

U. S. Environmental Protection Agency
DERA State Clean Diesel Program
Final FY 2014 to FY 2016 Grant Project Report

Grant Recipient	Connecticut Department of Energy & Environmental Protection
Grant #	DS 96185101-2
Reporting Period	Final

	FY14	FY15	FY16
Total Award Amount	\$83,525.00	\$127,044.00	\$204,054.00
Total Match Amount			

Table 1. Rate of Expenditure. Record all funds expended for each budget category.

	Federal Funds Expended this Reporting Period	Cost-Share Expended this Reporting Period	Additional Leveraged Funds Expended this Reporting Period	Total Federal Funds Expended in the Grant Period	Total Cost-Share Expended in the Grant Period	Total Additional Leveraged Funds Expended in the Grant Period
Personnel	\$7,389.00			\$7,389.00		
Fringe Benefits	\$5,952.00			\$5,952.00		
Travel						
Equipment						
Supplies						
Contractual						
Other Year 1	\$83,338.31	\$0.00	\$150,554.08	\$83,338.31	\$0.00	\$150,554.08
Other Year 2	\$127,230.69	\$0.00	\$472,541.65	\$127,230.69	\$0.00	\$472,541.65
Other Year 3	\$188,658.00	\$0.00	\$460,448.92	\$188,658.00	\$0.00	\$460,448.92
Indirect Charges	\$2,055.00			\$2,055.00		
TOTALS	\$414,623.00	\$0.00	\$1,083,544.65	\$414,623.00	\$0.00	\$1,083,544.65

Table 2. Narrative Responses

Question	Answer
Please summarize the accomplishments that occurred during the grant period. (Part 1 of 2)	<p>CT Dept. of Energy & Environmental Protection (DEEP) State DERA2 Administrative Activities: DEEP prepared and submitted notices of intent to participate and applications for DERA funding. DEEP conducted open competitions and selected clean diesel proposals for funding under this grant. Selected projects were incorporated into revised work plans that were submitted to EPA for approval. DEEP worked with recipients to develop scopes of work, purchase orders and contracts for implementing the grants. DEEP monitored and documented the progress of all projects. DEEP reviewed and approved the scragpage documentation and requests for payment, consulting with EPA as needed. DEEP prepared and submitted required quarterly reports.</p> <p>The Providence and Worcester Railroad Company (P&W) Idle Reduction Technology for 2 Switch Engines: P&W received a Fiscal Year 2014 (FY 2014) grant of \$9,570.62, representing 40% of the cost to purchase and install electric idle-reduction technology on two of its switch engines operating in New Haven. P&W completed the installation of RailStar90 battery/electric fuel-heating APU units in September of 2015. The request for payment was approved on September 22, 2015. and the funds were drawn down December 30, 2015.</p> <p>Bozzuto's, Inc. (Bozzuto's) TRU Shorepower: Bozzuto's was granted \$49,472.25, representing 25% of the cost to install eighteen stationary shorepower units to allow activation of hybrid electric transport refrigeration units (e-TRUs) already present on a number of vehicles in Bozzuto's 250-truck fleet. The units were to have been installed at Bozzutto's Cheshire distribution facility. Bozzuto's withdrew from the program on March 24, 2015.</p> <p>With EPA's approval, the funds designated for Bozzuto's, along with other unallocated funds, were offered to D. A. Vento Refuse, LLC.</p>

Please summarize the accomplishments that occurred during the grant period. (Part 2 of 2)

The Connecticut Department of Correction (DOC) 2014 Box Truck Replacement: DOC received \$22,699.69, representing 25% of the cost of the early replacement of a model year (MY) 2002 box truck used to deliver supplies to prison facilities statewide. The DOC project was completed in May of 2015, well ahead of schedule. The request for payment was approved on June 4, 2015 and the funds were drawn down June 26, 2015.

D. A. Vento Refuse, LLC (Vento) 2014 Refuse Truck Replacement: Vento received \$51,068.00, representing 25% of the cost for early replacement of a MY 2004 refuse truck. Vento completed its project in July of 2015, ahead of the original deadline. The request for payment was approved August 20, 2015 and the funds were drawn down December 30, 2015.

DOC Box Truck Replacement, 2015 Grant: DEEP awarded \$23,193.84 to the DOC, representing 25% of the cost for early replacement of a MY 2004 box truck. The project was completed, ahead of schedule, with scrappage of the old truck in April of 2015. DEEP approved this for payment on May 3, 2016 and the grant funds, were drawn down on May 19, 2016.

The Town of Wethersfield (Wethersfield) 2015 Payloader Replacement Grant: Wethersfield received a \$47,000.00 grant, representing 25% of the cost for the early replacement of a 160 horsepower, MY 2000, rubber tire pay loader. Wethersfield completed its project in the eighth quarter and submitted its final invoice with scrappage documentation. The request for payment of \$46,057.00 was approved August 30, 2016. Funds were drawn down November 4, 2016. The rebate request was \$943.00 below the initial grant. With EPA's approval, the remaining funds were added to the Town of Ledyard's grant.

