the school bus rebate program but not in the grant program. I would like to have them extend that authority to the grants. The grant program is already complicated and having to make private companies find a governmental or nonprofit entity to work with in applying for funding unnecessarily complicates the program further. Another point I would make is that the current grant program limits an applicant to no more than three regions. Where the applicant is a trade association applying on behalf of companies around the country who are not able to apply directly themselves, I would like to see more flexibility to apply in more regions on behalf of more qualified applicants.

3. Do you agree that DERA is an important policy tool to address climate change, and if reauthorized, will it continue to reduce emissions over the next five years?

If the science tells us that there is something we can do to prevent carbon emission and the buildup of greenhouse gases, we should do it as long as we can do so without wrecking the economy. I strongly believe the DERA program helps reduce emissions generally and is also an effective tool in cutting "black carbon" one of the most potent greenhouse gases, many times more potent than as regular carbon dioxide. One study estimates that the energy absorption of black carbon is one million times that of carbon dioxide.[1] I would also point out that school buses generally help provide a response to climate change because each school bus trip replaces about 36 cars. With 480,000 school buses on the road, the aggregate savings in terms of fuel is estimated to be 2.8 billion gallons per year and emitting 20 million tons less CO2.

4. Can you outline your experience with any other federal grant or rebate programs and how DERA compares?

   School bus companies have also pursued funding for clean diesel projects under the Department of Energy's Clean Cities program and the Department of Transportation's Congestion Mitigation and Air Quality (CMAQ) program but have found the DERA program to be far more responsive and effective at addressing issues of air quality. My understanding is that the Clean Cities program funding has been limited in recent years and focused more on community development, research and deployment of alternative fueled vehicles rather than deployment of the most cost-effective emission reduction technologies. CMAQ is well funded but the funds are distributed through the local transportation agencies and most of the funding goes to local construction projects to ease congestion, rather than diesel retrofits even though the latter has been shown to be far more effective in addressing air quality concerns.

5. Use of the same type of vehicles, engines, and equipment can vary across the country. For example, in communities with a smaller tax base and smaller population, equipment might be used for a longer period of time before replacement. If EPA uses a general "useful life" metric to evaluate DERA applications and health benefits of applications instead of project-specific information, EPA may underestimate the emissions reduction benefits. Have you noticed a difference in how long school buses typically remain in use across the country? Do you believe that EPA should consider differences in how vehicles, engines, equipment, and fleets are typically used in different communities when evaluating an application and associated emissions reduction benefits of a proposed DERA project?

   Absolutely. I have seen this first hand in some of my company's operations. In our Pennsylvania operations we work hard to turn over our fleets on a relatively fast retirement schedule. However, we have also worked with a county school district in Virginia where the buses that were turned over to us were quite old and not in the best condition. EPA needs to factor in local needs and conditions in evaluating grant

[1] "The Damaging Effects of Black Carbon" by Renee Cho, Earth Institute, Columbia University, March 22, 2016.

applications to ensure that the program provides the greatest benefit to the communities served.

Ranking Member Carper:

Please provide a response to each question, ***including each sub-part.***

6. Tens of thousands of diesel engines used to take our kids to school, carry our freight, and move goods in and out of our ports are now cleaner and more efficient because of Diesel Emissions Reduction Act (DERA). It's rare to have an entire panel of witnesses – across industry sectors - support one program, but that is the case with DERA. However, there are still some people that question the program – they believe it is no longer necessary.

    a. Please further explain in detail why the DERA program is needed.

    An analysis done by the Diesel Technology Forum in 2018 estimates that 64 percent of all commercial vehicles (class 3 through 8) on the road today are older than 2010. School buses are slightly newer but 60% are 2010 and older. This is because diesel vehicles are so long-lived. It also means that there is still a huge need for the DERA program which helps to accelerate the retirement or retrofit of these older vehicles. The reports done by EPA of the effectiveness of the DERA program bear this out. While there has been a slight decline in the cost effectiveness, the benefits still greatly outweigh the costs of the program meaning that we are still getting between $5 to over $20 in benefits for every Federal dollar spent.

    b. Do you believe the program is underfunded to meet the current need for retrofits and replacements? If so, please explain.

    I think the program could effectively spend multiples of what EPA is now spending because of the numbers of older vehicles on the road. With almost two thirds of all medium and heavy-duty vehicles in the class of vehicles that could benefit from DERA funding, there is still much to do. I know that the grant program continues to be oversubscribed as is the annual school bus rebate program

    c. Is it important to reauthorize the DERA program? If yes, please explain.

    Yes. Congress needs to reauthorize the program because as described above, the program continues to do a lot of good and is still needed. Every dollar spent continues to provide many times as much in health benefits to the Nation as a whole. While turnover will eventually make it possible to end the program, we are not there yet and have much more good work that DERA can help us do.

7. In EPA's last report to Congress, the agency estimated that the DERA program has saved over 450 million gallons of fuel since its inception. As the program funds cleaner vehicles, I expect that number to only grow. Based on your experiences, how does the

DERA program help you and your customers reduce fuel usage and save on energy costs in the long run?

Newer vehicles are not only cleaner than older vehicles, but they are often safer and more fuel-efficient. To the extent that the DERA gets these newer, safer and more fuel-efficient vehicles on the road more quickly, society and the operator benefit in terms of fuel and lives saved while we also help clean the air.

8. In EPA's last DERA report to Congress, EPA clarified that the DERA program is not duplicative of other federal clean diesel programs. EPA explained that DERA, "is the Federal program uniquely focused on protecting public health through lowering diesel exhaust exposure."[2] Do you agree with EPA that the DERA program is unique and its purpose is not duplicative of other federal programs? If so, please explain.

   I have had limited experience with other programs, but my understanding is that the other programs that have been mentioned as overlapping with the DERA program have a different focus and are not as effective as the DERA program is reducing emissions from diesel vehicles and equipment. For example, many point to the Congestion Mitigation and Air Quality program as a program that also help reduce emissions. While that is one of the purposes of the program, in our experience in the Philadelphia area, the funding is typically directed more at construction projects to ease congestion. We have tried to obtain funding for emission reduction projects but have not been successful in the past. I think our experience is similar to what others in our industry have experienced.

9. In crafting DERA, we ensured that all clean technology could qualify when considering the replacement of a dirty diesel engine. Over the years, the program has been used more frequently to replace, rather than retrofit, dirty diesel buses. DERA funding has gone toward projects that replace dirty diesel engines with electric and natural gas buses over the years and more of these projects are being funded in recent years. Based on your experiences with the program, does the DERA program work to fund replacement electric and natural gas buses? Please explain your answer.

   Our industry is increasingly looking at alternative fuel types and technologies and DERA has been a source of funding to encourage the adoption of these technologies. For example, EPA has advised us that from 2008 to 20016, DERA provided funding for 168 CNG/LNG school buses, 262 propane school buses and 5 electric school buses. This funding is helping to accelerate the deployment of these alternative fueled vehicles, which continue to be more expensive than diesel vehicles. My understanding is that EPA has offered a significantly higher Federal cost share for electric buses because of the significantly higher cost of these vehicles. Cost remain a concern for these technologies and many operators – both public and private – would not be able to justify the transition

[2] U.S. EPA, *Third Report to Congress: Highlights of the Diesel Emission Reduction Program,* (February 2016), https://www.epa.gov/cleandiesel/clean-diesel-reports-congress

to these technologies without the kind of financial help that DERA provides. Some have suggested that more funding needs to be directed to these alternative technology vehicles. However, we do not recommend such a change because the program, as it is administered today allows the EPA to spend the Federal dollars in the most cost-effective way possible - producing the greatest benefit at the lowest cost. We believe the program should be technology neutral while allowing EPA the flexibility to provide higher cost share if increased benefits are shown.

Senator BARRASSO. Thank you very much.

Senator WHITEHOUSE.

Senator WHITEHOUSE. Mr. Chairman, thank you. I just wanted to interject a word of welcome to Mr. Nagle and thank him for the American Association of Port Authorities' work on oceans issues and dealing with sea level rise and the ocean planning near our ports. It is so important. I think the AAPA has taken a real leadership role and has been a very constructive partner, and I just wanted to take the opportunity to express my appreciation as you made your comments and to welcome you to the Committee.

Mr. NAGLE. Thank you, Senator Whitehouse. Appreciate that and we certainly value that partnership.

Senator BARRASSO. Please proceed.

Senator CARPER. Mr. Nagle, why do people call you Nagle? I have heard you pronounce your name Nogle.

Mr. NAGLE. Well, I was born in Pennsylvania, in the Pennsylvania Dutch area, so we have stuck with the German pronunciation of Nogle. But most people say Nagle and I am fine with either one.

Senator CARPER. All right.

Senator WHITEHOUSE. So I don't owe you an apology? Because if I do, you have one.

Senator CARPER. Nagle or Nogle, we welcome you.

STATEMENT OF KURT J. NAGLE, PRESIDENT, AMERICAN ASSOCIATION OF PORT AUTHORITIES

Mr. NAGLE. Chairman Barrasso, Ranking Member Carper, Senator Cardin and Senator Whitehouse, the American Association of Port Authorities strongly supports reauthorization of EPA's Diesel Emissions Reduction Act program.

Over the last 10 years, this funding has been key to incentivizing and expanding port environmental programs to improve air quality impacted by port operations.

As you know, ports are vital gateways to the global marketplace for American farmers, manufacturers, and consumers, and serve as critical infrastructure for the U.S. military. Port cargo activity supports over 23 million American jobs, accounts for over a quarter of our national economy, and, importantly, generates over $320 billion a year in local, State, and Federal tax revenues.

As public agencies, AAPA member port authorities are committed to delivering prosperity through environmentally sustainable business practices. Ports are multi-modal facilities served by vessels, trucks, and rail and use cargo-handling equipment, many of which use diesel fuel. Reducing air emissions continues to be a high priority for ports, and partnerships like DERA provide great value.

AAPA was an early supporter of the creation of the DERA program and has advocated for robust funding over the years. Additionally, AAPA supported the adoption of the North American Emissions Control Area, which has significantly reduced air emissions from ocean-going ships. DERA helps address other contributors such as trucks, locomotives, cargo-handling equipment, and other marine vessels.

According to EPA, between 2008 and 2018, a total of 150 clean diesel grants have been awarded to port-specific projects totaling $148 million. An additional $64 million was awarded through DERA to multisector projects that involve ports. Here are just a few examples:

Just last month, EPA awarded a DERA grant of $400,000 to the Alabama State Port Authority to replace a 1982 locomotive with a Tier IV locomotive engine. When completed, the port will have converted half of its locomotive fleet from Tier 0 to Tier IV, yielding significant reductions in the port's emissions profile. Other ports have used DERA funds for cleaner locomotives as well.

DERA has been especially helpful in supporting ports' clean truck programs. This includes clean truck programs in New York-New Jersey, the Port of Baltimore, Mass Port, Houston, Seattle, and Georgia. These programs help truckers buy newer, clean drayage trucks that not only reduce emissions, but also are more fuel efficient.

The Port Authority of New York-New Jersey has a very successful clean truck program that has been expanded due to DERA grants. In February of this year, EPA announced it has awarded $2 million to the Port Authority of New York-New Jersey to replace up to 80 model year 2006 and older short-haul trucks that serve as Port Authority facilities with cleaner, newer model year trucks.

The Maryland Port Administration has utilized DERA grants to exchange 181 port drayage trucks, 110 pieces of cargo-handling equipment, 4 marine diesel engines, and 6 switcher locomotives. Between 2012 and 2016, due to the availability of funding programs like DERA, the Port of Baltimore was able to reduce emissions by 19 percent, while cargo throughput increased by 10 percent.

A number of ports have also used DERA grants for supporting repowering or replacing cargo-handling equipment. Mass Port, for example, received a grant to retrofit five rubber-tired-gantry cranes with new Tier IV engines, resulting in sizable emissions reductions.

The Georgia Ports Authority used two DERA grants to assist in the repowering of 20 rubber-tired-gantry cranes with variable frequency inverters. GPA was on the forefront of changing RTG technology with the variable inverters that provide power when needed, instead of having to run at full power constantly. This change resulted in immediately cutting fuel use by 33 percent and the associated emissions.

Other ports have used DERA grants for marine vessels, including Cleveland, Portland, New York-New Jersey, Puget Sound, Long Beach, and Connecticut. For example, the Port of Portland helped leverage a DERA grant to repower the Dredge Oregon that resulted in diesel particulates reduction of 80 percent and a reduction of greenhouse gases by 25 percent.

The Port of Virginia has also seen significant benefits from DERA grants related to dredge repowering, as well as a hybrid shuttle carrier project that is now underway.

In summary, DERA continues to be an incredibly successful program in helping reduce emissions in and around America's ports. We appreciate the Committee's leadership on reauthorization of

this important program and we strongly support its reauthorization.

Thank you.

[The prepared statement of Mr. Nagle follows:]

AAPA American Association of Port Authorities

Alliance of the Ports of Canada, the Caribbean, Latin America and the United States

Seaports Deliver Prosperity

Hearing Before the U.S. Senate Committee on Environment and Public Works

Examining the Diesel Emissions Reduction Act of 2019

March 13, 2019

Testimony of
Mr. Kurt Nagle, President and Chief Executive Officer
American Association of Port Authorities

406 Dirksen Senate Office Building

10:00 AM

Chairman Barrasso, Ranking Member Carper and Members of the Committee. I am here today to voice strong support for reauthorization of the Environmental Protection Agency's (EPA) Diesel Emissions Reduction Act (DERA) program. Over the last 10 years, this funding has been key to incentivizing and expanding port environmental programs to improve air quality impacted by port operations. DERA has always enjoyed strong bipartisan support for its voluntary nature in partnering with local communities to reduce certain diesel emissions.

As you are likely aware, ports are national transportation assets. Seaports are economic engines and vital freight gateways to the global marketplace for American farmers, manufacturers and consumers, and serve as critical infrastructure for the U.S. military. They also support the growing cruise industry. Ports support 23 million American jobs and handle $6 billion in goods per day, resulting in $4.6 trillion of economic activity. Overall, U.S. seaports support 25 percent of the U.S. economy. Additionally, the amount of freight moved in the U.S. is projected to grow 15 percent by 2045, and America's trade volume is expected to quadruple after 2030.

While trade yields tremendous economic benefits for the port community, as well as for local, state and federal governments, it can impact the air quality in and around port communities. Reducing air emissions continues to be a high priority for ports, especially in areas where a port plans to expand, is located in a National Ambient Air Quality Standards non-attainment area or is close to residential communities. Ports are often in urban areas where cities and towns emerged. They must share this crowded space with large populations that often live close to the port. Ports are multimodal facilities served by vessels, trucks and rail, and use cargo handling equipment – many of which use diesel fuel.

Seaports are working to identify solutions that enhance our coastal resources and reduce environmental impact, not just air emissions. The American Association of Port Authorities (AAPA) and its members are committed to delivering prosperity through environmentally sustainable seaports by improving the coastal environment, managing their environmental

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impact and engaging stakeholders and community members. AAPA's members are proactively working to enhance the air, water and land of the coastal environment. Through partnerships, such as DERA, seaports are working to reduce air emissions, as well as find solutions to the challenge of aquatic invasive species and protect and create wildlife habitats.

In the area of air emissions, AAPA was an early supporter of the creation of the DERA grants and has supported continued funding for this program over the years. Additionally, AAPA supported the adoption of the North American Emissions Control Area to require the use of low sulfur fuel by marine vessels. This has significantly reduced air emissions from ocean going ships, the largest air emission concern of most ports. DERA, on the other hand, is a voluntary program that helps address mostly other contributors, such as trucks and locomotives, as well as equipment such as cargo handling equipment including cranes.

According to EPA between 2008 and 2018, a total of 150 clean diesel grants have been awarded to port-specific projects, totaling $148 million. An additional $64 million was awarded through DERA to multi-sector projects that involve ports. Between 2013 and 2017, about 40 percent of total DERA funding was awarded for ports' projects. The FY 2018 grants have been, or will soon be, awarded to projects in and around seaports totaling approximately $19 million of the total $41 million available. An addition, $5 million is for locomotive projects, many of which carry port cargo.

In applying for grants, ports determine their biggest need. Just last month, the EPA awarded a DERA grant of $400,000 to the Alabama State Port Authority, to replace a 1982 locomotive with a Tier IV locomotive engine. EPA estimates that this change will result in a lifetime reduction of nearly 102.2 tons of nitrogen oxides and 3.4 tons of PM. This is the port's fourth such grant. When it is complete, the port will have converted half of its locomotive fleet from tier 0 to tier 4 yielding significant reductions in the port's emissions profile. Other ports such as Long Beach, Georgia, Maryland and Tacoma have used DERA funds for cleaner locomotives as well.

