Federal Fiscal Year 2016
(State Fiscal Year 2017)
STATE CLEAN DIESEL GRANT PROGRAM
WORK PLAN NARRATIVE AND BUDGET NARRATIVE TEMPLATE FOR ALL STATES AND TERRITORIES
REVISED March 21, 2017

Project Title:	**Alaska Clean Diesel Project**

Project Manager and Contact Information

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Project Budget

	Federal FY 2016
EPA Base Allocation	$190,827
State or Territory Matching Funds (if applicable)	$198,776
EPA Match Incentive (if applicable)	$95, 414
Mandatory Cost-Share	$111,318
Other Contribution	$152,874
TOTAL Project	**$ 749,209**

Project Period

This work plan includes all work funded with Federal FY 2016. The grant project period is October 1, 2016 through September 30, 2017.

Summary Statement

Alaska Energy Authority (AEA) will issue three grants to replace a total of five prime power diesel engines in the rural Alaska communities of Hughes, Kokhanok, and Chignik Lagoon.

AEA will consult with the Alaska Department of Environmental Conservation (ADEC) Division of Air Quality and will comply with all applicable emissions regulations.

Rural communities in Alaska are not connected to the electrical grid and must generate their own electricity. Small diesel power plants are used for this purpose. These plants have at least one diesel engine running continuously. Rural Alaska communities rely on these engines for their prime power; however, many of these power plants use older technology, high emitting engines.

This grant will partially fund replacement of four non-certified diesel engines with Tier 2 and 3 marine engines. Tier 2 and 3 marine engines will be installed because of their proven reliability, fuel economy, and because they are as clean or cleaner than non-road Tier 3 engines.

Past DERA State Clean Diesel Program projects can be found at: http://dec.alaska.gov/air/anpms/Projects&Reports/Diesel&Misc1.htm

This amended work plan incorporates EPA's concurrence with AEA's State of Alaska DERA Implementation Plan and Waiver Request approved by EPA letter dated November 23, 2016, and which is summarized below:

1. Replacement (repower) of non-road engines with certified Tier 2 and Tier 3 marine engines for stationary power generation in conformance with EPA's New Source Performance Standards for Alaska [40 CFR 60.4201 (f)(1)].
2. Horsepower increases greater than 25% with prior approval from EPA.
3. Use of reduced mandatory cost-share requirement from the 40%-EPA, 60%-State, to 75%-EPA, 25%-State, for projects benefiting rural Alaska Tribal people.
4. Use of certified marine Tier 2 engines prior to 2013 for replacement of non-certified or Tier 0 non-road engines.
5. Exceed administrative cost cap because of Alaska's unique logistics.

   Note: EPA approved a similar waiver request for Alaska's 2015 State Clean Diesel program.

This amended work plan also incorporates EPAs approval, received via email January 24, 2017, of AEAs request to replace two smaller generators with one larger generator in Hughes, and also removes Golovin as a sub grantee and adds Kokhanok and Chignik Lagoon as sub grantees under this award.

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SCOPE OF WORK

Project Description

AEA will use DERA funds to complete two Electric Generator Repowers and three Electric Generator Replacements using newer, cleaner engines. The Repowers/Replacements will replace antiquated mechanically governed prime power diesel genset engines with newer, more fuel efficient Tier 2 and Tier 3 marine engines. Tier 2 and Tier 3 marine engines are equipped with electronically controlled governors and high-pressure common rail fuel systems, which improves performance and reduces emissions. In accordance with EPA's approved waivers, DERA funds will be used to purchase engine/generators and associated equipment. Equipment includes freight, labor engineering and materials needed to install the cleaner engines and implement required upgrades to interface the engines with the existing power plants cooling, fuel, switchgear and exhaust systems. Where remanufactured or rebuilt engines are used they will be "certified Tier compliant" by conformance with 40 CFR 1068.120 as explained in the EPA-420-F-12-052 document.

The repowered and replacement gensets will continue to perform the same function as the existing non-certified engine. Due to technological improvements such as electronically controlled governors, high-pressure fuel system, variable valve timing, higher compression ratios, and multiple valves per cylinder, Tier 2 and Tier 3 marine engines have more horsepower than non-certified engines of the same displacement. Engines for generator repower and replacement have been selected to provide the optimum reliability and fuel economy for the available engine horsepower.