Vento Refuse Truck Replacement, 2015 Grant: Vento received a 2015 grant of \$37,905.63, representing 25% of the cost for early replacement of a 2000 MY hook lift refuse truck. Vento completed its FY 2015 project in May of 2016. The request for payment of \$37,638.13 was approved June 9, 2016. Funds were drawn down November 4, 2016. This rebate was \$267.50 below the initial grant. With EPA's approval, the remaining funds were added to the Town of Ledyard's grant.

The Town of Ledyard (Ledyard) Dump Truck Replacement: Ledyard was awarded \$20,341.72, which, even with the increases from Wethersfield and Vento, remained less than 25% of the cost for early replacement of a MY 1997 snowplowing dump truck. Ledyard completed its project in the eighth quarter and submitted a final invoice. DEEP approved the request for payment on September 7, 2016. Funds were drawn down November 4, 2016.

Jeanette T. Fisheries, LLC Fishing Vessel Repower: Jeanette T. Fisheries was awarded a grant of \$97,245.60 in 2016 State DERA funds, representing 40% of the cost to repower its two fishing vessels with Tier 3 engines. The repower of the *FV Jeanette T.* was completed and approved for a payment of \$83,245.60 on April 4, 2017. A partial reimbursement request to help cover the cost of the Tier 3 engine for the *FV Emma & Maria* was received May 18, 2017 and approved for payment May 22, 2017. Funds for the first two reimbursements were drawn down on June 26, 2017. The repower of the *FV Emma & Maria* was completed and the reimbursement request for installation of the engine and sea trials was approved for payment August 14, 2017. Funds were drawn down September 29, 2017.

The Town of West Hartford (West Hartford) Dump Truck Replacement West Hartford was awarded \$57,091.08, less than 25% of the cost of the early replacement of a MY 1995 snowplowing dump truck. The project was completed and the rebate was approved for payment August 15, 2017. Funds were drawn down September 29, 2017.

DOC 2016 Box Truck Replacement: DOC received \$21,927.32 in FY 2014 DERA funds, less than 25% of the cost for early replacement of a MY 2006 box truck. The old truck was scrapped, completing the project in June of 2017. The rebate request, including an increase resulting from Wethersfield's coming in under budget, was approved for payment September 18, 2017. Funds were drawn down September 29, 2017.

Wethersfield 2016 Skid Steer Loader Replacement: Wethersfield was awarded \$12,616.47 in 2016 DERA funds, less than 25% of the cost of the early replacement of a 61 horsepower, MY 2001, skid steer loader. The project was completed under budget. The reimbursement request was approved for payment September 12, 2017 and funds were drawn down September 29, 2017.