DERA has been especially helpful in supporting larger ports' clean truck programs. This includes clean truck programs at the Port of Baltimore, Massport, New York and New Jersey, Houston, Seattle, and Georgia. These programs help truckers who service the ports buy new cleaner "drayage" trucks that not only reduce emissions but are more fuel efficient. These trucks do not have the resources to replace their trucks as many are independent operators and these trucks are very long lasting.

The end of this testimony includes more details on health benefits of some of these grants at individual ports. Let me detail some of them here, especially for ports who have Members on this Committee.

The Maryland Port Administration has been awarded seven competitive DERA grants for the Port of Baltimore totaling over $7 million, and another $900,000 through a DERA state award. They have used their grants to exchange 181 port drayage trucks, 110 pieces of cargo handling equipment, four marine diesel engines and six switcher locomotives. Between 2012 and 2016, due to the availability of funding programs like DERA, the Port of Baltimore was able to reduce emissions by 19 percent while cargo throughput increased by 10 percent. Their trucking replacement program, for example, has resulted in a reduction of

2,056 tons of nitrous oxides; 84 ton in PM 2.5 particulate matter; 78 tons is hydro carbons and 524 tons in carbon monoxide.

The Port Authority of New York and New Jersey also has a very successful clean truck program that has been expanded due to DERA grants. In February of this year, EPA announced that it has awarded $2 million to the Port Authority of New York and New Jersey to replace up to 80 model year 2006 and older short-haul trucks that service Port Authority facilities with cleaner, newer model year trucks by offering truckers up to 50 percent of the cost to scrap and replace each vehicle up to $25,000. According to EPA, this Diesel Emissions Reduction Act grant will foster the replacement of older trucks with 2013 and newer trucks, and will reduce emissions of diesel particulate matter and other pollutants such as nitrogen oxides. EPA expects this grant to result in emission reductions of 49.5 tons of nitrogen oxides, 16.5 tons of carbon monoxide and 2.15 tons of fine particulates per year.

Ports have also used DERA grants for supporting repowering or replacing cargo handling equipment. Massport for example received a grant in 2015 of $634,000 to retrofit five rubber-tired-gantry cranes with new Tier 4 engines resulting in a reduction in short tons of NO_x 101; carbon monoxide of 74; carbon dioxide of 1,055 and particulates of 11.

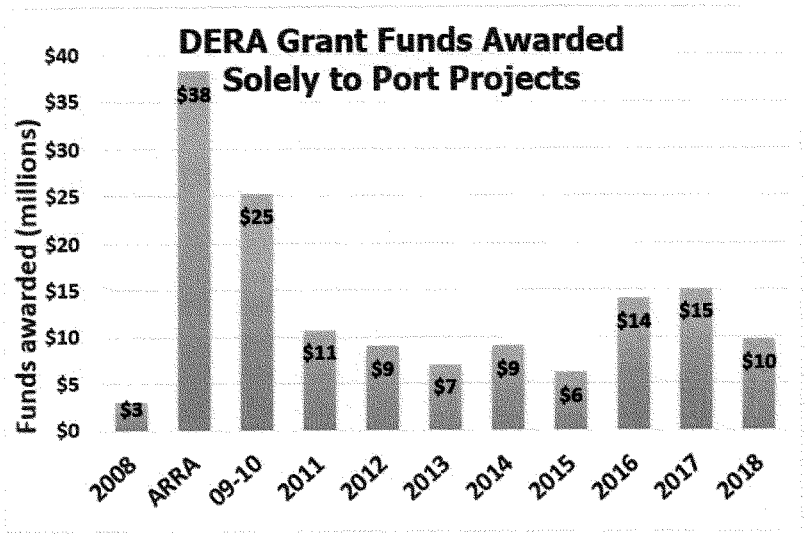
The Ports of Virginia, Georgia, Oakland, Long Beach, Houston and Los Angeles have also used their grants to retrofit or replace cargo handling equipment. The Georgia Ports Authority (GPA) reports that of the seven DERA grants it received, two provided funds to assist in the repowering of 20 rubber-tired gantry cranes with variable frequency inverters. GPA was on the forefront of changing the RTG technology with the variable inverters that provided power when needed, as needed, instead of running at full power. This change resulted in immediately cutting fuel use by 33 percent and the associated emissions. Total lifetime emissions reductions are estimated at 36,400 tons.

The Port of Virginia also reports on significant benefits from DERA grants related to dredge repowering, a hybrid shuttle carrier demonstration project and the more recent hybrid shuttle carrier project that is just underway. As the most recent award supports nine shuttle trucks, the health benefits are triple from its 2014 award. Other port areas that used DERA grants for marine vessels include Cleveland, Portland, New Jersey, Puget Sound, Long Beach and Connecticut.

For example, the Port of Portland, helped leverage a DERA grant in 2011 obtained by the Oregon Department of Environmental Quality to repower the Dredge Oregon that resulted in diesel particulates reduction of 80 percent and a reduction of greenhouse gases by 25 percent. The Dredge Oregon was the port's largest diesel particulate emitter.

The EPA Ports Initiative has an excellent webpage that shows more details for all the port-related grants. According to that website, the vast majority of port grants in the last few years have been awarded through the national program, rather than the state DERA allocations. For example, in FY 2017, 14 port awards came from the national program and only two came from the state DERA allocation. Below is a link to the Ports Initiative webpage on DERA awards. The chart below is from the EPA website.

https://www.epa.gov/ports-initiative/overview-clean-diesel-grants-awarded-ports-projects



Source: EPA

Finally, let me note that as a key committee responsible for infrastructure that impacts ports, I want to encourage you to ensure any infrastructure legislation that is enacted helps build America's 21st century seaport infrastructure. We have an opportunity as a nation to do that. The FAST Act must be more flexible for port and intermodal projects. We also are hopeful that you will fast track consideration of the AAPA proposal to reform HMT spending to fix the system. We would like this to occur before the next WRDA and stand ready to continue the process of seriously considering this proposal within your Committee.

The following attachments provide individual ports' summaries of their DERA grants and the health impacts from the program.

News Releases from Region 04
EPA Awards Funding to Reduce Diesel Emissions
at the State Port Authority in Mobile, Ala.

Clean Diesel Grant to Reduce 102.2 Tons of Nitrogen Oxides and 3.4 Tons of PM2.5
02/21/2019
Contact Information:
James Pinkney (region4press@epa.gov)
(404) 562-9183 (Direct), (404) 562-8400 (Main),

ATLANTA (February 21, 2019) – The U.S. Environmental Protection Agency (EPA) is awarding a Diesel Emissions Reduction Act (DERA) Clean Diesel Funding Assistance Program grant totaling $400,000 to the Alabama State Port Authority in Mobile, Ala. to support efforts to reduce diesel emissions and exposure by replacing one 1982 locomotive with a Tier IV locomotive engine.

"Diesel engines are incredibly durable, with millions in operation in Alabama, and across the nation," **said EPA Acting Region 4 Administrator Mary S. Walker.** "These grants provide not only environmental and health benefits by eliminating exposure to diesel exhaust, but cost-effectiveness as well.

Reducing emissions from diesel engines is one of the most important air quality challenges facing the country. Even with EPA's stringent heavy-duty highway, nonroad, marine and locomotive standards set to take effect over the next decade, millions of diesel engines already in use will continue to emit large amounts of nitrogen oxides, particulate matter and air toxics, which contribute to serious public health problems. This investment will have a lifetime reduction of nearly 102.2 tons of Nitrogen Oxides and 3.4 tons of $PM_{2.5}$.

These emissions are linked to thousands of premature deaths, hundreds of thousands of asthma attacks, millions of lost work days, and numerous other health impacts every year. This grant will eliminate or reduce diesel emissions through the implementation of cleaner engines, vehicles, and technologies.
For more information about EPA's National Clean Diesel campaign and DERA program, visit www.epa.gov/cleandiesel.

Georgia Ports Authority (GPA)
EPA DERA Grants

GPA has received seven grants over a period of nine years. Four of these grants were to assist in the replacement of owner / operator, older dray trucks of 1993 - 2007 truck vintage with 2011 or newer, similar Class 8 trucks. This group of dray truck owners are some of the most economically challenged truckers in the industry with the vast majority having substandard credit and little chance of purchasing the 2010 / 2011 or newer trucks. These cost share programs to date have replaced 84 trucks with the potential of 165 trucks at program completion. In addition to these newer trucks being more fuel efficient which decrease emissions, the trucks being replaced are reducing pollution components as calculated by the EPA's DEQ (Diesel Emissions Quantifier). The emission components reduced by the newer trucks as measured by the DEQ calculations are NO_x which is reduced by up to 90.7%, PM2.5 by up to 94.5%, HC by up to 92.6%, CO by up to 93.6%, and CO2 by up to 10.4%.

Another two grants provided funds to assist in the repowering of 20 RTGs (rubber-tired gantry cranes) with variable frequency inverters. GPA was on the forefront of changing the RTG technology with the variable inverters that provided power when needed as needed instead of running at full power whether lifting a load or waiting for another load. The RPMs went from a constant 2100 RPMs to variable levels of 800- 2100 immediately cutting full use by 33% and the associated emissions. Emissions were further reduced through the Tier 4 engines. Total lifetime emission reductions by the DEQ calculations are 36,500 tons.

The last grant was used to install AESS (automatic equipment start stop) units on 11 locomotives. The annual fuel savings was calculated to be 52,200 gallons of diesel per year or 688,000 over the DEQ calculated remaining life. The calculated annual emissions reductions were expected to be 236.75 tons or a total DEQ lifetime of almost 3,100 tons. Both the fuel and emissions lifetime reductions are probably conservative as these engines continue to operate for very long periods.

APM Terminals Replaces 16 Yard Tractors with the Cleanest Equipment on the Market

Port of Los Angeles Terminal Operator Donates Retired Cargo Handling Equipment to LA Unified Occupational Training Programs

SAN PEDRO, Calif. – August 9, 2018 – With the help of a federal grant secured by the Port of Los Angeles, APM Terminals (APMT) Pier 400 has replaced 16 yards tractors with the cleanest cargo handling equipment available. The container terminal operator also donated 12 of the outgoing yard tractors to auto mechanic training programs in the Los Angeles Unified School District (LAUSD).

"This is a great outcome on all fronts," said Steven Trombley, Managing Director, APM Terminals, Los Angeles. "We're running a cleaner terminal and doing our part to improve the air for those who live and work in the harbor area. At the same time, we're supporting workforce training by providing students the equipment they need to prepare for high-skilled, good-paying jobs in the goods movement industry right here in Southern California."

APMT invested more than $1.5 million in the project. Additionally, the U.S. Environmental Protection Agency contributed more than $500,000 in the form of a Diesel Emissions Reduction Act (DERA) grant. The program supports projects that reduce air pollution by using diesel emission reduction technologies.

As an alternative to destroying the replaced equipment, APMT sought and obtained EPA approval to donate the retired yard tractors to LAUSD diesel mechanic training programs. Normally, DERA grants require outgoing equipment to be permanently disabled.

"This project is a model of sustainability," said Port of Los Angeles Executive Director Gene Seroka. "We applaud APMT for its foresight, creativity and willingness to invest in green growth and education."

APMT's new yard tractors are built with the cleanest available technology compliant with Tier 4 final diesel engine standards established in 2014. LAUSD accepted as many of the retired yard tractors as it could transport, all of which have Tier 3 model engines compliant with 2006 emissions control standards.

The 12 tractors are now at three school sites throughout Los Angeles. Eight went to Harbor Occupational Center in San Pedro, two to Bell High School, and two to Van Nuys High School.

"We were very excited and honored to get this equipment from APM Terminals," said Principal Sonya Ramirez of Harbor Occupational Center, which specializes in adult education and career technical training. "Until now, our students have largely been working on older equipment. These tractors with Tier 3 engines allow our students to graduate and enter the workforce with the advantage of hands-on experience with the type of equipment they will actually see on the job."

As part of its ongoing clean air strategies, the Port routinely seeks out environmental grants and incentives to offset the cost of upgrading on-road trucks and off-road terminal

equipment, flags opportunities for its tenants and business partners, and assists them in applying for funding. The same DERA grant that helped APMT upgrade its tractors also provided $116,000 to TraPac, which operates a container terminal at Berths 136-147, to defray its cost of repowering two heavy-duty forklifts with Tier 4 engines.

Combined, the two projects are expected to eliminate 322 tons of nitrogen oxides (NO_x), 75 tons of particulate matter (PM), 14 tons of hydrocarbons (HC), and 237 tons of carbon monoxide (CO). NO_x and HC are components of smog, and PM and CO are toxic contaminants. The total reduction in harmful emissions represents a savings of more than $11.2 million annually in health care costs to the public in Los Angeles County. Deploying the cleanest available cargo handling equipment furthers the Port's larger goal under the Clean Air Action Plan of accelerating progress toward a zero emissions future while protecting and strengthening its competitive position in the global economy. Improving the quality of life in neighboring communities disproportionately affected by environmental pollution and assisting the region in attaining federal clean air standards are key objectives.

The Port of Los Angeles is America's premier port and has a strong commitment to developing innovatively strategic and sustainable operations that benefit Southern California's economy and quality of life. North America's leading seaport by container volume and cargo value, the Port of Los Angeles facilitated $284 billion in trade during 2017. San Pedro Bay port complex operations and commerce facilitate one in nine jobs in the five-county Southern California region.

Massport's Participation in EPA DERA Funding for the Clean Truck Program

- Two EPA DERA grants totaling $1,300,000 awarded
  - CY11 DERA grant $500,000 to replace 20 trucks
  - CY16 DERA grant $800,000 to replace 26 trucks
  - To date, 42 trucks have been replaced
    - ✓ Funding available in the current DERA grant for four more applications (pending)

- The 46 trucks replaced by EPA DERA funding provide the following annual emission reductions (short tons):
  - NO_x 46.80
  - Carbon Monoxide 15.60
  - Hydrocarbons 2.68
  - Particulates 2.61
    - ✓ Emissions for the four pending truck replacements based on fleet averages

- In 2015, Massport funding of $1,000,000 replaced 40 trucks using the EPA DERA 2011 Clean Truck Program guidelines

DERA Grant for Rubber-Tired-Gantry Cranes (RTG)

- Funding of $634,000 to retrofit TIER 3 engines with TIER 5 engines on five RTGS

News Releases from Region 02
EPA to Provide $2 Million in Grants to Port Authority Areas of New York and New Jersey to Reduce Air Pollution

Grant projected to replace up to 80 old trucks, eliminate 49.5 tons of nitrogen oxides and 16.5 tons of carbon monoxide
02/06/2019
Contact Information:
Elias Rodriguez (rodriguez.elias@epa.gov)
212-637-3664

(New York, N.Y.) Today, the U.S. Environmental Protection Agency (EPA) announced that it has allocated $2 million to the Port Authority of New York and New Jersey to replace up to 80 model year 2006 and older short-haul trucks that service Port Authority facilities with cleaner, newer model year trucks by offering truckers up to 50 percent of the cost to scrap and replace each vehicle up to $25,000.

"The Truck Replacement program is another example of how we are successfully partnering with the private sector by helping support businesses even as we clean up the environment," **said EPA Regional Administrator Pete Lopez.** "Pollution from diesel engines is linked to asthma, respiratory problems, heart attacks and is especially dangerous to children and the elderly. Reducing air pollution from diesel engines has enormous health benefits that translates directly into fewer hospitalizations and less missed days of work and school. Replacing old dirty trucks with newer ones makes a significant difference in areas around Port Authority facilities."

This Diesel Emissions Reduction Act grant will foster the replacement of older trucks with 2013 and newer trucks and will reduce emissions of diesel particulate matter and other pollutants such as nitrogen oxides. EPA expects this grant to result in emission reductions of 49.5 tons of nitrogen oxides, 16.5 tons of carbon monoxide and 2.15 tons of fine particulates per year. These are short-haul trucks, commonly called drayage trucks, which frequently call at the Port Authority's Marine Terminals.

Background
EPA provides grants under the Diesel Emissions Reduction Act to protect human health and improve air quality by reducing emissions from diesel engines. The particles in diesel exhaust can penetrate deep into the lungs and pose serious health risks, including increasing the risk of cancer and aggravating the symptoms of asthma and other respiratory problems. In addition, diesel exhaust contributes to already unhealthy levels of smog, which are formed when chemicals released by vehicles, power plants, and industrial boilers react in sunlight.

The Truck Replacement Program is one of many control measures created under the comprehensive Clean Air Strategy for the Port of New York and New Jersey developed by the Port Authority in partnership with EPA; the New York Shipping Association; North Jersey Transportation Planning Authority; New York Metropolitan Transportation Council; New Jersey Department of Environmental Protection; New York State Department of Environmental Conservation; NYC Office of the Mayor; and Cities of Newark, Elizabeth, Jersey City and Bayonne.