The Alaska Energy Authority (AEA) is working with the rural Alaska communities of Hughes, Kokhanok, and Chignik Lagoon to repower / replace five existing prime power gensets. AEA is matching the 2016 EPA grant with state funding.

The non-certified engines that will be removed from service with DERA funds range in age from 1995 – 2004, and all have more than 3-years remaining useful life. The typical useful life of a prime power diesel genset engine, operating at 1800 rpm, is 60,000+ hours. To provide reliability and redundancy, a rural Alaska power plant contains three or more prime power diesel gensets. Gensets are typically operated in a lead-lag configuration, so each engine typically runs between about one-third and one-half of the time, or about 3,000 to 4,000-hours a year. All non-certified or Tier 0 engines replaced with DERA funds will have less than 50,000-hours of documented run time. Stated another way, an engine with over 10,000 remaining hours of life has over 3-years of remaining life presuming 3,000 to 4,000 hours of run time per year. The replaced engine blocks will be rendered permanently disabled and disposed of in the local landfill.

In rural Alaska, communities are not connected to an electric grid and must generate power in their local community. Small diesel power plants are used across the state for

this purpose. These plants have at least one diesel engine running continuously. The engines and generators must be absolutely reliable to provide consistent power to the residents to ensure health and welfare.

Although the air quality in rural Alaska is typically quite good, power plants are often located in the center of these communities, exposing residents to the pollution from them. This grant will assist AEA in taking action to meet the goal of reducing exposure to criteria pollutants, hazardous air pollutants, as well as reducing greenhouse gas emissions, while maintaining the economic vitality of the state.

AEA will consult with the Alaska Department of Environmental Conservation (ADEC) Division of Air Quality to ensure compliance with all applicable emissions regulations. ADEC requested AEA take over as the lead granting authority to administer Alaska's State Clean Diesel Program per the letter from State Commissioner Larry Hartig to Gina McCarthy dated April 15, 2016. EPA approved this request by letter dated May 11, 2016.

AEA's Rural Power System Upgrade Program (RPSU) works with small local organizations that operate their own electrical company. These organizations are very small, often serving just a few hundred customers, sometimes fewer. Being so small, the organizations often experience technical and administrative challenges due to the lack of economies of scale or specialized skills. AEA's upgrade program helps fill these gaps.

AEA maintains a database of the electric utilities it supports through its RPSU program. The database was created in 2001 and updated in 2012. The 2012 RPSU power plant database contains detailed information on 171 communities throughout rural Alaska. This database was used to identify communities eligible for "Electric Generator Repowers" using DERA funds. There are over 500 diesel gensets in the RPSU database. To simplify the process of identifying communities with DERA-eligible engines, the database search was limited to existing gensets with prime power ratings of up to 210 kW, which can be repowered with currently available Tier 2 and Tier 3 marine engines. The search revealed a list of 93 communities with a total of 230 diesel gensets of 210 kW, or less. Under the EPA approved 2015 work plan, four MKEC communities were selected to receive certified marine engine repowers.

Most rural communities in Alaska are federally recognized Alaskan Native Tribes, as are the three communities selected for this grant. This amended work plan is based on EPA's approval of AEA's requests for program waivers including the use of a 75% EPA / 25% State cost share split, as allowed for in the Tribal Clean Diesel program.

For this year's Clean Diesel project, the communities selected are Hughes, Kokhanok, and Chignik Lagoon. AEA has identified five diesel engines for repower/replacement with DERA funds. In Hughes, one generator will be repowered, and two small generators will be replaced with one larger generator. In Kokhanok, one generator will be repowered, and in Chignik Lagoon one generator will be replaced. With support of this grant, these non-certified, mechanically controlled engines will be replaced with marine certified Tier 2 and Tier 3 electronically controlled engines, improving efficiency and lowering emissions.

The following table shows the proposed replacement engines for each community.