<p>Provide a comparison of the actual accomplishments with the anticipated outputs/outcomes and timelines/milestones specified in the original project annual Work Plans.</p>	<p>P&W Idle Reduction Technology for 2 Switch Engines: P&W proposed to install APUs on two of the switch engines it owns and operates in New London. However, the first two APUs were inadvertently installed on two leased engines instead of the engines specified in the proposal. Instead of removing and reinstalling the APUs on the proposed engines, P&W elected to purchase two additional APUs and install them on the company-owned engines specified in the proposal. As a result of this project, two additional engines received idle reduction technology at P&W's expense, for a total of 4 retrofitted switch engines.</p> <p>Bozzuto's Hybrid TRU Shorepower Project: Bozzuto's withdrew from the program on March 24, 2015.</p> <p>All of the 2014-2016 projects were completed on or ahead of schedule (with the exception of Bozzuto's, which was withdrawn).</p>
<p>If the anticipated outputs/outcomes and/or timelines/milestones from the original submitted proposal were not met, please explain why not. Did you encounter any problems during the grant period which may have precluded your from meeting the project objectives?</p>	<p>P&W Idle Reduction Technology for 2 Switch Engines: Instead of removing and reinstalling the APUs on the proposed engines, P&W elected to purchase two additional APUs and install them on the company-owned engines specified in the proposal. As a result of this project, two additional engines were provided with idle reduction technology at P&W's expense, for a total of 4 retrofitted switch engines. The second installation delayed the project, but it was completed before the August 31, 2015 deadline.</p> <p>P&W Idle Reduction Technology for 2 Switch Engines: P&W had proposed to install RailStar100 diesel generator APUs, but actually installed RailStar 90 battery-electric APUs on the engines. Both products are verified, however DEEP was not made aware of the change until the final invoice was submitted for payment.</p> <p>Bozzuto's Hybrid TRU Shorepower Project: Because the proposal involved shorepower units alone, not in combination with e-TRUs, the technology was not SmartWay-verified at that time.</p> <p>DOC 2014 Box Truck Replacement: DOC was initially awarded \$21,250.00, representing 25% of the cost of the early replacement of a box truck. The proposal was based on a state contract price, however a new state contract was issued before the truck was purchased and the new contract price was higher. DEEP had sufficient unallocated funds to supplement the initial grant, with EPA's permission, bringing the award to 25% of the increased cost of the truck.</p> <p>Wethersfield 2015 Pay Loader Replacement Grant: The initially selected vendor could not provide the specified loader so a second vendor was chosen. As a result, the grant came in \$943.00 under budget.</p> <p>Vento Refuse Truck Replacement, 2015 Grant: The grant came in under budget freeing up an additional \$267.50.</p> <p>Jeanette T. Fisheries Fishing Vessel Repower Grant: When the old engine was scrapped for the <i>FV Jeanette T.</i>, no engine family number was located on the serial number plate attached to the engine.</p> <p>DOC Box Truck Replacement, 2016 Grant: When the old truck was scrapped, no serial number plate was located on the drilled engine, but documents related to an engine rebuild in 2009 included both the VIN and engine serial number.</p>
<p>How did you remedy any problems? Please detail how and the date you had to address any problems that changed the original work plan and or work plan schedule. (Part 1 of 2)</p>	<p>P&W Idle Reduction Technology for 2 Switch Engines: On September 2, 2015, in response to DEEP's request, EPA granted approval of the technology change with the stipulation that P&W provide an explanation for the change and that the change in emissions reductions be calculated. P&W explained, "The Railstar 90 is 110 volt and the Railstar 100 is a diesel engine drive APU. We already have 110V APU units in New Haven to be as GREEN as we can. We wanted to standardize the fleet and utilize electrical service already installed." While it is anticipated that the emissions will be less with the battery/electric system, the DEQ has no entry category to directly calculate emission reductions for locomotive APU technology; an estimate was provided based on decreases in the hours of idling. Since the project was already completed, this did not affect the project schedule.</p> <p>Bozzuto's Hybrid TRU Shorepower Project: A waiver was requested and, on January 13, 2015, granted by EPA, allowing this shorepower only project to be funded. However Bozzuto's withdrew from the program on March 24, 2015, citing unspecified issues with the required state contract. On June 10, 2015, EPA gave approval for DEEP to offer the funds designated for Bozzuto's, along with unallocated state DERA funds for a total of \$51,068.00, to D. A. Vento Refuse, LLC for early replacement of a refuse truck.</p>

<p>How did you remedy any problems? Please detail how and the date you had to address any problems that changed the original work plan and or work plan schedule. (Part 2 of 2)</p>	<p>DOC 2014 Box Truck Replacement Grant: DEEP proposed, and on April 1, 2015, EPA approved the use of unallocated state DERA funds to bring the DOC grant back up to 25% of the new cost, a revised award of \$22,699.69. This did not impact the work plan schedule.</p> <p>Vento 2015 Refuse Truck Replacement Grant: The grant came in under budget freeing up an additional \$267.50. On June 6, 2016, EPA approved adding excess funds to the Ledyard grant, providing that the total did not exceed 25% of the project cost. This brought the total to \$19,212.03, which was still less than 25% of the total cost. This did not impact the work plan schedule.</p> <p>Wethersfield 2015 Pay Loader Replacement Grant: The grant came in \$943.00 under budget. On June 6, 2016, EPA approved adding excess funds to the Ledyard grant. This brought the total to \$20,341.72, which was still less than 25% of the total cost. This had no effect on the work plan schedule.</p> <p>Jeanette T. Fisheries Fishing Vessel Repower Grant: On August 9, 2019, EPA approved the scrappage documentation for the engine from the <i>FV Jeanette T.</i>, despite the fact that no model number was available on the serial number plate for the engine. Since the project was already completed, this did not affect the project schedule.</p> <p>Wethersfield 2016 Skid Steer Loader Replacement Grant: Wethersfield's project came in \$222.47 under budget. With EPA's permission, granted September 14, 2017, this amount was added to the remaining project, DOC's box truck replacement. The revised total of \$21,927.32 for the DOC grant was under the 25% maximum allowed under DERA. Since the project was already completed, this did not affect the project schedule.</p> <p>DOC Box Truck Replacement, 2016 Grant: On August 9, 2017, EPA approved the engine scrappage documentation and, on September 14, 2017, DEEP's request to increase DOC's grant by \$222.47, the balance left from Wethersfield's grant. Since the project was already completed, this did not affect the project schedule.</p>
<p>Please identify the source of any cost-share or additional leveraged funds are reported for this grant period in Table 1 above. (Part 1 of 2)</p>	<p>P&W Idle Reduction Technology for 2 Switch Engines: P&W expended \$14,355.92 as its cost share for the installation of battery/electric, fuel-warming APU technology on two switch engines in its New Haven fleet. DEEP has no record of the funds spent by P&W on APUs for the two additional engines.</p> <p>DOC 2014 Box Truck Replacement: DOC expended \$68,099.08 as its cost share for the early replacement of a box truck.</p> <p>Vento Refuse Truck Replacement, 2014: Vento expended \$68,099.08 as its cost share for the early replacement of a refuse truck.</p> <p>DOC Box Truck Replacement, 2015 Grant: CT DOC spent \$69,581.53 in leveraged funds as its share of the cost of the new box truck.</p> <p>Wethersfield 2015 Pay Loader Replacement Grant: Wethersfield spent \$148,674.00 in leveraged funds as its cost share for the new pay loader.</p> <p>Vento Refuse Truck Replacement, 2015 Grant: Vento made a down payment of \$3,000.00 plus an additional \$109,914.37 in leveraged funds as its cost share for the new truck.</p> <p>Ledyard Dump Truck Replacement Grant: Ledyard spent \$141,371.75 in leveraged funds as its cost share of the new snowplowing dump truck.</p> <p>Jeanette T. Fisheries Fishing Vessel Repower Grant: Jeanette T. Fisheries contributed \$145,868.40 in mandatory cost share funds toward the purchase and installation of the Tier 3 engines for the <i>FV Jeanette T.</i> the <i>FV Emma & Maria</i>.</p> <p>West Hartford Snowplowing Dump Truck Replacement Grant: West Hartford contributed \$202,431.72 as its mandatory cost share of the purchase of its new snowplowing dump truck.</p> <p>DOC Box Truck Replacement, 2016 Grant: DOC contributed \$75,466.80 as its mandatory cost share for the purchase of a new box truck.</p>