For information about the EPA's clean diesel program,
visit: https://www.epa.gov/cleandiesel
To apply for the truck replacement program at the Port Authority of New York and New Jersey, please visit: https://www.panynj.gov/truckers-resources/truck-replacement.html
Follow EPA Region 2 on Twitter at http://twitter.com/eparegion2 and visit our Facebook page, http://facebook.com/eparegion2

The Port of New York and New Jersey
Diesel Emission Reduction Act (DERA) Grant Benefits Summary

Under the Clean Diesel Funding Assistance Program FY 2018, The Port Authority of New York and New Jersey (Port Authority) received a $2 million DERA grant. This Program will help achieve the Port Authority's, state's and federal government's goals to reduce emissions and improve air quality. With the new grant money, the agency anticipates it will replace approximately 80 privately owned and operated EMY 1996 – 2006 drayage trucks with trucks meeting engine model year (EMY) 2013 or newer EPA compliant engines. The result would be a reduction in emission of criteria pollutants – contributing to the improved health and quality of life within the New York/Northern New Jersey/Long Island Non-Attainment Area. An additional benefit would be improved safety for the truckers who call on the Port of New York and New Jersey daily.

Replacing older model trucks with newer ones is a critical component of the agency's port-related strategic plan and one that will provide significant environmental benefits, not only on port property, but in the communities that surround it.

Due to current requirements, the DERA funding program is the preferred option for port-related vehicle replacement programs as there are no Buy America provisions in the grant. In contrast, with the Federal Highway Administration's Congestion Mitigation and Air Quality (CMAQ) grant, port authorities must seek a waiver from the Buy America provision because no US vehicle manufacturer can certify to a domestic sourcing and manufacturing process for all steel or iron components in the vehicle. There are also limited US original equipment manufacturers for Class 8 vehicles to choose from. The Port Authority currently has $13.7M in CMAQ funds on hold pending Buy America waivers; one of which has been in process for over 18 months.

A considerable portion of emissions related to port activity occur off-port property and generate from equipment and sources owned by private stakeholders. In many cases, port authorities do not have the authority to impose holistic policy changes or force private entities to purchase newer, cleaner and more environmentally-friendly equipment. Federal and State support of environmental programs and a renewed focus on systemic policy changes are essential to support positive local, regional and national impacts to communities and the environment.

Future Program Considerations

- Eligibility
  - At this juncture, the eligible vehicle projects encompass Class 5 - Class 8 on-road (including buses), marine, locomotive, and non-road such as CHE, which is more than sufficient to cover Port-related equipment. However, the grant does not allow heavy-duty trucks with engine model year 1995 or older to participate. While this make sense due long-haul trucks, the rule significantly underestimates port drayage vehicles' longevity. The Port Authority of NY & NJ recommends EPA grant an exemption for these older vehicles.
- Availability
  - The Port Authority of NY & NJ recommends the EPA consider incentivize and encourage regions that are exceptional performers. Ways to achieve this could be to expand availability of funds or consider past performance.

- Process
  - The Port Authority of NY & NJ recommends a longer grant submission period, which could help port authorities collaborate with its tenants, community stakeholders and third-party partners.

Port Houston
DERA

Port Houston has used grant funds from the Environmental Protection Agency's Diesel Emissions Reduction Act (DERA) Clean Diesel Funding Assistance Program since 2009 to help us and our port users/stakeholders to reduce NO_x and PM2.5 emissions in the Houston area. The DERA funds are extremely important to Port Houston since we are located in the Houston-Galveston-Brazoria ozone nonattainment area and in an area that has experienced high PM2.5 emissions in the past. Port Houston has used DERA funds to replace, repower, or retrofit our own equipment and vehicles. More importantly, however, is that Port Houston made the decision, as part of our environmental stewardship initiatives, to help our port users/stakeholders get access to these funds since they are private entities. Under the DERA rules private entities are not eligible to directly apply for DERA grant funds but a governmental entity like Port Houston can apply on their behalf.

Port Houston has used $5,947,208.66 in DERA grant funds for 154 different projects that included both our projects and our port users/stakeholder's projects. This has resulted in a total of 160.7 annual tons of NO_x and 8.8 annual tons of PM2.5 being reduced. This was attributed to the following projects:

- Replacement of 13 forklifts, 3 terminal tractors and 1wheel loader that reduced 34.5 annual tons of NO_x and 1.5 annual tons of PM2.5 starting in 2009
- Repower of 8 forklifts, repower of 3 marine engines, and the replacement of 21 terminal tractors that reduced 33.1 annual tons of NO_x and 2.3 annual tons of PM2.5 starting in 2010
- Repower of 9 forklifts and the replacement of 16 terminal tractors and 15 forklifts that reduced 48.4 annual tons of NO_x and 2.7 annual tons of PM2.5 starting in 2011
- Replacement of 13 terminal tractors and 4 onroad drayage trucks that reduced 18 annual tons of NO_x and 1 annual ton of PM2.5 starting in 2016
- Replacement of 11 terminal tractors and 4 onroad drayage trucks that reduced 18.8 annual tons of NO_x and 0.9 annual tons of PM2.5 starting in 2017
- Replacement of 7 onroad drayage trucks that reduced 7.9 annual tons of NO_x and 0.4 annual tons of PM2.5 starting in 2018

Furthermore, there were additional 21 tons of NO_x and 30.5 tons of PM2.5 emissions that were achieved but were for only a limited time. This included:

- 21 tons of NO_x and 29.4 tons of PM that were reduced from fuel switching to cleaner fuel on 163 ship visits to Port Houston in 2010 and 2011 before the North America Emission Control Area was in force
- 1.1 tons of PM2.5 were reduced from the retrofit of 26 terminal tractors in 2010. However, the retrofits were removed a couple of years later due to equipment malfunction and the bankruptcy of the retrofit manufacturer.

Maryland Department of Transportation Maryland Port Administration (MDOT MPA)
Diesel Emission Reduction Act (DERA) Grant Benefits Summary

Introduction

The movement of cargo through US ports relies heavily on the use diesel-powered engines. The emissions from this equipment adversely impacts air quality, especially in communities near marine terminals. Ports have long been identified as a geographical source of diesel emissions. To reduce the impacts to Port neighbors, workers and the environment, diesel equipment is being retrofitted, repowered, or replaced with the cleaner version. Identifying funding for diesel emission reduction is a priority for the Port of Baltimore.

The Port of Baltimore has benefited from EPA's Diesel Emission Reduction Act (DERA) funding since the program's inception in 2008. The Maryland Department of Transportation Maryland Port Administration (MDOT MPA) has successfully solicited grants under EPA's clean diesel funding assistance programs to help upgrade cargo handling equipment (CHE), Port drayage (dray) trucks and harbor craft that operate in the Port at both public and private marine terminals. In addition, MDOT MPA has received one-time funding from EPA under the ARRA program. MDOT MPA was also an early participant in EPA's Clean Ports Initiative work groups.

To date, MDOT MPA has been awarded 7 competitive federal DERA grants totaling over $7 million. In addition, based on the Port's partnership with the Maryland Department of the Environment (MDE), MDOT MPA has also received an additional $900,000 of funding for diesel drayage truck replacement through non-competitive DERA award funds provided by EPA to the State.

MDOT MPA DERA Activities

Since 2008, MDOT MPA has coordinated the upgrade or retrofitting of 110 pieces of CHE, 181 Port drayage trucks, 4 marine diesel engines, and 6 switcher locomotives. The following table is a summary of air quality projects undertaken by the Port of Baltimore using EPA funds made available through DERA and ARRA.

Grant Year	Granting Agency	Grant Amount	# pieces of equipment upgraded or retrofitted	Completed Projects
2008	EPA DERA	$ 361,000	16 pieces of CHEs	Engine retrofits
2009	EPA ARRA	$ 3,500,000	23 dray trucks, 3 harbor craft, 42 CHEs	Engine retrofits and replacement
2009/2010	EPA DERA	$ 1,376,000	64 Dray truck	Replacement
2012	EPA DERA	$ 215,000	10 Dray trucks	Replacement
2012	MDE (DERA State)	$ 215,000	10 Dray trucks	Replacement
2013	EPA DERA	$ 750,000	23 Dray trucks	Replacement
2013	MDE (DERA State)	$ 88,946	3 Dray trucks	Replacement
2015	EPA (DERA)	$ 870,000	28 Dray trucks	Replacement

2016	EPA (DERA)	$ 978,302	26 pieces CHEs; 6 switcher locomotives	Engine retrofits, replacement, and technology
2016	MDE (DERA State)	$ 136,886	8 Dray trucks	Replacement
2017	MDE (DERA State)	$ 217,788	5 Dray trucks	Replacement
2018	MDE (DERA State)	$ 245,359	7 Dray trucks	In Process
2018	EPA DERA	$ 2,453,952	CHEs, Marine and Dray trucks	In process

CHEs consist of a mix of nonroad equipment, such as fork lifts, yard tractors, rubber tire gantry cranes, reach stackers, and empty handlers. This equipment is critical to the day-to-day cargo handling operations in the Port. Engine retrofits have included utilizing diesel emissions reduction technologies on existing engines or upgrading the engines with newer engine models.

Dray trucks are short haul diesel trucks that move marine containers in and out of the port to the local and regional distribution centers. Many dray truck operations in the Port of Baltimore are owner/operator businesses that rely on the movement of Port cargo for their livelihood. The Port's highly successful Dray Truck Replacement Program provides rebates averaging $24,000 for truck owners to upgrade their vehicles to a newer engine. The newer engines produce lower emissions and increase fuel economy, which is a further economic benefit the owner.

Reducing the emissions from Port-related locomotive and marine engines is another priority for the Port of Baltimore. Using DERA funds, MDOT MPA has worked with its partners to install start/stop software and electrical hardware on Port switcher locomotives to minimize diesel emissions while idling.

MDOT MPA DERA Benefits

Approximately 2 million residents live in communities close to marine terminals in the Port of Baltimore who may be exposed to emissions from diesel engines. Many of these neighborhoods have high population densities and considered disadvantaged communities. All have benefitted from reduced emissions and improved air quality through the reduction of criteria pollutants that were supported through DERA funding.

Between 2012 and 2016, due to the availability of funding programs like DERA, the Port of Baltimore was able to reduce emissions by 19% while cargo throughput increased by 10%. Decreases in emissions and increases in efficiencies were realized due to CHE modernization, replacement of the older dray trucks, and operational changes.

The following table shows the life time emissions reductions in tons for equipment replaced to date and scheduled to be replaced as part of DERA and ARRA funding to the Port of Baltimore.

Equipment Type	NO_x tons (nitrous oxides)	PM 2.5 tons (particulate matter 2.5 um)	HC tons (hydro carbons)	CO tons (carbon monoxide)
Dray Trucks	2,056	84	78	524
CHE	1,248	80	63	399
Marine (projected)	35	1.74	1.3	3.6

MDOT MPA implements a robust stakeholder outreach program and engagement program. Over the years, MDOT MPA has received letters of support for the DERA grant applications from a growing number of local community groups, businesses, environmental advocacy organizations, and other non-governmental organizations.

The Port stakeholders recognize the importance of EPA funding to support improving air quality, especially in non-attainment areas for criteria air pollutants, such as the Baltimore Region. The DERA program is a crucial component of the Port's Strategic Plan, which includes the reduction of air emissions while continuing to grow cargo throughput. Programs like DERA help to ensure that the Port of Baltimore can continue to meet these objectives.

Virginia Port Authority
DERA Grants

On August 29, 2017, the U.S. Environmental Protection Agency (EPA) awarded the Virginia Department of Environmental Quality (DEQ) a state Diesel Emission Reductions Act (DERA) grant 96352901 in the amount of $255,042 for the 2017 Virginia Clean Diesel Project. This grant agreement will enable DEQ to administer the DERA project through a sub-agreement with the Mid-Atlantic Regional Air management Administration (MARAMA). The initiative will continue to provide financial incentives for participants in the Virginia Port Authority Green Operators (GO) Program to replace older model drayage trucks with 2011 or newer trucks and reduce emissions. A listing of drayage truck replacements accomplished to date can be found on this website.

According to VPA's integrated air emission model, repowering of these vessels is expected to achieve a 90% reduction in PM and VOC emission and a 37% reduction in NO_x emissions from current tug operations in the harbor. When normalized based on the number of containers carried by barge versus by truck between the Norfolk, Portsmouth, and Richmond, further reductions of 63% for VOC and a 34% for CO per ton mile movement of cargo are expected. The EPA Diesel Emission Quantifier estimates that 1420 tons of NO_x and 136 tons of CO emissions can be reduced over the 10-year life of the tug boats.

This task will be completed in two phases between April 2010 and March 2012. In the interim, the barge service will operate using Tier '2' tugboats repowered in 2007 by Norfolk Tug Company. The repowered engines are expected to be in service for ten years unless Norfolk Tug Company chooses to upgrade to meet future emissions standards. 12-15 shipbuilding jobs are expected to be created or preserved by this task. The cost of the NO_x reductions associated with this task is estimated at $18,000/ton.

The chart below is from the 2014 DERA application.

Emissions	NO_x short tons	PM2.5 short tons	HC short tons	CO short tons	CO2 short tons	Diesel gallons
Reductions/Year (per DEQ)	2.161125	0.1720875	0.2505	0.69319	340.594	30,684
Reductions/Lifetime (per DEQ)	22.69935	1.32645	2.257275	6.89471	1,498.62	135,011
Percent Reduced (%)	35.81%	26.29%	30.71%	33.90%	15.00%	15.00%
Cost Effectiveness ($/ton)	$56,549	$967,688	$568,659	$186,176	$857	$9.51

The Community Benefits below comes from the 'Outcomes' portion of one of the data charts.

Community benefits:
Economic health benefits = $371,250 per year
Improved quality of life for residents in the vicinity of VPA facilities from reduction of noise and emission pollution in neighborhoods, including potential increase of property values.



WEST COAST COLLABORATIVE
A public-private partnership to reduce diesel emissions

The goal of the West Coast Collaborative is to leverage federal funds to strategically reduce emissions from the most polluting diesel sources in impacted communities. The Collaborative seeks to improve air quality and public health by targeting the highest polluting engines with the most cost effective control strategies.

DERA 2018: Near-Zero Emissions Locomotive Replacement at the Port of Long Beach

The West Coast Collaborative (WCC) is pleased to announce the South Coast Air Quality Management District's (SCAQMD) receipt of a United States Environmental Protection Agency (US EPA) Diesel Emissions Reduction Act (DERA) grant to replace a diesel switcher locomotive operating at the Port of Long Beach. This project will be implemented using $719,500 in DERA grant funding combined with $2,158,500 in matching funds from SCAQMD.

What is the Project?

This project will replace one model year 2007 Tier 2 diesel switcher locomotive, operating at the Port of Long Beach, with a new Tier 4 diesel switcher locomotive, and transfer the replaced Tier 2 unit to displace a Tier 0 or older switcher locomotive within the Mojave Desert Air Quality Management District (MDAQMD).

Why is this project important?

Exposure to diesel exhaust has been associated with decreased lung function and can also exacerbate the symptoms of asthma, bronchitis and pneumonia. This project will reduce human exposure to diesel emissions as well as the negative health effects associated with exposure. The locomotives to be replaced under this project operate full-time within the South Coast air basin and the Mojave Desert air basin respectively, both of which face significant air quality challenges and remain in non-attainment for ozone and particulate matter. The South Coast is also designated by US EPA as an air toxics assessment area where much of the population is exposed to more than 2.0 $\mu g/m^3$ of diesel particulate matter emissions. People living in the census tracts surrounding the Port of Long Beach face an increased risk of cancer, asthma, birth defects, and decreased lung function.

What are the Environmental Benefits?

Over the remaining lifetime of the affected engines, these replacements are estimated to reduce emissions of oxides of nitrogen (NOx) by 50 tons, particulate matter (PM) by 1.5 tons, hydrocarbons (HC) by 3.7 tons and carbon dioxide (CO_2) by 675 tons. Additionally, the reduction of PM2.5 emissions will also reduce black carbon (BC), which influences climate by directly absorbing light, reducing the reflectivity ("albedo") of snow and ice through deposition, and interacting with clouds.

Who are the Partners on this project?

The project will be administered by the SCAQMD, a regional agency with jurisdiction over air quality in California's South Coast Air Basin. SCAQMD received the DERA grant award through the WCC, and will distribute the grant funds to project partner Metropolitan Stevedore Company (Metro Ports). SCAQMD will be responsible for data monitoring and reporting for the project, and for working with MDAQMD to transfer the Tier 2 locomotive and scrap the replaced Tier 0 locomotive.

What is the Collaborative?

The WCC is an ambitious partnership between leaders from federal, state, local, and tribal government, the private sector, and environmental groups committed to reducing diesel emissions along the West Coast. Partners come from all over Western North America, including: Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, Washington, the Pacific Islands, Canada and Mexico. The WCC is part of the US EPA National Clean Diesel Campaign (www.epa.gov/cleandiesel).

How can I find out more Information?

For more information on this project, please contact Francisco Dóñez at US EPA (donez.francisco@epa.gov or 213-244-1834). For more information on the WCC, please visit our website. www.westcoastcollaborative.org

Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing to Examine the Diesel Emissions Reduction Act of 2019"*
March 13, 2019
Questions for the Record for Mr. Nagle
American Association of Port Authorities

Chairman Barrasso:

1. While the Diesel Emissions Reduction Act (DERA) program has generally been a success, there is always room for improvement. Is there a way that the U.S. Environmental Protection Agency (EPA) could streamline and improve its administration of the program?

Answer:

While overall AAPA is very supportive of the program we have encouraged EPA to improve the announcement process including keeping track of DERA grants on their web site, both national grants and those that go to the states. While there is a website, the announcements are often announced at the regional level without a national announcement and take considerable time to be put on the website (which is overall excellent).

AAPA also sent these questions to our members and received the following individual recommendations:

- DERA funds for cargo-handling equipment and vessels should be allowed to use the same system as DERA grants used for clean truck programs at ports. This would allow ports to request proposals from cargo handling equipment owners and vessels after the grant is received rather than require the port to identify specific equipment owners to apply for funds. This would be especially helpful for landlord ports as well as addressing vessel emissions.
- DERA should consider a rolling submissions process rather than a 2-3 month window.
- Any way that the administrative burden can be reduced for grantees, such as reducing reporting requirements and decreasing the complexity of the application process would be desired. EPA should be encouraged to do a review of its paperwork requirements and see if there is a way to simplify it.
- Older trucks are still on the road as these older trucks and equipment do not qualify or rank lower due to the useful life of this equipment. EPA should be more flexible and give ports guidance on how to address the older risk. More below on this question.

Chairman Barrasso:

2. Use of the same type of vehicles, engines, and equipment can vary across the country. For example, in communities with a smaller tax base and smaller population, equipment might be used for a longer period of time before replacement. If EPA uses a general "useful life" metric to evaluate DERA applications and health benefits of applications instead of project-specific information, EPA may underestimate the emissions reduction benefits. Have you noticed a difference in how long diesel equipment typically remains in use across the country? Do you believe that EPA should consider differences in how vehicles, engines, equipment, and fleets are typically used in different communities when evaluating an application and associated emissions reduction benefits of a proposed DERA project?

Answer:
AAPA sent these questions to our members and received the following individual recommendations.

- Several commenters noted that EPA's estimates are low and they supported a re-evaluation of the useful life metrics. This is important because the formula to estimate health benefits results in older equipment staying in service because EPA believes that that equipment is old and will not last too much longer. In the port community, many though that EPA needs to be more flexible in addressing older trucks. However, one commenter noted that EPA has flexibility in its Diesel Emission Quantified by allowing the applicant to either use the EPA default useful life estimate or enter its own remaining life metrics. This alternative is not that well known, and it is unclear if older trucks would rank higher under this alternative.
- Many believe that there are differences in equipment age throughout the country and EPA should consider this.
- Since public health, including worker health, is a key goal of DERA, leaving out the dirtier equipment doesn't seem as protective of public health, including worker health.

Chairman Barrasso:

3. Ports are engines for our economy, and port authorities rely on a lot of different types of engines to drive that economic growth. How long can the diesel engines used in ports stay in service, and has DERA helped to speed up replacement times?

Answer:
Life of diesel port equipment varies. Locomotive engines can last 40 or more years. Typical marine engines have been thought to have a service life of approximately 30 years, however a recent report suggests commercial marine vessels such as towboats and assist tugs can last, on average, as long as 50 years. Using DERA for cargo-handling equipment, DERA definitely speeds up replacement times. To be eligible for DERA, the old piece of equipment still has to be heavily used, so DERA is speeding up the replacement of those heavily used older higher emission pieces of equipment.

DERA has definitely had an impact on ports replacing older diesel equipment to address health concerns from those pieces of equipment. How long a diesel engine can stay in service varies by facility and DERA gives a great financial incentive to replace rather than just fix an older piece of equipment. And when equipment is fixed it normally doesn't include any environmental enhancement. As these funds are leveraged by additional funds from the port authority, the benefits are leveraged with these additional funds.

Below are some individual port responses:

- The Port Authority of New York & New Jersey has spent $11.4 million on truck replacement and is ready to finance $3.7 million more. The DERA program helps bring even more benefits. DERA plays an important role in assisting with equipment replacements by defraying capital acquisition costs to be more competitive with maintenance of existing equipment.
- The Port of Baltimore has used much of its DERA grants to help address dray truck pollution. This particular fleet is often owned and operated by small businesses that, without help, cannot secure the financing needed to replace their existing fleet, which is usually 1-2 trucks. If 50% of the cost of the truck is not covered, the financing interest rates, due to bad credit, can be as high as 20% on a truck loan.

- The Port of New Orleans also uses DERA grants for truck replacement and locomotive replacement. Its Clean Trip program is also very successful for small, local business support – to date, more than 90%of the rebate incentives have gone to small, local minority owned businesses.
- See AAPA testimony for other examples.

Ranking Member Carper:
Please provide a response to each question, including each sub-part.

4. Tens of thousands of diesel engines used to take our kids to school, carry our freight, and move goods in and out of our ports are now cleaner and more efficient because of Diesel Emissions Reduction Act (DERA). It's rare to have an entire panel of witnesses – across industry sectors - support one program, but that is the case with DERA. However, there are still some people that question the program – they believe it is no longer necessary.

   a. Please further explain in detail why the DERA program is needed.

Answer:
Diesel engines are powerful and have long lives. These include a variety of equipment used in ports, including trucks, locomotives, vessels, and cargo handling equipment including cranes. DERA helps incentivize ports and others in the community to make diesel emissions a higher priority. DERA helps leverage these investments and encourages port authorities to make these programs a higher priority within their budgets due to the leveraging of funds. Often these funds go to private parties, such as truckers and terminal operators, who are focused more on the bottom line and costs of replacing older, dirtier equipment are a disincentive. DERA provides the necessary incentive to encourage people to replace equipment rather than just continue to maintain the older, more polluting equipment. This leveraging in turn generates a larger public benefit. Diesel pollution is a public health risk and in some port areas diesel particulate matter has been identified as the toxic air pollutant the contributes most to chronic health risk regionally. Ports also are seeing an increase in trade and cargo movement and it is important to help ensure that emissions will not increase accordingly. DERA can help. There also is a move to electrify more equipment but that often comes with a high price tag or is an unknown technology. Grants help to decrease the risk of changing to these cleaner technologies. As the Port of New Orleans notes, the port would not have a clean air program in place without DERA.

   b. Do you believe the program is underfunded to meet the current need for retrofits and replacements? If so, please explain.

Answer:
EPA could give more statistics on the number of grants that do not get funding due to the lack of funds. In the Port area, there are still a significant number of diesel engines that could be replace and provide health benefits to the community and the workers. Depending on the engine size and function, diesel engines at ports can often stay in service more than 30 years and while DERA has helped to speed up replacement times, it has only impacted a fraction of the fleet. For example, the North West Seaport Alliance reports that while emissions reductions is a priority, currently only 33% of cargo handline equipment meets the largest new engine emissions standards (Tier 4) or are equipped with diesel particulate filters, demonstrating the need for more funding to accelerate the adoption of cleaner technologies. An influx of funding can motivate a faster transition to cleaner options. Another example of this leveraging is the Port Authority of New York and New Jersey.

They currently have $3.75 million in DERA Funding. At a cost of $25 K per replacement, this only allows for 150 drayage trucks to be replaced while there is a total of 3,600 trucks in need of replacement. The Port of New Orleans reports that they were able to fund 40 truck replacements, but half the requests could not be funded. Other ports report similar needs

c. Is it important to reauthorize the DERA program? If yes, please explain.

Answer:
Reauthorization of the program shows the importance of continuing to fund this important program. There are still many needs in the port community. Diesel engines are long lasting and more can and should be done. Ports serve as national intermodal assets, moving our nation's international commerce. However, the health impact of these national assets affect the health of the local community as most port cities are in heavily urban areas. DERA helps address the impact of our international commerce on these port communities.

5. In EPA's last report to Congress, the agency estimated that the DERA program has saved over 450 million gallons of fuel since its inception. As the program funds cleaner vehicles, I expect that number to only grow. Based on your experiences, how does the DERA program help you and your customers reduce fuel usage and save on energy costs in the long run?

Answer:
New equipment certainly is more fuel efficient and meets newer standards on fossil fuel and greenhouse gas emissions. DERA can be especially helpful in funding the upfront costs of electrification projects, including shore power for vessels, as often these start-up costs are significant and might not be recovered for a significant amount of time.

6. The DERA program allows for retrofits and replacements of diesel engines. Please discuss how ports have used the DERA program to fully replace dirtier engines for cleaner technology. In your answer, please discuss the ability to change to hybrid and electric engines.

Answer:
As noted in my testimony, between 2008 and 2018, a total of 150 clean diesel grants have been awarded to port-specific projects, totaling $148 million. An additionally $5 million is for locomotive projects, many of which carry port cargo. Ports use these funds to lower emissions from a variety of equipment sources, with drayage trucks and cargo handling equipment receiving the majority of grants. It has also been used for vessels and locomotives. DERA could be used more to drive and test new technology. For example, electric and hybrid versions of cargo handling equipment and drayage trucks are in various stages of development and demonstration. Costs to purchase these are presently very high, not to mention the importance of building the expensive infrastructure to support this equipment.

AAPA sent these questions to our members and received the following individual answers.

- The Port of Virginia in addition to using DERA funds for cleaner diesel engines upgrades for the tug engine for the RMT barge, Green Operator truck retrofits and replacements and one of our first emissions studies, they have also been successful with two grants to introduced hybrid straddle carriers/shuttle trucks to our fleet.

- The North West Seaport Alliance, Port of Tacoma, and Port of Seattle have used DERA funding in the past 10 years for scrappage and replacement of drayage trucks and installation of ocean-gong vessel shore power. Shore power is a proven technology that fully electrifies auxiliary power delivery for a ship while at berth. Regulations in California have driven the Pacific merchant fleet to increase installation of shore power infrastructure onboard vessels, and they have seen the fraction of vessels capable of using shore power increase over time (about 50% of containerships as of 2018). They expect increasing shore power use to be feasible at their port facilities with proper funding as the start up costs are often very high.
- The Port of Baltimore reports that DERA port projects have replaced dirtier engines, especially those in the dray trucks used at the port. They must meet EPA's progressively stringent emissions standards. Recent DERA program requirements have dictated that replacement engines meet the most recent EPA heavy duty diesel engine standards for both the on-road and non-road segments. Retrofits when an available option are an excellent choice to improve emissions on a higher number of units reducing overall fleet emissions. The Port also reports that there are more options for moving to hybrid and all electric configurations and DERA has structured its funding to incentivize the migration to all electric. Fleets are purchasing hybrid and all electric technologies and as demonstrated effectiveness in the real-world continues, hybrid and all electric options will be put into service due to fuel savings and lower maintenance costs.
- See AAAPA testimony for additional examples from ports, including those from GA, Massport, Alabama, Los Angeles, New York and New Jersey, Port Houston, Port of Baltimore, Virginia Port Authority, and Long Beach.

7. In your mind, is the DERA program critical for ports across the country? If so, why?

Answer:
Absolutely, international trade continues to grow, and ports help support our economy. Cargo activity at ports accounts for over one quarter of the GDP, supports nearly 31 million American jobs and generates $378 million annually in local state and federal tax revenues. There are numerous users of diesel engines at ports as we are multimodal hubs. DERA allows port authorities to give incentives to a variety of parties to broadly address diesel emissions that are related to port operations.

8. In EPA's last DERA report to Congress, EPA clarified that the DERA program is not duplicative of other federal clean diesel programs. EPA explained that DERA, "is the Federal program uniquely focused on protecting public health through lowering diesel exhaust exposure."[1] Do you agree with EPA that the DERA program is unique and its purpose is not duplicative of other federal programs? If so, please explain.

Answer:
As noted in the report to Congress, DERA's goal is to reduce emissions from diesel engines with the aim of protecting public health. It is the key federal grant program to address this issue in ports. Since DERA is underfunded, other programs that are far broader, like the state funding for Congestion, Mitigation and Air Quality, can be complementary. These two programs address different targets. We do not support eliminating or combining the existing federal grant programs that are currently in place.

[1] U.S. EPA, *Third Report to Congress: Highlights of the Diesel Emission Reduction Program,* (February 2016), https://www.epa.gov/cleandiesel/clean-diesel-reports-congress

Senator BARRASSO. Well, thank you so much for your testimony, for being here with us today.

Mr. JOHNSON.

STATEMENT OF TIMOTHY V. JOHNSON, CONSULTANT, CORNING INCORPORATED, FORMER DIRECTOR OF EMERGING REGULATIONS AND TECHNOLOGIES AT CORNING ENVIRONMENTAL TECHNOLOGIES

Mr. JOHNSON. Thank you, Senator Barrasso and Senator Carper, Senator Van Hollen, for the invitation to testify today in favor of the Diesel Emissions Reduction Act.

I have worked for Corning for about 30 years, spending 20 of those years tracking emerging engine efficiency and emissions. About 7 years ago, after years of investigation, the International Agency for Research on Cancer concluded that diesel exhaust is a known human carcinogen, their most toxic designation. We, as a society, should desire that all diesel exhaust emissions be reduced as much as is practical.

However, there are some problems in doing this with in-use engines. Namely, the owner of the engine bought a legal engine and, despite that, this engine will last 20 years; it will operate with none of the advanced emission control equipment being installed on new engines today; and the added cost of upgrading isn't contemplated when the engine was purchased. One pre-2007 engine emits the same particulate pollution as about 20 of today's clean engines.

In 2005, DERA started as a very effective public investment to clean up these in-use emissions. By providing funding, motivated owners can cleanup these dirty engines without damaging their business plans, and the engines are motivated as DERA is oversubscribed. Only about 1 in 35 applicants gets a rebate under DERA, and only 1 in 7 gets a grant. For each Federal dollar invested in the program, others invest $3 more. EPA estimates that this one Federal dollar delivers $5 to $21 in societal health benefits, and the technology is available.

There are upwards of 15 different verified technologies that have been employed, including clean fuels like advanced biodiesel, aerodynamic-resistant reductions for trucks, and the most effective of all, diesel exhaust particulate filters that reduce the fine particulate emission levels to lower than in city air. Trucks with diesel particulate filters clean the air; the more you drive them, the cleaner the air gets.

As such, the DERA investment is an amazing success. It provides seed money to clean up diesel exhaust using a wide variety of verified technology without breaking the owner's wallet, and it delivers up to $21 returned to society for every Federal dollar invested. The Federal Government has invested an average of $40 million a year in DERA in the last 7 years. Obviously, this is a good, practical, and popular way for the Federal Government to invest in the infrastructure and health of the Nation, and the program ought to be funded with an increase.

I want to briefly shift my discussion to updating the Committee on the latest trends in diesel nitrogen oxide emission reductions.

The NOx emissions from diesel engines pose a number of health concerns. Once in the atmosphere, they react with other compounds to form ozone, the major component in smog. Ozone is a reactive and corrosive gas that contributes to many respiratory problems. Ozone, in particular, is harmful to children and the elderly. To our collective credit, 85 percent of the regions in the U.S. are meeting the EPA's new maximum allowable 8-hour ambient ozone standard of 74 parts per billion. However, there are still 51 areas in the United States, and the District of Columbia, not meeting the new standard.

California and the EPA are developing truck tailpipe emission standards that will drop NOx emissions by another 90 percent. This time around, the Government has the engine industry support for cost-effective and practical solutions. The NOx emissions that are mainly targeted are those generated in urban driving, when the exhaust catalyst is not hot enough to fully function.

Eliminating these emissions is not an easy task, but the technology is becoming available and will have a minimum impact on the operation of the vehicle, and it will be used with advanced biodiesel, perhaps up to 20 percent formulation, for greenhouse gas reduction. These new engines will be essentially non-polluting, and in many cases the NOx level is lower than in ambient air. With NOx emissions this low, one European truck will pollute as much as about 20 of these clean U.S. trucks, so Europe, China, and the rest of the world will ultimately move in this direction, utilizing U.S.-borne technology.

As battery electric trucks and cars enter the market, the emissions benchmark for internal combustion engines will get tighter. The Federal Government can have a major role in helping current diesel owners cleanup their engines and improve their image, and in making sure that new diesel engines are as clean as practical.

It is amazing how far we have come under government initiatives and private industry innovation to make both legacy and new diesel engines virtually non-polluting and as clean as practical.

Thank you very much.