<p>Please identify the source of any cost-share or additional leveraged funds are reported for this grant period in Table 1 above. (Part 2 of 2)</p>	<p>Wethersfield 2016 Skid Steer Loader Replacement Grant: Wethersfield contributed \$36,682.00 in mandatory cost share funds toward the purchase of its new skid steer loader.</p>
<p>Was any program income generated during the grant period? Identify amount of program income, how it was generated, and how the program income was used.</p>	<p>Wethersfield 2015 Pay Loader Replacement Grant: Wethersfield received \$10,500.00 as the scrap value of the replaced pay loader, #L90DV64013; Wethersfield applied this against its cost share for the project.</p> <p>Ledyard Dump Truck Replacement Grant: Ledyard received \$815.20 as the scrap value of the replaced truck, VIN 1FDYK82E5VVA10405; Ledyard applied this to offset part of its cost share for the project.</p> <p>West Hartford Snowplowing Dump Truck Replacement Grant: West Hartford received \$500.00 as income from the scrap value of its scrapped dump truck, VIN 1FDYK90U9SVA35223; this was used to offset part of the mandatory cost share for the project.</p> <p>Wethersfield 2016 Skid Steer Loader Replacement Grant: Wethersfield received \$500.00 as the scrap value of its scrapped skid steer loader, VIN 517620072, which offset part of it's mandatory cost share for the project.</p>
<p>Did any public relations events regarding this grant take place during the grant period? (Part 1 of 2)</p>	<p>1st Quarter: On October 16, 2014, DEEP alerted all Connecticut school districts of the opportunity to receive National DERA funding for school bus replacement. On October 9, 2014 all CT Clean Diesel Stakeholders were notified of the opportunity to submit proposals for State DERA2 funds. This was also posted on the diesel grant website and promoted in the October 23, 2014 issue of Your Environmental Connection, DEEP's e-newsletter sent to businesses, agencies and municipalities across the state.</p> <p>2nd Quarter: Following EPA approval of the selected projects and the revised work plan, DEEP updated its website to include the projects selected for DERA funding in 2014.</p> <p>3rd Quarter: On April 30, DEEP notified its stakeholders about the release of the FY 2015 National DERA RFP. The announcement was sent by e-mail with a copy of the RFP attached. On May 19, DEEP sent information about the Tribal Clean Diesel program to tribal representatives in Connecticut. DOC has reported on its new truck in the most recent edition of it's staff newsletter, "PRIDE." P&W has promoted its project through presentations to the President of the Company, the Board of Directors, senior staff members and P&W employees.</p> <p>4th Quarter: On August 3, 2015, all CT Clean Diesel Stakeholders were notified of the opportunity to submit proposals for 2015 State DERA2 funds. The announcement was sent to stakeholders by e-mail and published on the Diesel Grants & Funding web page. On September 30, 2015, DEEP forwarded a notice regarding the National School Bus Rebate to the school districts in CT.</p> <p>6th Quarter: On February 18, 2016, DEEP participated in a press event, organized by EPA Region 1, recognizing Connecticut recipients of 2015 National Clean School Bus grants. DEEP's Commissioner Klee included the State DERA program in his remarks. On March 3, 2016, DEEP forwarded the announcement of the National Clean Diesel RFP to its list of clean diesel stakeholders in Connecticut. The announcement was sent by e-mail with a copy of the RFP attached.</p> <p>7th Quarter: On June 29, 2016, DEEP's Air Bureau forwarded the announcement of the Tribal Clean Diesel RFP to DEEP's Tribal Affairs office and to casino grant managers for the federally recognized tribes in Connecticut.</p> <p>8th Quarter: On August 5, 2016, all CT Clean Diesel Stakeholders were notified of the opportunity to submit proposals for FY 2016 State DERA2 funds. The announcement was sent to stakeholders by e-mail and published on the Diesel Grants & Funding web page.</p> <p>9th Quarter: On October 4, 2016, DEEP forwarded a notice regarding the National School Bus Rebate to all the school districts in CT. The announcement was sent to stakeholders by e-mail and published on the Diesel Grants & Funding web page.</p>