[The prepared statement of Mr. Johnson follows:]

Support for Funding the Diesel Emissions Reduction Act (DERA)

Timothy V. Johnson
Corning Incorporated
March 13, 2019

About 20 years ago the International Agency for Research on Cancer (IARC) concluded that diesel particulate is probably carcinogenic to humans. Seven years ago IARC changed their designation for diesel exhaust as a whole from "probable" to a "known human carcinogen". The Clean Air Trust ("Diesel and Health in America: The Lingering Threat," February 2005) estimated that 21,000 people die prematurely every year in the US from health problems related to diesel exhaust. Consider that diesel engines are the main powertrain for doing work and are used in close proximity to people, we should desire that all diesel exhaust emissions be reduced as much as is practical. However, there are some problems in doing this, namely, the owner of the engine bought a legal engine, and despite that this engine will last 20 years, it will operate with none of the advance emission control equipment being installed on new engines today. One pre-2007 engine emits the same particulate pollution as about 20 of today's clean engines. Engine owners are being motivated to clean up their engines, but the cost is maybe $9000 each, and this added cost wasn't contemplated when the engine was purchased.

In 2008 the Diesel Emissions Reduction Act (DERA) started as a very effective measure to clean up these in-use engines. By providing funding, motivated owners can clean up these dirty engines without damaging their business plans. And the owners are motivated, as the program is over-subscribed: Only about 1 in 35 applicants gets a rebate under DERA, and only 1 in 7 gets a grant (EPA's third DERA report to Congress, 2016). For each federal dollar invested in the program, others invest $3 more. EPA estimates that this one federal dollar delivers $5 to $21 in societal health benefits. And, the technology is available. There are upwards of 15 different verified technologies that have been employed, including clean fuels like biodiesel, aerodynamic resistance reductions for trucks, and the most effective of all – diesel-exhaust particulate filters (DPFs) that reduce the fine particle emissions to levels lower than that in city air. As such, the DERA program is an amazing success – It provides seed money to clean up diesel exhaust using a wide range of verified technology without breaking the owner's wallet; and it delivers up to a $21 return to society for every federal dollar invested. The federal government has invested an average of $40M per year in DERA in the last seven years. Obviously, this is a good, practical, and popular way for the federal government to invest in the health of the nation, and the program ought to be funded with an increase.

I want to briefly shift my discussion to updating the committee on the latest trends on diesel NOx (nitrogen oxide) emissions reductions. The NOx emissions from diesel engines pose a number of health concerns. Once in the atmosphere, they react with volatile hydrocarbons in the presence of sunlight to form ozone, the major component in smog. Ozone is a reactive and corrosive gas that contributes to many respiratory problems. Ozone is particularly harmful to

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children and the elderly. To our collective credit, 85% of regions in the US are meeting the EPA's new maximum allowable 8-hour ambient air ozone standard of 70 ppb. However, there are 51 areas in 22 states and the District of Columbia not meeting the new standard. California has a particularly stubborn ozone problem, so they are developing truck tailpipe emissions standards that will drop NOx emissions by another 90%. Last year the EPA agreed to join with California to develop a national tailpipe emissions standard. This time around, the government has the engine industry support for cost-effective and practical NOx reductions. The NOx emissions that are mainly targeted are those generated under low load conditions when the exhaust catalyst is not hot enough to fully function. Eliminating these emissions is not an easy task, but the technology is becoming available and will have a minimum impact on the operation and fuel consumption of the vehicle. The latest emissions numbers for a modern engine using prototype emissions equipment show these engines to be essentially non-polluting under urban driving conditions, and in many cases, the NOx level is lower than in ambient air. With NOx emissions this low, one European truck will pollute as much as about 20 of these clean trucks, so Europe, China, and the rest of the world will ultimately move in this direction, utilizing US technology.

As battery electric cars and trucks enter the market, the emissions benchmark for internal combustion engines will get tighter. The federal government can have a major role in helping current diesel owners clean up their engines and improve their image; and in making sure that new diesel engines are as clean as is practical, as they will still be operating 20 years from now. It is simply amazing how far we have come under government initiatives and private industry innovation to making both legacy and new diesel engines virtually nonpolluting – a clean as practical.

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Senate Committee on Environment and Public Works
Hearing entitled, *"Hearing to Examine the Diesel Emissions Reduction Act of 2019"*
March 13, 2019
Questions for the Record for Mr. Johnson

Ranking Member Carper:

Please provide a response to each question, ***including each sub-part.***

1. I always try very hard to make sure we are getting better results for less money and not duplicating efforts in the federal government.
    a. Would you further discuss, despite the overall success of the Clean Air Act at improving our air quality, why we need the Diesel Emissions Reduction Act (DERA)?

About seven years ago the International Agency on Cancer Research (IARC) changed their designation of diesel exhaust from "probable human carcinogen" to a "known human carcinogen". Given this and that most diesel engines operate in close proximity to people, we need to do all we practically can to reduce exposure to diesel exhaust.

Although diesel truck engines made since 2010 and construction and farm engines made since 2014 are very clean, diesel engines last for decades, making natural fleet turnover a very slow process. According to vehicle-in-operation data compiled through 2017 by the Diesel Technology Forum, only about two out of every three trucks and buses on the road do not come with the latest advanced emission control technologies developed to meet the emission standards established for the newer trucks (see: https://www.dieselforum.org/files/dmfile/EPW-Comment---DERA---Final.pdf, page 4). As such, there still are 10.3 million older, in-use heavy-duty diesel vehicles which emit several multiples (perhaps up to 30X) higher exhaust pollutants than modern trucks.

DERA helps get the cleanest and most fuel-efficient trucks on the road faster. The DERA program is needed to help speed adoption of cost-effective emission control technologies for these long-lasting in-use trucks.

    b. Do you believe the program is underfunded to meet the current need for retrofits and replacements? If so, please explain.

In EPA's February 2016 Third Report to Congress, the agency says DERA funding requests throughout the history of the program have exceeded available funds by as much as 35:1 for the agency's National Clean Diesel Rebate Program and 7:1 for the national grant competitions (see: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OHMK.pdf, page 3). More recently, for FY2014-FY2016, there were about $3 in requests for every $1 of DERA funding available. Think about this: There are twice as many engine operators that want to clean up their engines of carcinogenic emissions than received funding to do so. Many will argue that the polluter should pay, but businesses are operating a legal diesel engine and cleaning them to modern norms was not anticipated when they bought the engine. Given that each DERA dollar invested in clean diesel projects has leveraged as much as $3 from other government agencies, private organizations, industry, and nonprofit organizations, generating between $5 and $21 in public

health benefits, DERA is a high-value Federal investment of funds. We should be investing much more in the DERA program.

c. Is it important to reauthorize the DERA program? If yes, please explain.

While funding has been appropriated for DERA activities since 2008, there is still a continuing need for the program to address the many (10.3 million) older heavy-duty vehicles, engines, and equipment that are still operating today. It is a cost-effective program (up to $20 of benefits for $1 of Federal investment) with a proven track record for cleaning up long-lasting diesel engines of carcinogenic emissions.

Further, DERA has broad public and bipartisan support, promotes technology that benefits public health, and shows leadership in addressing real-world problems that affect people.

2. In your testimony, you touched on how federal vehicle standards have helped drive innovation in this country.
   a. Would you further discuss why this country is a leader in clean diesel technology?

Advanced mobile source emission control technology has been a cornerstone in our nation's continuing efforts to clean up the air we breathe. Because our tailpipe emissions standards lead the world, this technology base is also a cornerstone of worldwide efforts to clean the air. For example, our Tier 2 light-duty emissions regulations that began phasing-in in 2004 drove light-duty diesel emissions technologies that were implemented in Europe five years later. China is just now implementing similar standards, 15 years behind the US. We implemented heavy-duty diesel particulate filters 5 years ahead of Europe in both the highway and non-road sectors. The same trend will repeat itself when the US and California implement the HD truck low-NOx regulations in the 2024-2027 timeframe.

b. Would you further discuss what our clean diesel leadership has meant for economic development and trade deficits in this country?

The Manufacturers of Emission Controls Association (MECA) estimated (http://www.meca.org/attachments/2949/MECA_EPA_Regulatory_Reform_Comments_05152017.pdf, pages 2-4) that the emission control technology market for new light-duty and heavy-duty vehicles in North America reached approximately $20 billion in 2017 (as part of an overall global market of $95 billion). Going forward, MECA estimates that the North American market will continue to show strong growth, reaching over $23 billion by 2020. These economic benefits are due in large part to the implementation over the years of cost-effective and technically feasible clean vehicle and fuel regulations by the U.S. EPA and the California ARB. MECA expects this emission control economic activity to grow even more as the industry continues to ramp up its efforts to meet the requirements of existing air quality regulations – such as EPA/CARB's Tier 3/LEV III light-duty vehicle programs, federal rules to improve fuel economy and reduce greenhouse gas emissions from cars and heavy-duty trucks, as well as the new HD low-NOx regulations emerging in California and at the US EPA.

Investment in environmental industries is critical to the U.S.'s competitiveness in the global economy. The mobile source emission control technology industry alone invested approximately $3 billion in research and development in 2017. This type of investment provides economic

benefits by creating jobs and increasing productivity in this country and by supporting the export of these state-of-the-art technologies to other parts of the world. Due to the U.S. leading the world in emission and fuel economy standards, it has positioned U.S. companies at the forefront of the emission controls sector. Corning Incorporated manufactures virtually all its heavy-duty emission control equipment for domestic use and export. Because we got a ten-year jump on China, for example, our products are two or three product development cycles ahead of Chinese emission control companies.

The Clean Air Act and EPA's emission standards and enforcement and compliance program have led the emission control industry to make significant investments in capital and employment in this country that have positioned them to be technology leaders and export their products to other regions of the world as similar regulations were adopted elsewhere. The weakening of EPA's standards and enforcement program or failure to maintain the pace of setting technology forcing standards with the rest of the world will ultimately result in U.S. companies losing their leading edge against foreign competitors here and abroad, where emission and efficiency standards will continue to tighten.

c. Would you further discuss what the federal government do to keep us on the cutting edge?

Emission control technologies continuously advance to meet an ever-changing societal benchmark of what clean air means. As electric vehicles begin penetrating the market, even the clean trucks on the market today will seem like high-emitters. OEMs may implement more technology than required by the regulations, but there are only a few examples. One is that European light-duty diesel emissions now are much lower than their regulations require due to diesel's image problem there. "Green marketing" is not prevalent in the vehicle industry, evidence that OEMs will generally go only as far as the regulations require.

The Federal governments needs to continue moving forward on tighter, economically-justified emission control regulations. Advanced regulations are like strong medicine to the industry – it might not taste good, but they will make you healthier. For example, we do not have Indian nor Chinese cars and trucks competing here in the US because our environmental and safety requirements are technological obstacles. To the contrary, our weakest tailpipe standards are on small power equipment – things like lawn mowers, trimmers, and blowers. There are numerous engines from these countries that have displaced volume from US manufacturers.

d. Do you believe we would have the clean diesel technology today without strong emissions standards?

There are few examples like that mentioned above wherein vehicle emissions have gone further than those required by the regulations. The regulations drive the technology.

e. Does EPA's proposal to exempt glider trucks from Clean Air Act standards threaten clean diesel technologies and our global leadership in the clean diesel market?

An exemption of glider vehicles from the current emission requirements for new heavy-duty vehicles extends the huge loophole that previously existed in the regulation. This loophole

creates an uneven playing field that undermines billions of dollars of investments made by clean diesel technology manufacturers. The emission control industry and the regulatory agencies have invested significant resources to ensure that the current regulatory structure delivers cost-effective and durable emission reductions.

f. Please provide a list of companies that you know of that have come out against EPA's proposal to exempt glider trucks from Clean Air Act standards.

The U.S. EPA's Office of Transportation and Air Quality (OTAQ) held a public hearing on December 4, 2017, in Washington, D.C., as part of the official comment period on the agency's proposal to repeal emission requirements for glider vehicles, glider engines, and glider kits that was originally part of the Phase 2 heavy-duty GHG regulation.

Of the dozens testifying, only one commenter, a representative from D&B Truck and Equipment Sales, testified in support of the repeal. Fitzgerald Gliders, who initiated the petition for reconsideration with EPA, did not testify at the hearing. Among the witnesses who spoke in opposition to the repeal were the Truck and Engine Manufacturers Association (EMA), American Trucking Associations (ATA), Volvo Group North America, and several truck dealers. In addition, several environmental groups, consumer groups, and state regulators joined in opposition.

3. During the hearing, we discussed the various health effects particulate matter can cause to public health.
   a. Would you give us the layman's version of how black carbon particles can and do impact public health and climate?

Fine particles, as are present in diesel exhaust, are generally smaller than those found in nature or are naturally eliminated by our body's defenses. Hence, they can get into our bloodstream and accumulate in the body. Further, we know that PAHs (poly aromatic hydrocarbons) and other toxic carcinogenic compounds are physically or chemically tied to these particles, so they too enter the bloodstream. Its like the particles are delivery agents for toxics entering our bloodstream.

On climate change, black carbon particles absorb more heat than aerosols, for example. Thus, they heat up both in the atmosphere and snow when they settle out of the atmosphere. For these general reasons, on a pound for pound basis, black carbon is 2200 times strong as a greenhouse gas agent than CO_2.

b. Do you believe DERA should be part of our strategy to address climate here at home, and why?

In the Third Report to Congress (see page 3), EPA says DERA projects covered in the report are estimated to reduce 4,836,100 tons of carbon dioxide (CO_2) over the lifetime of the affected engines and save over 431 million gallons of fuel as a result of idle reduction and more fuel-efficient technologies. Particles emitted by legacy mobile diesel engines are about 75% black carbon, so reductions in these BC-rich sources also likely provide climate benefits. DERA projects provide immediate BC reductions by reducing PM emissions from the legacy fleet of

diesel engines, including approximately 8000 tons of PM2.5 over the lifetime of the projects covered in the report.

4. In EPA's last DERA report to Congress, EPA clarified that the DERA program is not duplicative of other federal clean diesel programs. EPA explained that DERA, "is the Federal program uniquely focused on protecting public health through lowering diesel exhaust exposure."[1] Do you agree with EPA that the DERA program is unique and its purpose is not duplicative of other federal programs? If so, please explain.

Since implementation, DERA has become one of the most cost-effective federal clean air programs. It is voluntary, merit-based, and a cost effective Federal program for reducing diesel emissions. Every state benefits because 30% of the funding goes to support state programs that each state has established. The program has adopted many cost saving administrative practices, such as the inclusion of a rebate program applicable to school buses and construction equipment that speed the delivery of program funds with a minimum amount of red tape. The program effectively and uniquely cleans our air and supports domestic employment in innovative industries.

[1] U.S. EPA, *Third Report to Congress: Highlights of the Diesel Emission Reduction Program,* (February 2016), https://www.epa.gov/cleandiesel/clean-diesel-reports-congress

Senator BARRASSO. Can you repeat that? Government initiative and private innovation, did you say?

Mr. JOHNSON. Yes.

Senator BARRASSO. Thank you. Terrific.

Mr. Krapf, over the last couple of years, the State of Wyoming has leveraged about $900,000 in Federal DERA funds to purchase new buses across the State. The city of Cheyenne Parks and Recreation replaced two buses used for student transportation. We have school districts in Big Horn County, Campbell County, Lincoln County, Park County, Sheridan County, Sweetwater County, Uinta County have all used Federal DERA funding to order 43 replacement school buses.

Can you just talk a little bit about how important DERA funding is for school districts across the Country that want to purchase more environmentally friendly buses to provide cleaner air for our children and our communities?

Mr. KRAPF. I think one of the main things here is that the DERA funding is really just a drop in the bucket to the amount of money spent for new school buses each year. My company alone spends about $20 million a year for new school buses. But part of my professional mantra has been "lead by example," and I think when the Federal Government and the State governments have DERA funds available to get to the school districts, and as well to the private operators, that it sets an example. We get a lot of press in the industry about the DERA funding and I think it sets a tone for other people to follow that.

As we said earlier in my testimony, school buses are already a form of pollution prevention by taking many cars off the road, 36 cars for each trip, so school buses, I think, really can be a poster child for the DERA funds.

Senator BARRASSO. Dr. Johnson, I said in my opening comments that the DERA program was first created as a program to target localized air emissions, but what we now know is that it has reduced greenhouse gases as well. Clean diesel technologies effectively reduce carbon dioxide and black carbon.

Do you agree that DERA is an important policy tool to address climate change and, if reauthorized, it will actually continue to reduce emissions over the next 5 years?

Mr. JOHNSON. Yes, it is a good first step. The in-use engines are emitting on the order of 20 times more black carbon than modern diesel engines today and, as you mentioned, black carbon is one of the most potent greenhouse gases. So, yes, it is a good first step to cleaning up these emissions.

Senator BARRASSO. A question for all of you. Dr. Johnson's final statement in his prepared remarks talk about the U.S. and innovation, private innovation. The United States is a world leader in innovation. The DERA program not only protects the environment, I think it also helps drive economic activity, to your point.