<p>Did any public relations events regarding this grant take place during the grant period? (Part 2 of 2)</p>	<p>10th Quarter: On February 23, 2017, DEEP hosted an Information meeting for its draft VW Settlement Mitigation Plan. The DERA Option was discussed. A number of comments were received in support of the DERA Option. The meeting announcement was sent to stakeholders by e-mail and published on Connecticut's VW Settlement web page.</p> <p>11th Quarter: On April 18, 2017, DEEP forwarded EPA's announcement of the National Clean Diesel RFP to everyone on its clean diesel stakeholders list. The announcement was sent to stakeholders by e-mail with a copy of the RFP attached. On June 6, a similar e-mail was distributed to announce the revised RFP and new, July 5 submission deadline for the national program.</p> <p>12th Quarter: On September 29, 2017, DEEP forwarded EPA's notice on the Clean School Bus program to all school superintendents in the state. The September 2017 edition of DEEP's quarterly e-newsletter, Your Environmental Connection, featured an article promoting the upcoming, FY 2017 State DERA Program. This publication has a wide distribution to business and municipal officials across the state.</p>
<p>Are you using websites or other tools used to relay information about this grant to the public?</p>	<p>DEEP maintains a website for Diesel Grants and Funding. Information about this and other diesel grant programs administered by DEEP's Bureau of Air Management can be found on the DEEP website at: http://www.ct.gov/deep/cwp/view.asp?a=2684&q=322100&depNav_GID=161</p>

Table 3: Innovative Finance Projects

Project/Program Name	Number of Loans/Rebates	Interest Rates	Length of Loans	EPA Funds Expended on Loans/Rebates	Non-EPA Funds Leveraged	Total Net Loss/Default	EPA Funds Expended on Non-Loan Activities

Table 4: Summary of Total Emissions Reduction per Fiscal Year (Emission Reductions Created)

Fiscal Year Funding	Project Name	Entity	EPA Funding Expended	Emission Reductions (tons/yr)	Emission Reductions (lifetime tons)
Fiscal Year 2014	P&W Idle Reduction Technology for 2 Switch Engines:	Providence & Worcester Railroad	\$9,570.62	HC: 2.601 ¹	HC: 109.252
				CO: 8.351 ¹	CO: 350.756
				NOx: 48.465 ¹	NOx: 2,035.534
				PM: 1.018 ¹	PM: 42.762
				CO ₂ : 216.5 ¹	CO ₂ : 9,090.9
Fiscal Year 2014	Bozzuto's Hybrid-TRU Shorepower Project:	Bozzuto's, LLC		HC: 0.1310 ²	HC: see footnote ³
				CO: 0.6345 ²	CO: see footnote ³
				NOx: 1.3944 ²	NOx: see footnote ³
				PM: 0.1475 ²	PM: see footnote ³
				CO ₂ : 99.3006 ²	CO ₂ : see footnote ³
Fiscal Year 2014	CT DOC 2014 Box Truck Replacement	CT Department of Correction	\$22,699.69	HC: 0.019	HC: 0.299
				CO: 0.085	CO: 1.366
				NOx: 0.197	NOx: 3.151
				PM: 0.010	PM: 0.155
				CO ₂ : see footnote ^{4,5}	CO ₂ : see footnote ^{4,5}
Fiscal Year 2014	D. A. Vento Refuse Truck Replacement	D. A. Vento Refuse, LLC	\$51,068.00	HC: 0.011	HC: 0.196
				CO: 0.046	CO: 0.837
				NOx: 0.157	NOx: 2.834
				PM: 0.011	PM: 0.200
				CO ₂ : see footnotes ^{4,5,6}	CO ₂ : see footnotes ^{4,5,6}
Fiscal Year 2015	CT DOC 2015 Box Truck Replacement	CT Department of Correction	\$23,193.84	HC: 0.005	HC: 0.084
				CO: 0.020	CO: 0.354
				NOx: 0.065	NOx: 1.162
				PM: 0.004	PM: 0.063
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵
Fiscal Year 2015	D. A. Vento 2015 Refuse Truck Replacement	D. A. Vento Refuse, LLC	\$37,638.13	HC: 0.014	HC: 0.195
				CO: 0.098	CO: 1.378
				NOx: 0.275	NOx: 3.844
				PM: 0.012	PM: 0.164
				CO ₂ : see footnote ^{5,7}	CO ₂ : see footnote ^{5,7}
Fiscal Year 2015	Wethersfield Pay Loader Replacement	Town of Wethersfield	\$46,057.00	HC: 0.023	HC: 0.111
				CO: 0.132	CO: 0.634
				NOx: 0.516	NOx: 2.478
				PM: 0.029	PM: 0.140
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵

Table 4, continued: Summary of Total Emissions Reduction per Fiscal Year (Emission Reductions Created)

Fiscal Year Funding	Project Name	Entity	EPA Funding Expended	Emission Reductions (tons/yr)	Emission Reductions (lifetime tons)
Fiscal Year 2015	Ledyard Dump Truck Replacement	Town of Ledyard	\$20,341.72	HC: 0.002	HC: 0.024
				CO: 0.012	CO: 0.131
				NOx: 0.043	NOx: 0.477
				PM: 0.002	PM: 0.025
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵
Fiscal Year 2016	Jeanette T. Fisheries Fishing Vessel Repower	Jeanette T. Fisheries, LLC	\$97,245.60	HC: 0.061	HC: 0.276
				CO: 0.446	CO: 2.020
				NOx: 6.984	NOx: 31.660
				PM: 0.198	PM: 0.898
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵
Fiscal Year 2016	West Hartford Snowplowing Dump Truck Replacement	Town of West Hartford	\$57,091.08	HC: 0.007	HC: 0.007
				CO: 0.035	CO: 0.035
				NOx: 0.152	NOx: 0.152
				PM: 0.007	PM: 0.007
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵
Fiscal Year 2016	CT DOC 2016 Box Truck Replacement	CT Department of Correction	\$21,927.32	HC: 0.016	HC: 0.110
				CO: 0.063	CO: 0.443
				NOx: 0.161	NOx: 1.127
				PM: 0.011	PM: 0.075
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ⁵
Fiscal Year 2016	Wethersfield Skid Steer Loader Replacement	Town of Wethersfield	\$12,394.00	HC: 0.028	HC: 0.028 ⁸
				CO: 0.170	CO: 0.170 ⁸
				NOx: 0.075	NOx: 0.075 ⁸
				PM: 0.034	PM: 0.034 ⁸
				CO ₂ : see footnote ⁵	CO ₂ : see footnote ^{5,8}

¹Based on a 2006 EERE projection of emissions reductions for switch engines using diesel-powered APU technology. Emissions may be even lower with the battery/electric fuel-heating APU used on these Find the article at: https://www1.eere.energy.gov/vehiclesandfuels/pdfs/success/locomotive_apu.pdf. Information on RailStar APUs: <http://www.starclassinc.net/rail-products.html>.

²While EPA's Diesel Emissions Quantifier (DEQ) does not directly calculate benefits from this technology, numbers can be extrapolated from calculations for nonroad diesel AC/refrigeration units used at ports and airports. Such units usually have 75 horsepower (hp) engines, while TRU engines are about 25 hp. By entering Bozzuto's idling hour estimates into the DEQ under Nonroad, Ports and Airports, AC/refrigeration, and dividing the results by 3 to account for the lower hp, DEEP obtained estimates of reduced annual emissions.

³Cannot be projected; would vary with the age of the refrigeration units plugged into the system; alternatively, could be based on the lifetime of the shorepower units, which could be quite long.

⁴Truck replacement emission reductions were re-calculated to incorporate actual replacement in 2015; 2015 was not a DEQ option when emission reductions were originally calculated in 2014.

⁵The DEQ default values do not take into account the decreased CO₂ emissions resulting from greater fuel efficiency due to features such as electronic ignition systems in the new engines; unless manufacturers' data for fuel savings or CO₂ emissions for the new engines are available to input, the DEQ cannot calculate the emission reductions for CO₂.

⁶Additional reductions will accrue from the combined refuse/single stream recycling collection capacity of the new truck, which results in a decrease in idling time and VMT for the fleet.

⁷Additional reductions will accrue from the increased capacity of the new truck, which results in a decrease in VMT for the fleet.

⁸Loader replacement emission reductions were re-calculated with the new DEQ and the loader's lifetime for the emissions benefit was found to have been reduced from 14 years to 1 year.

Recipient Information

Organization/Grantee Name	First Name	Last Name	Job Title	Address	City	State	Email Address	Zip Code	Office Phone	OfficePhoneExt
CT DEEP	Paul	Farrell	Asst. Director, Planning & Standards	79 Elm Street	Hartford	CT	paul.farrell@ct.gov	06106-5127	860-424-3389	

Project 1 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Providence & Worcester Railroad Idle Reduction	Providence & Worcester Railroad	Rail	2	New Haven	New Haven	CT	1	\$9,570.62	Providence & Worcester	\$14,355.92	no

Fleet 1 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2014	NonRoad	Rail	Locomotives Switch	1	EMD	GP38-3	1969	2000			Diesel (ULSD), 15 ppm	39000	NA	2080	1600	NA	2015	Auxiliary Power Unit	Star Class	Rail Star 90-110v				1600	\$19,000.00	\$4,926.54
2014	NonRoad	Rail	Locomotives Switch	1	GE	SB23-7	1972	2250			Diesel (ULSD), 15 ppm	39000	NA	2080	1600	NA	2015	Auxiliary Power Unit	Star Class	Rail Star 90-110v				1600		

Project 2 was Terminated 3/24/15

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Bozutto's Hybrid TRU Shorepower Project	Bozutto's, Inc.	Long Haul	18 shorepower units for TRUs	Cheshire	New Haven	CT	1	\$49,472	Bozutto's, Inc.	\$148,417	no

Fleet 2 Information:

Current Vehicle Information													New Vehicle/Technology Information														
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost	

Project 3 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
CT Department of Correction Box Truck Replacement	CT DOC	Delivery Truck	1	statewide	statewide	CT	1	\$22,699.69	CT DOC	\$68,099.08	yes

Fleet 3 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2014	On Highway	Delivery Truck	Class 6	1	Caterpillar	CAT3126B	2002			0.1 g/bhp-hr PM, 4.0 g/bhp-hr NOx	Diesel (ULSD), 15 ppm	2,100	15,810	1440	200	3FDNF65252M A14828	2015	Vehicle/Equipment Replacement	Freightliner	M2-106			0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC+NOx	NA	\$90,798.77	NA

Project 4 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Vento Refuse Truck Replacement Project	D.A. Vento Refuse, LLC	Refuse Hauler	1	Wilton	Fairfield	CT	1	\$51,068.00	D.A. Vento, LLC	\$153,204.00	no

Fleet 4 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/ Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2014	On Highway	Refuse Hauler	Class 8A	1	Caterpillar	3126	2004			0.4 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx	Diesel (ULSD), 15 ppm	3120	14000	NA	350	1NPZHDX84 D715141	2015	Vehicle/Equipment Replacement	Peterbilt	337	2015		0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx	175	\$204,272.00	NA

Project 5 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
CT Department of Correction Box Truck Replacement	CT DOC	Delivery Truck	1	statewide	statewide	CT	1	\$23,193.84	CT DOC	\$69,581.53	yes

Fleet 5 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/ Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2015	On Highway	Delivery Truck	Class 6	1	Caterpillar	CAT3126B	2004			0.4 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx	Diesel (ULSD), 15 ppm	875	5,251		200	3FRNF65244V 600165	2016	Vehicle/Equipment Replacement	Freightliner	M2-106	2016	NA	0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx	NA	\$92,775.37	

Project 6 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Vento Refuse Truck Replacement Project	D.A. Vento Refuse, LLC	Refuse Hauler	1	Wilton	Fairfield	CT	1	\$37,638.13	D.A. Vento, LLC	\$112,914.37	no

Fleet 6 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/ Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2015	On Highway	Refuse Hauler	Class 8A	1	Caterpillar	3126	2000	300		0.1 g/bhp-hr PM, 4.0 g/bhp-hr NOx	Diesel (ULSD), 15 ppm	2650	13000	NA	350	1NPNHDX1Y S521164	2016	Vehicle/Equipment Replacement	Peterbilt	337	2016		0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx	175	\$150,552.50	NA

Project 7 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Wethersfield Pay Loader Replacement Project	Town of Wethersfield	Construction	1	Wethersfield	Hartford	CT	1	\$46,057.00	Town of Wethersfield	\$148,674.00	yes

Fleet 7 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2015	NonRoad	Construction	Rubber Tire Loaders	1	Volvo	Volvo	2000	160	Tier 1	0.54 g/kW-hr PM, 9.2 g/kW-hr NOx	Diesel (ULSD), 15 ppm	10,062		1,118	200	L90D 64013	2016	Vehicle/Equipment Replacement	Volvo	L90H	2016	Tier 3	0.20 g/kW-hr PM, 4.0 g/kW-hr NMHC + NOx		\$184,231.00	NA

Project 8 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Ledyard Snowplowing Dump Truck Replacement Project	Town of Ledyard	Utility Vehicle	1	Ledyard	New London	CT	1	\$20,341.72	Town of Ledyard	\$141,371.75	yes

Fleet 8 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2015	On Highway	Utility Vehicle	Class 7	1	Cummins	HD250	1997	250		0.1 g/bhp-hr PM [ABT], 5.0 g/bhp-hr NOx [ABT]	Diesel (ULSD), 15 ppm	550	2,500		200	1FDYK82E5V VA10405	2016	Vehicle/Equipment Replacement	Freightliner	114SD	2016		0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx		\$161,713.47	NA

Project 9 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
West Hartford Snowplowing Dump Truck Replacement	Town of West Hartford	Utility Vehicle	1	West Hartford	Hartford	CT	1	\$57,091.08	Town of West Hartford	\$202,431.72	yes

Fleet 9 Information:

Current Vehicle Information													New Vehicle/Technology Information													
Fiscal Year Funding Used	Vehicle Type	Target Fleet	Class/Equipment	Vehicle Count	Engine Make	Engine Model	Engine Model Year	Horsepower (Nonroad Only)	Current Tier Level (Nonroad Only)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gal/year for all engines in this row)	Annual Miles per vehicle (On Highway Only)	Annual Usage Rate Hours per engine (Nonroad Only)	Annual Idling Hours (per engine)	Serial and/or VIN # of scrapped engine and/or vehicle	Year of Retrofit Action	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (for replacements/repowers Only)	New Tier Level (Nonroad replacements/repowers Only)	New Standard Level for PM and NOx or NMHC+NOx	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
2016	On Highway	Utility Vehicle	Class 8A	1	Cummins	N14	1995	350		0.1 g/bhp-hr PM [ABT], 5.0 g/bhp-hr NOx [ABT]	Diesel (ULSD), 15 ppm	3000	4,072		200	SN 11744346, VIN 1FDYK90U9S VA35223	2017	Vehicle/Equipment Replacement	Freightliner	114SD	2018		0.01 g/bhp-hr PM, 2.4 g/bhp-hr NMHC + NOx		\$260,022.80	NA

Recipient Information

Organization/ Grantee Name	First Name	Last Name	Job Title	Address	City	State	Email Address	Zip Code	Office Phone	OfficePhoneExt
CT DEEP	Paul	Farrell	Asst. Director, Planning & Standards	79 Elm Street	Hartford	CT	paul.farrell@ct.gov	06106-5127	860-424-3389	

Project 1 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
Jeanette T. Fisheries Fishing Vessel Repower	Jeanette T. Fisheries, LLC	Marine	2	New London	New London	CT	1	\$97,245.60	Jeanette T. Fisheries, LLC	\$145,868.40	no

Fleet 1 Information for MARINE VESSELS ONLY

Current Vessel Information														New Vessel/Technology Information													
Fiscal Year Funding Used	Sector	Application	Total Number of Engines per Vessel (max 5)	Engine Type	Number of Engines	Engine Model Year	Activity Level (Hours per Year per engine)	Horsepower	Annual Idling Hours per engine	Current Tier Level	Current Standard Level for PM and NOx or NMHC+NOx	Displacement per cylinder (Liters)	Current Fuel Type	Amount of Fuel Used (gallons/year per engine group)	Year of Retrofit Action	Serial or VIN # of scrapped/replaced engine or vessel	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (replacements, repowers, and upgrades Only)	Activity Level (hrs/yr per engine - replacements, repowers, and upgrades Only)	Annual Idling Hours Reduced per engine	New Engine Tier Level (replacements, repowers, and upgrades Only)	New Standard Level for PM and NOx or NMHC+NOx	Technology Unit Cost	Technology Installation Cost	
2016	Marine	Commercial Fishing	1	propulsion	1	2001	1500	550		Tier 1	4.5 x N ^{0.20}	5.0<= size <15.0	Diesel (ULSD), 15 ppm	16000	2017	6502035	Engine Repower	Scania	D13	2017	1500		Tier 3	0.14 g/kW-hr PM (ABT), 6.2 g/kW-hr HC+NOx (ABT)	\$90,245.00	\$35,000.00	
2016	Marine	Commercial Fishing	1	propulsion	1	1980	1800	300		Tier 0		5.0<= size <15.0	Diesel (ULSD), 15 ppm	10800	2017	8VA402693	Engine Repower	John Deere	6135	2017	1800		Tier 3	0.14 g/kW-hr PM (ABT), 6.2 g/kW-hr HC+NOx (ABT)	\$82,869.00	\$35,000.00	
	Marine																										

Copy and paste additional lines as necessary to capture project fleet information.

Project 2 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
		Marine									

Fleet 2 Information for MARINE VESSELS ONLY

Current Vessel Information														New Vessel/Technology Information													
Fiscal Year Funding Used	Sector	Application	Total Number of Engines per Vessel (max 5)	Engine Type	Number of Engines	Engine Model Year	Activity Level (Hours per Year per engine)	Horsepower	Annual Idling Hours per engine	Current Tier Level	Current Standard Level for PM and NOx or NMHC+NOx	Displacement per cylinder (Liters)	Current Fuel Type	Amount of Fuel Used (gallons/year per engine group)	Year of Retrofit Action	Serial or VIN # of scrapped/replaced engine or vessel	Technology Type	Technology Make	Verified Technology Model	New Engine Model Year (replacements, repowers, and upgrades Only)	Activity Level (hrs/yr per engine - replacements, repowers, and upgrades Only)	Annual Idling Hours Reduced per engine	New Engine Tier Level (replacements, repowers, and upgrades Only)	New Standard Level for PM and NOx or NMHC+NOx	Technology Unit Cost	Technology Installation Cost	
	Marine																										
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	Marine																										

Copy and paste additional lines as necessary to capture project fleet information.

Please replicate the Project and Fleet Information Tables as necessary for additional Projects/Fleets.