Can each of you outline perhaps the ways that clean diesel projects are of benefit to the economy and, in particular, to American manufacture?

I don't know if you want to start with you, Mr. Johnson. We can go that way.

Mr. JOHNSON. Yes, sure. Thank you very much for the question. All of the emission control or emissions initiatives have been started in the United States. The United States is the leader in doing this so, therefore, the technologies initially developed to meet the U.S. requirements. And as the other nations of the world follow suit, that gives the American companies, the American technology the advantage to address the needs of those other markets as well.

On the flip side, the tight regulations here in the United States also present a, for lack of a better term, a barrier to foreign companies from coming into the United States and selling vehicles that won't meet the regulations. We don't see any Chinese cars here in the United States yet because our emission control and safety requirements are prohibitive, and Indian companies have attempted to come into the United States and have not been able to meet these requirements.

Finally, to illustrate the point, in China they are now implementing diesel particulate filters on their heavy-duty trucks, and the bulk of that business is going to American companies.

Senator BARRASSO. Mr. Nagle.

Mr. NAGLE. Yes. Certainly, with over 90 percent of the goods movement through our Country being handled by equipment that utilizes diesel power, it certainly benefits not only the health benefits, but also our economy. As Mr. Johnson has indicated, the U.S. is a leader in this clean diesel technology and 13 States, including Indiana, New York, Maryland, Iowa, Mississippi, and Alabama, all manufacture heavy-duty clean diesel engines. This provides good paying American jobs, boosts our economy, and also, importantly, as Mr. Johnson indicated, that technology is highly valued by the rest of the world, so it results in increased U.S. exports, which certainly helps our trade situations as well.

It also stimulates small businesses. As an example, in and around ports, with the clean truck programs, the partnerships with the independent owner-operators not only provides them benefit, provides health benefits, but also helps them with their move toward fuel efficiency.

Senator BARRASSO. Mr. Krapf, any thoughts?

Mr. KRAPF. Yes, I will speak specifically to the school bus industry, because I think the other gentlemen have answered the other questions. In my testimony, I specifically said that the school bus industry is an American industry. It started in this Country and it still is predominantly located only in this Country.

All school buses that are made are made in the United States. We already export many, many school buses to other countries. They use them particularly in South America and Central America for commercial vehicles because of the cost versus a large commercial transit bus.

But now there are several countries that are looking into the U.S. model of school buses, getting their students to and from school as they have entered a phase where they have gotten out of the little hamlets to a suburbia type country. Particularly Australia and New Zealand are looking at school buses and, as I said, now they are all produced in the United States.

Senator Inhofe's State of Oklahoma has the largest producer of school buses with the international plant in Tulsa.

Senator BARRASSO. Senator Carper.

Senator CARPER. Again, our thanks to each of you for joining us today and also in the past in some cases.

A followup question if I could, Mr. Johnson. Do you agree that Federal action to reduce emissions, both financial incentives like DERA and regulation sections such as heavy-duty vehicle emission standards, are instrumental in driving American clean energy investments and innovation?

Mr. JOHNSON. Yes, indeed.

Senator CARPER. Let me just say in particular. Let me modify that a little bit. In particular, do you believe we would have the clean diesel technology that we have developed here today without strong emission standards as well, and has this carrot and stick approach been beneficial to American companies and commerce?

Mr. JOHNSON. The diesel particulate filter is the most effective diesel emission control technology available, and this was developed in the United States for heavy-duty application to meet the 2007 regulation. Those filters have expanded into Europe that did a similar regulation as the United States, and now into China, and these are all excellent examples of how the U.S. regulation incentivized and initiated the companies like mine to develop this kind of technology. So, yes, I think being on the forefront of good, sound environmental regulation is not only good for society, but it is good for private industry as well.

Senator CARPER. Thank you.

To my colleagues, I would just say I remember when Lamar Alexander and I were working on mercury reductions, emission mercury reductions from coal-fired utility plants, maybe six, seven, 8 years ago, and we had a panel kind of like, only had about four or five folks from the utility industry, and we had one fellow who was representing a technology association where they developed air emission technology, including for removing mercury from emission streams. We had our four or five witnesses from a utility said—Lamar and I were focused on reducing mercury emissions by 80 percent, eight zero. Lamar wanted to go to 90 percent reduction.

Anyway, in the panel we had that day, the folks from utility companies said, you know, we just don't think we can get to 80 percent; that is just like a bridge too far. The fellow from the trade association in the technology camp said, no, we cannot only get to 80, we can get to 90; and within literally a few years we were at 90 percent.

To your point, Mr. Johnson, what we did with that technology, we just didn't use it in this Country, we sold it around the world. We sold it around the world. And to the extent we can create great jobs with that technology here and sell it around the world, that is the holy grail as far as I am concerned.

There is an old saying, at least for me, I have said this a million times, if things are worth having, they are worth paying for. Think about that. If things are worth having, they are worth paying for. If you look at the budget that we received from the Administration this past Monday, it actually dramatically cuts funding, and in some cases eliminates funding, for research and development, assistance to States and grant programs like the Diesel Emission Reduction Act, and that is a fraction of the funding compared with

the $87 million that Congress appropriated for DERA in the Fiscal Year 2019 omnibus.

If implemented, the President's budget would take our Country, I think, in the wrong direction with respect to our clean air and climate goals.

My question of really the entire panel is, based on your experience, is the Administration's funding level for DERA too low for such a successful program? Your thoughts, please.

Mr. KRAPF.

Mr. KRAPF. Was your question is the funding level too low?

Senator CARPER. Yes, for DERA. Is it too low?

Mr. KRAPF. Yes, I think it is.

Senator CARPER. He would take it down from 87 million down to about 10 in that budget. What do you think?

Mr. KRAPF. Yes, I think it definitely is too low, and I don't think that in all the years that we have had the DERA funding, the amount that was requested versus the amount that was finally authorized was probably I think we have gotten two-thirds of what we have actually asked for over the years, so I do think it is too low. And the program, after it was originally introduced in 2005, I think it was two or 3 years until it really got started, so we missed a few years there at the beginning, so, absolutely, we could use more. There are many, particularly district-owned fleets, in the United States that have buses in the fleets that are 25 and 30 years old.

Senator CARPER. I believe one of our witnesses said, Mr. Chairman and to my colleagues, that for every dollar we have available through DERA to go out to grants or rebates, it is like a $35 request from across the Country to reduce emissions.

Mr. Nagle, is $10 million in the Administration's request too much, too little?

Mr. NAGLE. Definitely too little. We certainly fully support at least the $87 million that had been provided for this current year. We believe that the fully authorized level is more approaching what had been a 100 million level previously certainly at least what should be provided. As you said, it can leverage a lot of local public investment, but also private investment. Again, in and around marine terminals, a lot of that investment is with private partners, so we think it should be at least at the 87, toward the $100 million level.

Senator CARPER. And very briefly, Mr. Johnson, your thoughts. Too much, too little, the Administration's proposal?

Mr. JOHNSON. Well, it is a good investment and good public policy. I would love to find an investment where I could put $1 in and get up to $21 out, and that is probably over a 15 or 20 year accounting, but still it is a fantastic investment.

The other thing to keep in mind, aside from the leverage of private moneys and State moneys three to one for every Federal dollar invested is that the program is oversubscribed. We have more fleet owners that want to clean up their emissions, but the money is not available to do this. Keep in mind that they are operating a legal engine, and there is no other way to get them motivated to clean up their engines aside from incentives and help with investment.

Senator CARPER. OK.

Mr. JOHNSON. So, yes, it is underfunded, significantly.

Senator CARPER. Thank you so much.

Thanks, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Carper.

Senator INHOFE. Come on, you guys. You know, it just amazes me. I don't think in the years that I have been here I have ever been before a panel where the question was asked wouldn't you like to have a little more money, and the answerer says no.

[Laughter.]

Senator INHOFE. Anyway, don't get your hopes up on that.

[Laughter.]

Senator INHOFE. You know, I chair a little committee called the Armed Services Committee, and during the 8 years of Obama, taking the last 5 years, we went down using constant dollars, 2018 dollars, from, in 2010, $796 million down to $583 million. Anyway, that was a drop of $200 billion during that period of time. It had never happened before. There has never been a bureaucracy before in a 5-year period that has dropped by 20 percent.

Now we find that China and Russia both have passed us up in areas such as hypersonics and artillery and other areas where we have never been behind before, and now we are going to—that is what we are fighting for right now, is to try to get back where we have been since World War II, and that is a leader in the free world in terms of funding for our military, so that is your competition out there.

I think every question I had has already been answered. I would like to say something about Navistar, Mr. Krapf, because I can't imagine there is any larger manufacturer of school buses anywhere in the world than Navistar, but I understand we are No. 3 or No. 4, so it is a huge thing for us. We supply the surrounding States. It is a great thing for us.

I would just ask the question would the schools be able to upgrade their fleets without the help of DERA that we have all been working on for such a long time now?

Mr. KRAPF. I am not sure that I understand the question.

Senator INHOFE. Well, I am just saying that without this program would we be able to upgrade our fleets?

Mr. KRAPF. Well, I think that——

Senator INHOFE. Well, I think the answer is yes.

[Laughter.]

Senator INHOFE. That made that a lot easier.

Then, Mr. Nagle, the ports do have a variety of projects that benefit from DERA. I think that is the one thing that hasn't been addressed during the course of this time. What other projects receive the benefit from DERA on our ports?

Mr. NAGLE. Yes, sir, it is really a variety of both cargo handling equipment in terms of at the facilities themselves, whether it is rubber-tired-gantry cranes, various yard equipment, but also, importantly, the marine vessels, whether it is tug boats, other assist vessels in and around the harbor, because those can have engines that last anywhere from 30 up to 50 years.

A recent study has indicated can last up to 50 years, so programs like DERA can advance significantly moving toward the more effi-

cient engines. Same with locomotives, the switcher locomotives moving the cargo in and out of ports. Those have life spans from 40 up to even 70 years, so programs like DERA can have very significant impacts in replacing those really long-standing, older equipment.

Senator INHOFE. And I don't think a lot of people are aware of that.

Dr. Johnson, you talk about where our leadership is. You mentioned China twice. Is there anything further you would like to say that you haven't had a chance to say concerning what our posture is relative to some of our competitors out there?

Mr. JOHNSON. Well, I think I have covered it quite well.

Senator INHOFE. I think you have.

Mr. JOHNSON. I would like to mention one emerging trend that is happening. I think we have all heard of electric vehicles, and China has a mandate on electric vehicles. They are looking at requiring 15 to 20 percent of their new car sales in 2025 being electric vehicles, and the industry is generally acknowledging that China is the center of technology development regarding electric vehicles.

At the Detroit Auto Show last year we saw our first exhibition booth from a Chinese auto company, and they have expanded their booth this year and they plan on introducing electric vehicles into the United States market within a few short years, so it is an example of the government initiative in China incentivizing or mandating electric vehicles, and I think the experts in the transportation industry will acknowledge that the electric vehicle has a future in many, many different segments of the transportation.

Senator INHOFE. I would only observe that China is famous for having government tell people what they want, and this is an extension of that. I also would observe that that has to come from, in China, coal powered plants supply electricity, so there we have it.

Thank you, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Inhofe.

Senator CARPER.

Senator CARPER. Just let me followup on that conversion a little bit, if I can. You mentioned the Detroit Auto Show. I go almost every year, and have for more than 20 years. Delaware used to produce more cars, trucks, vans per capita than any State, and we lost both of our Chrysler plants and our GM plants about 10 years at the bottom of the great recession, and we are repurposing the Chrysler plant to be a science technology and research center for the University of Delaware. It is so exciting to see it come up out of the ground. We mourn the loss of our Chrysler and GM plant, but it is wonderful to see thousands of new jobs being created.

When I used to go to the Detroit Auto Show, I remember 11 years ago the car of the year at the Detroit Auto Show was the Chevrolet Volt, a hybrid. The first 38 miles it went on electric charge; after that it was on gasoline. That was 11 years ago. A year ago, at the Detroit Auto Show, the car of the year was the Bolt, Chevrolet Volt, and all electric, 140 miles on a charge; 140 miles, up from 38. I was at the Detroit Auto Show 2 months ago. and I suspect you were as well, and I saw a dozen or more vehicles from

U.S. manufacturers and from foreign manufacturers that get 250 miles on a charge and more.

The Chairman and I and our colleagues are beginning to work on transportation reauthorization legislation that we hope to be able to maybe introduce in the middle of this year, the middle of summer, and part of the infrastructure I think needs to include charging stations and hydrogen fueling stations.

For those in the room who have never driven electric-powered vehicles or hydrogen-powered vehicles, they are fun. Incredible torque, just a lot of tun to drive. The hydrogen fuel cell vehicles, they produce as their only emission water so clean you can drink it.

To Jim Inhofe's point about China, they are burning coal to produce electricity for electric-powered vehicles, so they have some work still to do, but we are going to be driving vehicles that consume gasoline and diesel for a long time. My Chrysler Town & Country minivan I bought 18 years ago, the year I stepped down as Governor and came here, so it is a 2001. I was driving home from the train station in Delaware last week, Mr. Chairman, and I looked at my odometer in my Chrysler minivan and it went 499,999 miles to 500,000 miles on my way home, so I have had 18 years. Not many people drive a vehicle for 500,000 miles, but it gets about 25 miles per gallon, which is not great, but it is better than some, I suppose.

But vehicles like that are going to be on the road for a while, for quite a while, actually, so we are still going to use gasoline and diesel into the future, but it would be smart to make the transition to the other as well.

I have a question on glider trucks I would like to ask and then I am done. EPA currently is taking action to undo the clean diesel progress we have made and you mentioned in your testimony, Mr. Johnson. For example, EPA has proposed to exempt heavy-duty glider trucks from the Clean Air Act. Glider trucks are known by several names, including zombie trucks. They have new shells on the outside, but on the inside they have the old high polluting diesel engines that lack modern pollution controls.

EPA's own research indicates that a 2017 glider truck can emit up to 43 times more nitrogen oxide than a model year 2014 or 2015 truck. Let me say that again. EPA's own research indicates that a 2017 glider truck with the old diesel engine can emit up to 43 times more nitrogen oxide than a model year 2014 or 2015 truck. Our current EPA administrator has signed a proposal to completely exempt these what I think are dangerous trucks from emission standards and he said that he may finalize this rule.

My question, Mr. Johnson, is if EPA decides to go forward with this glider truck rule, would allowing for the sale of thousands more heavy polluting diesel trucks undermine the progress we have made to reduce emissions through DERA? How would it affect the clean diesel industry as a whole?

Mr. JOHNSON. The exclusion of glider trucks from regulation is essentially taking advantage of an unintended loophole in the regulation. The EPA regulations require that when an engine is rebuilt, it needs to be rebuilt to the original emission standards under which that engine was manufactured, which is a reasonable re-

quirement. So, in the case of the glider truck, they are taking engines or the block of the engine that in many cases is taken out of service, is no longer suitable for revenue service, finding these engines, rebuilding them, and then putting them on a new truck chassis, which is completely contrary to the purpose of the regulation.

Imagine two trucks pulling up to a stoplight. Both of them look brand new and one truck has a rebuilt engine from 1995, 1997, 1998 with obsolete or no emission control equipment on it, polluting 40 times more than the new truck that looks identical to it pulled up to that stoplight. What does the fleet owner of that new truck think when they invested and paid for emission control equipment that this truck next to him does not have, and polluting the equivalent of 40 of the trucks that are clean?

Keep in mind that as we move forward with the EPA in California low NOx initiatives, that one glider truck will no longer be polluting equal to 40 trucks, the pollution will equal hundreds of trucks. So it is just entirely inappropriate and not fair to not close that loophole and prohibit the use of glider trucks.

Senator CARPER. Thank you for that response.

Mr. Chairman, thank you for pulling this together. This is a joy for a lot of us. I think the rest of the Congress could do well to look at the way we operate here, Mr. Chairman. We try to work across the aisle and find common ground. We are always looking for ways to improve the quality of air, our water, better public health, and create jobs, and this is a great example of that. If George Voinovich is looking down at us today from on high, we will just say, George, you done well. God bless you. Thank you.

Senator BARRASSO. Well, thank you, Senator Carper, for your ongoing leadership for this over the decades, it has been remarkable. There is so much support for this legislation.

I ask unanimous consent to enter letters that we received from the DERA Coalition and the Diesel Technology Forum. These groups strongly support reauthorization of the program.

Without objection, that will be introduced.

[The referenced information follows:]

Diesel Emission Reduction Act (DERA) Coalition
1110 Vermont Ave, NW
Washington, DC 20005
deracoalition@gmail.com

March 12, 2019

Chairman John Barrasso
307 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Barrasso:

As part of a uniquely broad coalition of interests, we want to express our support for reauthorization of the Diesel Emissions Reduction Act (DERA) program. Because vast opportunities remain to reduce diesel emissions through the DERA program, we wish to express our appreciation for legislation you have cosponsored to continue the authorization of DERA through fiscal year 2024.

First enacted as part of the Energy Policy Act of 2005 as a Senate floor amendment authored by former governors, Sen. George Voinovich (R-OH) and Sen. Tom Carper (D-DE) and approved 92 to 1, DERA provides funding to incentivize equipment and vehicle owners to install retrofit technologies on existing heavy-duty diesel vehicles and engines, or replace engines and equipment, reducing emissions by as much as 90 percent. In 2010, the Senate approved DERA reauthorization unanimously and the House approved the measure by voice vote.

EPA's most recent estimates were completed in 2016 and reflect only the first five years of the program. Even with this limited sampling the positive results were impressive. EPA estimated that from 2009 to 2013 the program upgraded nearly 73,000 vehicles or pieces of equipment and saved over 450 million gallons of fuel. In that report, EPA estimated that total lifetime emission reductions achieved through DERA funding include 14,700 tons of particulate matter (PM) and 335,200 tons of oxides of nitrogen (NOx). According to EPA, these emission reductions yielded up to $12.6 billion in estimated health benefits. Significant funding since then continues to add to these totals, reflective of significant progress that continues to be made. In short, the program continues to help improve air quality at the nation's schools, construction sites, highways, railyards and ports.

DERA is one of the most cost-effective federal clean air programs and enjoys support in Republican and Democratic Administrations. EPA estimates every $1 in federal assistance is met with another $3 in non-federal matching funds, including significant investments from the private sector, and generates $5 to $21 in health and economic benefits. Every state benefits

because 30 percent of the funding goes to support individual state programs. The program continues to enjoy robust funding support on a bicameral, bipartisan basis but the level of funding provided for the program overall is less than two-thirds of the total amount previously authorized by Congress. We therefore support continued funding authorization.

The DERA program is still needed to help speed adoption of highly cost-effective emission control technologies for the millions of diesel vehicles which do not meet the most recent emission control standards. It is our hope that Congress will act to extend the program to allow the benefits of diesel emission reduction to continue in communities around the country.

Thank you for your consideration.

Sincerely,

Advanced Engine Systems Institute - American Association of Port Authorities
American Lung Association - American Highway Users Alliance – American Power Group
American Trucking Associations - Associated General Contractors of America
Association of American Railroads – Blue Bird Corporation - Caterpillar Inc.
Corning Incorporated - Cummins Inc. - Diesel Technology Forum
Emission Control Technology Association – Environmental Defense Fund - IC Bus
Manufacturers of Emission Controls Association - NAFA Fleet Management Association
National Association of Clean Air Agencies
National Association of State Directors of Pupil Transportation Services
National School Transportation Association - New York School Bus Contractors Association
The Lion Electric Co. - Thomas Built Buses - Truck and Engine Manufacturers Association
Umicore Autocat, Inc. - United Motorcoach Association – Volvo Group North America

DIESEL TECHNOLOGY FORUM

March 13, 2019

The Hon. John Barrasso
Chair
Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Hon. Tom Carper
Ranking Member
Senate Committee on Environment and Public Works
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the Diesel Technology Forum, I would like to submit the following statement for the record and the hearing concerning the Diesel Emission Reduction Act (DERA).

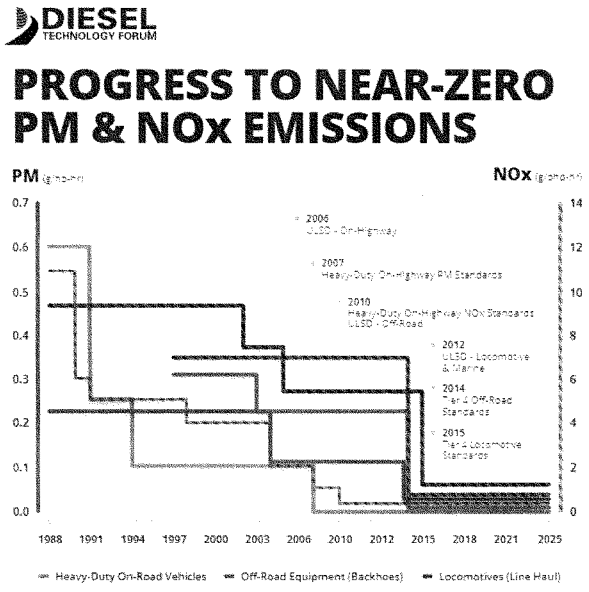
In Summary

- DERA is an unquestioned and well documented bipartisan success story. Over 73,000 vehicles, engines and pieces of equipment have been replaced or retrofitted thanks to the DERA program. Substantial clean air benefits and greenhouse gas reductions have been achieved and documented.
- The program has delivered significant emission reduction benefits to communities across the country, largely through the use of advanced technology new diesel engines and retrofitted emissions control technology. Every dollar invested in diesel retrofits and replacements yields at least $13 in environmental and public health benefits.
- While funding has been appropriated for DERA activities since 2008, there is still continuing need for the program, to address the many older vehicles, engines and equipment still operating today, and likely for years to come. In the trucking sector, 36 percent of all large trucks are of the newest generation of near-zero emissions performance, meaning that 64 percent are of an older generation of technology.
- Substantial opportunities for emissions improvements still exist in communities all around the country.

By way of background, the Diesel Technology Forum represents the manufacturers of diesel engines, vehicles and equipment, including passenger vehicles, larger commercial trucks and buses and even larger pieces of off-road equipment, locomotives and stationary engines. The Forum serves as a not-for-profit educational and advocacy organization dedicated to raising awareness of the clean air and economic benefits of diesel engines, vehicles and equipment, along with cleaner diesel fuel including biodiesel and renewable diesel fuel. More information is available at www.dieselforum.org.

I. NEW DIESEL ENGINES ARE NEAR-ZERO IN EMISSIONS

These last ten years have been called the decade of clean diesel: a system of cleaner engines, cleaner fuels, and advanced emissions control technologies are now deployed across all ranges and types of diesel-powered vehicles, equipment and machines. The results are clear, new highway diesel truck engines have near-zero emissions of particulate matter and oxides of nitrogen (NOx), 98 percent less than 1988 models. It is noteworthy that truck and engine manufacturers are not only producing near-zero level emissions vehicles, but these vehicles are consuming less fuel. Due to the first ever fuel economy rules for commercial vehicles, EPA estimates that between 2014 and 2018, more fuel-efficient trucks will save 530 million barrels of crude oil, reduce 270 million tons of greenhouse gas emissions, while also saving vehicle owners millions in fuel costs.[1] These are advancements that allow the fuel sipping diesel engine to use even less fuel while reducing emissions.



[1] https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-1-greenhouse-gas-emissions-standards-and

The new generation of clean diesel technology is not only meeting its emissions reduction targets but is also exceeding them. A jointly funded government and industry research effort known as the Advanced Combustion Emissions Study (ACES), carried out through the Health Effects Institute and Coordinating Research Council, evaluated the performance of large diesel engines that power a Class 8 truck that come with technology to meet the model year 2010 emissions standard. Phase 1 of that study determined that fine particle emissions generated from these truck engines were lower than the standard required of them, while the second phase of the research determined that there were no adverse health outcomes due to exposure from the exhaust from these engines.[2]

Similar reductions in emissions of particulates and oxides of nitrogen are now required of the wide range of off-road engines that power everything from small construction equipment and farm machinery to freight locomotives, marine vessels and work boats. Beginning in 2014, newly manufactured off-road equipment must meet the Tier 4 emissions standards while larger engines that power marine vessels, locomotives and other large applications must meet these standards beginning in 2015.

II. MODERNIZING AND UPGRADING EXISTING ENGINES AND EQUIPMENT

Diesel engines are known for their durability and reliability. Customers who purchase these technologies value these traits, and it is not unusual to see 10 or 15-year-old construction machines, agricultural equipment or commercial trucks. In the course of developing cleaner diesel engines and fuels, it became clear that some technologies could be deployed on existing vehicles and equipment which would enable current truck, bus or machine owners to improve the environmental footprint of their equipment while enhancing its overall value.

DERA is an important tool to help incentivize the introduction of the latest clean diesel technologies across all applications to help meet the needs of vehicle and equipment owners, while delivering real emission reduction benefits for the communities in which they serve. According to the latest report to Congress, EPA estimates that between 2008 and 2013 the program has retrofitted or replaced over 73,000 vehicles, equipment and engines to deliver over 335,000 tons of NOx emission reductions and 14,700 tons of fine particle emission reductions. The program, which requires non-federal matching funds, generates on average $13 in clean air benefits for every $1 provided through it.[3]

Every dollar invested in diesel retrofits and replacements yields at least $13 in environmental and public health benefits. Plus, DERA has provided federal funds in a competitive process that encourages state, local, or private funding matches. By doing so, DERA has been able to leverage roughly $3 in state, local, or private funding for every federal dollar. It is hard to find a better

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[2] https://www.healtheffects.org/publication/executive-summary-advanced-collaborative-emissions-study-aces

[3] https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OHMK.pdf

investment in public health. The DERA program has benefitted every state including those represented on the Committee. For example, in Delaware, DERA funds have gone to upgrading equipment at the Port of Wilmington, local school bus fleets and municipal vehicles, as well as off-road and construction equipment. In Sublette County Wyoming, the Wyoming Department of Environmental Quality used a combination of funds, including a $1.1 million EPA grant, as part of a $2.3 million project that involved 11 non-road construction companies and 34 pieces of equipment. The project involved machine repowers and engine upgrades in construction equipment in the infrastructure serving the Pinedale natural gas fields.

III. THE IMPORTANCE OF RETAINING THE DIESEL EMISSIONS REDUCTION ACT (DERA)

While new clean technologies including clean diesel are ready and available today, introducing these technologies in the fleet of heavy-duty on and off-road equipment is a lengthy process. The DERA program is a necessary tool to introduce these technologies sooner than they would occur under normal attrition rates.

Commercial Vehicles and Buses

America's fleet of trucks, school buses and transit buses are relatively old and do not come with the latest near-zero emissions technology. Today, diesel is the predominant powertrain found under the hood of America's fleet of commercial vehicles, transit buses and school buses. Seventy-five percent of commercial vehicles, 95 percent of school buses and 85 percent of transit buses are powered by diesel technology. According to vehicle in operation data compiled through 2017, about two out of every three trucks and buses on the road does not come with the latest near-zero emissions technology developed to meet the latest tailpipe emissions standard established for model year 2010. The DERA program is an effective and needed tool to provide incentive funds to encourage the owners of commercial trucks, school buses and transit buses to replace older equipment with new.

Support for a New Engine Standard

Commercial vehicles will be getting cleaner and the DERA program will help introduce these new technologies to benefit communities. Engine manufacturers and other stakeholders are working with EPA concerning a new heavy-duty engine standard that will take near-zero emissions for fine particles and NOx closer to zero while still working within stringent fuel economy standards. That program, the *Cleaner Trucks Initiative*, is ongoing and will see further reductions in emissions. If the past is any indication of the future, introducing these closer-to-zero innovations will take time and the DERA program is an important tool to deliver emission reduction benefits to communities across the country.

Off-Road Equipment

Unlike commercial vehicles, owners of off-road equipment are often not required to register equipment like the owner of a truck or car. Off-road equipment, including construction and agricultural tractors, are understood to be of a later generation of technology. These are expensive assets that owners will continue to maintain to ensure they are in the field and on job

sites. Like commercial vehicles, the DERA program is an effective tool to help incentivize the replacement of equipment with new clean diesel Tier 4 technologies.

Large Engines that Power Marine Vessels and Switch Locomotives

The fleet of marine vessels and switch locomotives are powered by very large engines, which are often in service around the clock and operate in localized regions. Switch locomotives, for example, rarely leave a narrowly defined geographical region. Recent research commissioned jointly by the Diesel Technology Forum and the Environmental Defense Fund determined that these engines are older and live longer.[4]

Replacing these engines, with help from the DERA program, can introduce the latest clean diesel innovations and generate substantial emission reductions. Research confirms that marine engines remain in service upwards of 50 years as opposed to the 23 years estimated by EPA. Older uncontrolled engines may operate in sensitive communities for generations. The DERA program is a necessary tool to encourage the owners of these much larger marine vessels to replace older engines with new cleaner models. A single engine replacement, when replacing an older uncontrolled engine, can eliminate 30 tons of NOx emissions in a single year. This is equivalent to replacing 96 older Class 8 trucks. Without DERA funding, many of these older marine vessels may be in operation for many years.

Much like marine vessels, switch locomotives remain in service for about 50 years. Replacing the oldest engines that power switch locomotives, including those that were manufactured before emission controls were required of them, can reduce NOx emissions on average of nine tons per year. This is similar to replacing 29 large Class 8 trucks.

New clean diesel engines may also generate co-benefits in terms of greenhouse gas reductions and fuel savings. While Tier 4 clean diesel technologies are developed to reduce emissions of fine particles and NOx, some owners report additional benefits. One marine vessel operating in Puget Sound reported reducing 1,000 tons of greenhouse gas emissions from upgrading older engines with new clean diesel models, while a rail operator in the region reported saving 19,000 gallons of fuel per year when replacing an older engine with a new Tier 4 clean diesel model.[5]

IV. DERA IS A PROGRAM THAT WORKS BECAUSE:

1. Enjoys bipartisan support in Congress and a uniquely broad-based coalition of followers and supporters numbering over 500 organizations;
2. Is voluntary and incentive based, offering carrots – instead of sticks – to interested parties to participate;

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[4] https://www.dieselforum.org/largeengineupgrades

[5] https://www.dieselforum.org/policyinsider/work-boats-working-for-clean-air https://www.dieselforum.org/policyinsider/switch-the-switcher-from-old-to-new-clean-diesel-locomotive-power

3. Allows owners to choose verified technology that works best for their circumstances; not all technologies work on all equipment;
4. Gives states the flexibility to apply DERA funding based on local emissions inventories to improve air quality;
5. Provides for a results oriented, competitive process to ensure the greatest level of success;
6. Gives greater understanding of the practical issues at the intersection of environmental goals and real-world business decisions; making distinctions between what is technologically possible and economically practical;
7. Encourages private and local investment through the provision of matching funds to leverage the federal incentive dollars by as much as 3 to 1; and
8. Rewards the American public with a substantial return on its investment, as much as $13 in benefits for every dollar invested.

CONCLUSIONS

Diesel engines are the workhorse of our economy for today, tomorrow and the foreseeable future. The new generation of clean diesel technology – cleaner fuel, advanced engines and emissions control systems – is now at near-zero levels of emissions. End users that have acquired the new technology are finding it to meet or exceed their expectations with performance, fuel economy and low emissions. Every category of stationary and mobile diesel engines, with the exception of ocean-going container vessels, is now on a regulatory path to near-zero emissions diesel engine technology.

There is a clearly identified need for DERA, a voluntary incentive-based program to modernize and upgrade existing engines and equipment. Congress played a visionary role in establishing and funding this voluntary incentive-based program to encourage these activities. Although DERA funds have leveraged other dollars, there is no question that the number of engines retrofitted or replaced to date represents only the tip of the iceberg. Older generations of technology still power everything from commercial trucks and buses to much larger marine vessels and switch locomotives. It is even more important to help fund programs to retrofit and replace these older engines, vehicles and equipment, as even cleaner technologies are on the drawing board. If ever a program made sense and had the support of environmental, labor, public health and industry groups, this is the one.

We thank you for the opportunity to provide these comments to you as you consider efforts to promote American leadership in reducing emissions through innovation. Please feel free to contact me with any questions or concerns. I can be reached at (301) 668-7230.

Very truly yours,

Allen R. Schaeffer

Allen R. Schaeffer
Executive Director

Jennie: 4-2925/cell: 202-615-7478

Environment and Public Works Committee
Hearing on, "Hearing to Examine S.___, Diesel Emissions Reduction Act of 2019."
10:00am | Wednesday, March 13, 2019 | Dirksen 406

- I am happy to have introduced this bill again with Ranking Member Carper and eight other members – all on this committee (others: Sens. Barrasso, Whitehouse, Sullivan, Booker, Capito, Gillibrand, Cramer, and Van Hollen).
- From the movement of goods at our ports and across America to the transport of our most precious cargo- our children, diesel engines continue to live up to the nickname as the workhorse of the American economy.
- I have long been supporter of the Diesel Emissions Reduction Act because it effectively reduces pollution in a cost-effective way through public-private partnerships.
- Since the beginning of this program we can see real reductions in emissions and for every federal dollar spent, as much as three additional dollars come from other government agencies, private organizations, industry or non-profit partners.
- In fiscal year 2017, Oklahoma leveraged $354,000 dollars from EPA into a total of $5.6 million for their clean diesel program. In fiscal year 2018, they leveraged $413,000 into $2.7 million.
- This funding replaced 56 diesel engines and retrofitted two others over the last two fiscal years.
- Oklahoma estimates that these projects over two years have reduced nitrogen oxide by more than 13,900 pounds and particulate matter more than 1,400 pounds.
- These are real world, measurable results from a small investment of federal dollars in Oklahoma.
- This is an environmental program that works and I'm proud to support a program that has buy in from the private sector and supports manufacturing jobs. I look forward to working with our cosponsors to get this bill signed into law.

Diesel Emission Reduction Act (DERA) Coalition
1110 Vermont Ave, NW
Washington, DC 20005
deracoalition@gmail.com

March 12, 2019

Chairman John Barrasso
307 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Barrasso:

As part of a uniquely broad coalition of interests, we want to express our support for reauthorization of the Diesel Emissions Reduction Act (DERA) program. Because vast opportunities remain to reduce diesel emissions through the DERA program, we wish to express our appreciation for legislation you have cosponsored to continue the authorization of DERA through fiscal year 2024.

First enacted as part of the Energy Policy Act of 2005 as a Senate floor amendment authored by former governors, Sen. George Voinovich (R-OH) and Sen. Tom Carper (D-DE) and approved 92 to 1, DERA provides funding to incentivize equipment and vehicle owners to install retrofit technologies on existing heavy-duty diesel vehicles and engines, or replace engines and equipment, reducing emissions by as much as 90 percent. In 2010, the Senate approved DERA reauthorization unanimously and the House approved the measure by voice vote.

EPA's most recent estimates were completed in 2016 and reflect only the first five years of the program. Even with this limited sampling the positive results were impressive. EPA estimated that from 2009 to 2013 the program upgraded nearly 73,000 vehicles or pieces of equipment and saved over 450 million gallons of fuel. In that report, EPA estimated that total lifetime emission reductions achieved through DERA funding include 14,700 tons of particulate matter (PM) and 335,200 tons of oxides of nitrogen (NOx). According to EPA, these emission reductions yielded up to $12.6 billion in estimated health benefits. Significant funding since then continues to add to these totals, reflective of significant progress that continues to be made. In short, the program continues to help improve air quality at the nation's schools, construction sites, highways, railyards and ports.

DERA is one of the most cost-effective federal clean air programs and enjoys support in Republican and Democratic Administrations. EPA estimates every $1 in federal assistance is met with another $3 in non-federal matching funds, including significant investments from the private sector, and generates $5 to $21 in health and economic benefits. Every state benefits

because 30 percent of the funding goes to support individual state programs. The program continues to enjoy robust funding support on a bicameral, bipartisan basis but the level of funding provided for the program overall is less than two-thirds of the total amount previously authorized by Congress. We therefore support continued funding authorization.

The DERA program is still needed to help speed adoption of highly cost-effective emission control technologies for the millions of diesel vehicles which do not meet the most recent emission control standards. It is our hope that Congress will act to extend the program to allow the benefits of diesel emission reduction to continue in communities around the country.

Thank you for your consideration.

Sincerely,

Advanced Engine Systems Institute - American Association of Port Authorities
American Lung Association - American Highway Users Alliance – American Power Group
American Trucking Associations - Associated General Contractors of America
Association of American Railroads – Blue Bird Corporation - Caterpillar Inc.
Corning Incorporated - Cummins Inc. - Diesel Technology Forum
Emission Control Technology Association – Environmental Defense Fund - IC Bus
Manufacturers of Emission Controls Association - NAFA Fleet Management Association
National Association of Clean Air Agencies
National Association of State Directors of Pupil Transportation Services
National School Transportation Association - New York School Bus Contractors Association
The Lion Electric Co. - Thomas Built Buses - Truck and Engine Manufacturers Association
Umicore Autocat, Inc. - United Motorcoach Association – Volvo Group North America

DIESEL TECHNOLOGY FORUM

March 13, 2019

The Hon. John Barrasso
Chair
Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, D.C. 20510

The Hon. Tom Carper
Ranking Member
Senate Committee on Environment and Public Works
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the Diesel Technology Forum, I would like to submit the following statement for the record and the hearing concerning the Diesel Emission Reduction Act (DERA).

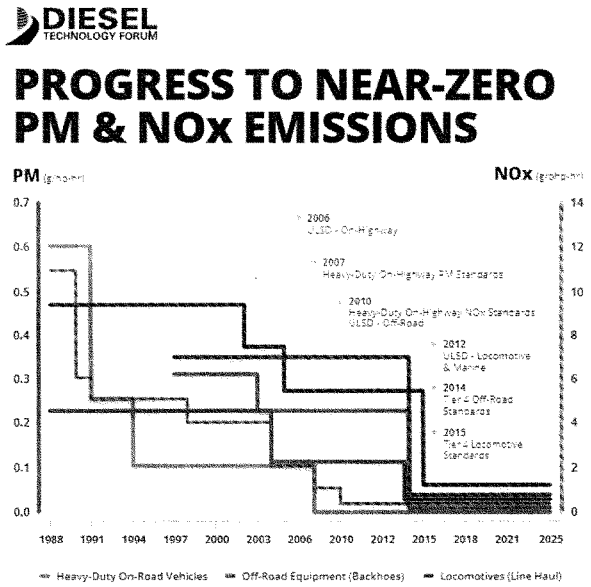
In Summary

- DERA is an unquestioned and well documented bipartisan success story. Over 73,000 vehicles, engines and pieces of equipment have been replaced or retrofitted thanks to the DERA program. Substantial clean air benefits and greenhouse gas reductions have been achieved and documented.
- The program has delivered significant emission reduction benefits to communities across the country, largely through the use of advanced technology new diesel engines and retrofitted emissions control technology. Every dollar invested in diesel retrofits and replacements yields at least $13 in environmental and public health benefits.
- While funding has been appropriated for DERA activities since 2008, there is still continuing need for the program, to address the many older vehicles, engines and equipment still operating today, and likely for years to come. In the trucking sector, 36 percent of all large trucks are of the newest generation of near-zero emissions performance, meaning that 64 percent are of an older generation of technology.
- Substantial opportunities for emissions improvements still exist in communities all around the country.

By way of background, the Diesel Technology Forum represents the manufacturers of diesel engines, vehicles and equipment, including passenger vehicles, larger commercial trucks and buses and even larger pieces of off-road equipment, locomotives and stationary engines. The Forum serves as a not-for-profit educational and advocacy organization dedicated to raising awareness of the clean air and economic benefits of diesel engines, vehicles and equipment, along with cleaner diesel fuel including biodiesel and renewable diesel fuel. More information is available at www.dieselforum.org.

I. NEW DIESEL ENGINES ARE NEAR-ZERO IN EMISSIONS

These last ten years have been called the decade of clean diesel: a system of cleaner engines, cleaner fuels, and advanced emissions control technologies are now deployed across all ranges and types of diesel-powered vehicles, equipment and machines. The results are clear, new highway diesel truck engines have near-zero emissions of particulate matter and oxides of nitrogen (NOx), 98 percent less than 1988 models. It is noteworthy that truck and engine manufacturers are not only producing near-zero level emissions vehicles, but these vehicles are consuming less fuel. Due to the first ever fuel economy rules for commercial vehicles, EPA estimates that between 2014 and 2018, more fuel-efficient trucks will save 530 million barrels of crude oil, reduce 270 million tons of greenhouse gas emissions, while also saving vehicle owners millions in fuel costs.[1] These are advancements that allow the fuel sipping diesel engine to use even less fuel while reducing emissions.



[1] https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-1-greenhouse-gas-emissions-standards-and

The new generation of clean diesel technology is not only meeting its emissions reduction targets but is also exceeding them. A jointly funded government and industry research effort known as the Advanced Combustion Emissions Study (ACES), carried out through the Health Effects Institute and Coordinating Research Council, evaluated the performance of large diesel engines that power a Class 8 truck that come with technology to meet the model year 2010 emissions standard. Phase 1 of that study determined that fine particle emissions generated from these truck engines were lower than the standard required of them, while the second phase of the research determined that there were no adverse health outcomes due to exposure from the exhaust from these engines.[2]

Similar reductions in emissions of particulates and oxides of nitrogen are now required of the wide range of off-road engines that power everything from small construction equipment and farm machinery to freight locomotives, marine vessels and work boats. Beginning in 2014, newly manufactured off-road equipment must meet the Tier 4 emissions standards while larger engines that power marine vessels, locomotives and other large applications must meet these standards beginning in 2015.

II. MODERNIZING AND UPGRADING EXISTING ENGINES AND EQUIPMENT

Diesel engines are known for their durability and reliability. Customers who purchase these technologies value these traits, and it is not unusual to see 10 or 15-year-old construction machines, agricultural equipment or commercial trucks. In the course of developing cleaner diesel engines and fuels, it became clear that some technologies could be deployed on existing vehicles and equipment which would enable current truck, bus or machine owners to improve the environmental footprint of their equipment while enhancing its overall value.

DERA is an important tool to help incentivize the introduction of the latest clean diesel technologies across all applications to help meet the needs of vehicle and equipment owners, while delivering real emission reduction benefits for the communities in which they serve. According to the latest report to Congress, EPA estimates that between 2008 and 2013 the program has retrofitted or replaced over 73,000 vehicles, equipment and engines to deliver over 335,000 tons of NOx emission reductions and 14,700 tons of fine particle emission reductions. The program, which requires non-federal matching funds, generates on average $13 in clean air benefits for every $1 provided through it.[3]

Every dollar invested in diesel retrofits and replacements yields at least $13 in environmental and public health benefits. Plus, DERA has provided federal funds in a competitive process that encourages state, local, or private funding matches. By doing so, DERA has been able to leverage roughly $3 in state, local, or private funding for every federal dollar. It is hard to find a better

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[2] https://www.healtheffects.org/publication/executive-summary-advanced-collaborative-emissions-study-aces

[3] https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OHMK.pdf

investment in public health. The DERA program has benefitted every state including those represented on the Committee. For example, in Delaware, DERA funds have gone to upgrading equipment at the Port of Wilmington, local school bus fleets and municipal vehicles, as well as off-road and construction equipment. In Sublette County Wyoming, the Wyoming Department of Environmental Quality used a combination of funds, including a $1.1 million EPA grant, as part of a $2.3 million project that involved 11 non-road construction companies and 34 pieces of equipment. The project involved machine repowers and engine upgrades in construction equipment in the infrastructure serving the Pinedale natural gas fields.

III. THE IMPORTANCE OF RETAINING THE DIESEL EMISSIONS REDUCTION ACT (DERA)

While new clean technologies including clean diesel are ready and available today, introducing these technologies in the fleet of heavy-duty on and off-road equipment is a lengthy process. The DERA program is a necessary tool to introduce these technologies sooner than they would occur under normal attrition rates.

Commercial Vehicles and Buses

America's fleet of trucks, school buses and transit buses are relatively old and do not come with the latest near-zero emissions technology. Today, diesel is the predominant powertrain found under the hood of America's fleet of commercial vehicles, transit buses and school buses. Seventy-five percent of commercial vehicles, 95 percent of school buses and 85 percent of transit buses are powered by diesel technology. According to vehicle in operation data compiled through 2017, about two out of every three trucks and buses on the road does not come with the latest near-zero emissions technology developed to meet the latest tailpipe emissions standard established for model year 2010. The DERA program is an effective and needed tool to provide incentive funds to encourage the owners of commercial trucks, school buses and transit buses to replace older equipment with new.

Support for a New Engine Standard

Commercial vehicles will be getting cleaner and the DERA program will help introduce these new technologies to benefit communities. Engine manufacturers and other stakeholders are working with EPA concerning a new heavy-duty engine standard that will take near-zero emissions for fine particles and NOx closer to zero while still working within stringent fuel economy standards. That program, the *Cleaner Trucks Initiative*, is ongoing and will see further reductions in emissions. If the past is any indication of the future, introducing these closer-to-zero innovations will take time and the DERA program is an important tool to deliver emission reduction benefits to communities across the country.

Off-Road Equipment

Unlike commercial vehicles, owners of off-road equipment are often not required to register equipment like the owner of a truck or car. Off-road equipment, including construction and agricultural tractors, are understood to be of a later generation of technology. These are expensive assets that owners will continue to maintain to ensure they are in the field and on job

sites. Like commercial vehicles, the DERA program is an effective tool to help incentivize the replacement of equipment with new clean diesel Tier 4 technologies.

Large Engines that Power Marine Vessels and Switch Locomotives

The fleet of marine vessels and switch locomotives are powered by very large engines, which are often in service around the clock and operate in localized regions. Switch locomotives, for example, rarely leave a narrowly defined geographical region. Recent research commissioned jointly by the Diesel Technology Forum and the Environmental Defense Fund determined that these engines are older and live longer.[4]

Replacing these engines, with help from the DERA program, can introduce the latest clean diesel innovations and generate substantial emission reductions. Research confirms that marine engines remain in service upwards of 50 years as opposed to the 23 years estimated by EPA. Older uncontrolled engines may operate in sensitive communities for generations. The DERA program is a necessary tool to encourage the owners of these much larger marine vessels to replace older engines with new cleaner models. A single engine replacement, when replacing an older uncontrolled engine, can eliminate 30 tons of NOx emissions in a single year. This is equivalent to replacing 96 older Class 8 trucks. Without DERA funding, many of these older marine vessels may be in operation for many years.

Much like marine vessels, switch locomotives remain in service for about 50 years. Replacing the oldest engines that power switch locomotives, including those that were manufactured before emission controls were required of them, can reduce NOx emissions on average of nine tons per year. This is similar to replacing 29 large Class 8 trucks.

New clean diesel engines may also generate co-benefits in terms of greenhouse gas reductions and fuel savings. While Tier 4 clean diesel technologies are developed to reduce emissions of fine particles and NOx, some owners report additional benefits. One marine vessel operating in Puget Sound reported reducing 1,000 tons of greenhouse gas emissions from upgrading older engines with new clean diesel models, while a rail operator in the region reported saving 19,000 gallons of fuel per year when replacing an older engine with a new Tier 4 clean diesel model.[5]

IV. DERA IS A PROGRAM THAT WORKS BECAUSE:

1. Enjoys bipartisan support in Congress and a uniquely broad-based coalition of followers and supporters numbering over 500 organizations;
2. Is voluntary and incentive based, offering carrots – instead of sticks – to interested parties to participate;

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[4] https://www.dieselforum.org/largeengineupgrades

[5] https://www.dieselforum.org/policyinsider/work-boats-working-for-clean-air https://www.dieselforum.org/policyinsider/switch-the-switcher-from-old-to-new-clean-diesel-locomotive-power

3. Allows owners to choose verified technology that works best for their circumstances; not all technologies work on all equipment;
4. Gives states the flexibility to apply DERA funding based on local emissions inventories to improve air quality;
5. Provides for a results oriented, competitive process to ensure the greatest level of success;
6. Gives greater understanding of the practical issues at the intersection of environmental goals and real-world business decisions; making distinctions between what is technologically possible and economically practical;
7. Encourages private and local investment through the provision of matching funds to leverage the federal incentive dollars by as much as 3 to 1; and
8. Rewards the American public with a substantial return on its investment, as much as $13 in benefits for every dollar invested.

CONCLUSIONS

Diesel engines are the workhorse of our economy for today, tomorrow and the foreseeable future. The new generation of clean diesel technology – cleaner fuel, advanced engines and emissions control systems – is now at near-zero levels of emissions. End users that have acquired the new technology are finding it to meet or exceed their expectations with performance, fuel economy and low emissions. Every category of stationary and mobile diesel engines, with the exception of ocean-going container vessels, is now on a regulatory path to near-zero emissions diesel engine technology.

There is a clearly identified need for DERA, a voluntary incentive-based program to modernize and upgrade existing engines and equipment. Congress played a visionary role in establishing and funding this voluntary incentive-based program to encourage these activities. Although DERA funds have leveraged other dollars, there is no question that the number of engines retrofitted or replaced to date represents only the tip of the iceberg. Older generations of technology still power everything from commercial trucks and buses to much larger marine vessels and switch locomotives. It is even more important to help fund programs to retrofit and replace these older engines, vehicles and equipment, as even cleaner technologies are on the drawing board. If ever a program made sense and had the support of environmental, labor, public health and industry groups, this is the one.

We thank you for the opportunity to provide these comments to you as you consider efforts to promote American leadership in reducing emissions through innovation. Please feel free to contact me with any questions or concerns. I can be reached at (301) 668-7230.

Very truly yours,

Allen R. Schaeffer

Allen R. Schaeffer
Executive Director

Senator BARRASSO. I want to thank our panel for being here, each of the witnesses. Thank you for your testimony.

We are now going to hold the record open in case some of the other members have questions, written questions. We will submit those to you and we would ask that you get those responses back to us. The record will remain open for 2 weeks.

Thanks so much for being with us.

This hearing is adjourned.

[Whereupon, at 11:11 a.m. the committee was adjourned.]

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