Community	Existing Engine & MY	Replacement Engine & MY
Hughes	2004 John Deere 4045 Non-Certified 78 kW Prime	John Deere 4045AFM85 Tier 3 Marine Repower 100 kW Prime
Hughes	**Two** 2004 John Deere 3029 Non-Certified 37 kW Prime	**One** John Deere 6081AFM75 Tier 2 Marine Replacement 180 kW Prime
Kokhanok	2003 John Deere 4045 Non-Certified 60 kW Prime	John Deere 4045AFM85 Tier 3 Marine Repower 100 kW Prime
Chignik Lagoon	1995 John Deere 6076 Non-Certified 148 kW Prime	John Deere 6081AFM75 Tier 2 Marine Replacement 180 kW Prime

AEA will issue award grants to the communities using the DERA and State funds needed to implement the project. Using these grant funds, the communities will hire an engineering firm with expertise in remote Alaska power generation and experience with DERA programmatic requirements to prepare specifications, assist with materials and engine/generator procurement, and integrate the electronically controlled engines into the existing power plant switchgear. Rebecca Garrett (AEA Project Manager) will oversee the grant to ensure the communities comply with all Clean Diesel Program requirements.

This project will take place in four steps:

- Task 1: Design and identify specifications – Procure contractual assistance for design of the engine/generator installations and development of specifications specific to each installation.
- Task 2: Engine/generator procurement – Purchase engines, generators and associated equipment, including any required assembly and testing.
- Task 3: Transport – Ship engines/generators and materials to the communities.
- Task 4: Installation and commissioning – Install generator repowers / replacements, and obtain assistance to integrate the electronically controlled engines with the existing switchgear, fuel, exhaust and cooling systems. If requested, AEA staff will offer technical assistance during startup and commissioning of the engines.

Throughout the project, AEA will provide administrative project management to oversee the timely completion of each task. AEA will also manage the EPA Clean Diesel grant to ensure all grant requirements are met.

Timeline

The project timeline is shown below based on an EPA Clean Diesel grant execution date of October 1, 2016 to September 30, 2017.

				2016						2017								
	Days	Start	Finish	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
	360	10/1/16	9/30/17															
Task 1	90	11/1/16	1/30/17															
Task 2	60	2/1/17	3/30/17															
Task 3	30	4/1/17	4/30/17															
Task 4	120	5/1/17	9/30/17															

Time is allowed before Task 1 for grant and contract executions. Time is allowed after Task 4 for the closeout and project schedule float.

Fund disbursement methods

AEA will sub award the EPA DERA and the matching State RPSU funds to the communities. AEA will ensure each grantee secures the services of an engineering firm licensed in the state of Alaska with specific knowledge of remote Alaska power generation and is experienced with DERA program and procurement requirements. AEA will work hand in hand with the communities to expend the grant funding and State match to purchase and install qualifying equipment. AEA will report activities and expenditures to EPA.

EPA DERA Program Priorities

1. **Maximize public health benefits**
   Research shows there is no safe level of exposure to diesel particulate matter. Power generation in rural Alaska depends on diesel engines, often operating in the center of a village, close to homes, workplaces, and the school. The proximity of power plants to these buildings may pose a health risk. Replacing the engines in these facilities with ones that meet more stringent emission requirements will reduce emissions production. In addition, improved efficiency will require less fuel, again reducing emissions, and with the added benefit of lowered costs. In rural communities, diesel fuel can run up to $10 a gallon. Any savings on fuel is a significant cost savings.

2. **Most Cost Effective**
   It is in the best interest for Alaska to support projects that are cost effective and meet the most urgent need. The engines selected for replacement are non-certified, mechanically governed diesel engines that are dirty and inefficient compared to the newer certified replacement engines.

3. **Population density**
   Setting priorities based on overall population in Alaska is difficult. Seventy percent of the population lives in larger populated areas facing air quality challenges similar to other areas in the country. The other 30% of the Alaska population lives in small communities and remote, rural villages, some with serious air quality problems. These smaller areas are often at a disadvantage due to technological and funding shortfalls, despite having air quality concerns.

   As mentioned above, although the communities benefiting from this grant are not densely populated areas by typical urban standards, the proximity of the diesel power plant to residences and other community buildings mean that residents may be more exposed to exhaust from the power plant than they would be in a more typical city.

   The AEA program targets communities needing power system upgrades and replacements. In addition to replacing equipment, upgrading the systems provides emission improvements.

4. **Disproportionate quantity of air pollution from diesel**
   Alaska is unique in its diesel use. Power in rural villages is typically generated from diesel in small systems, thus using a disproportionally large quantity of diesel.

5. **Include certified engine configuration or verified technology that has a long expected useful life**
   Power generation in rural communities is expensive compared to more urban areas. To help contain costs, engines in the power plants must use technology that will last. All engines used under the DERA grant will be configurations that have been proven to be reliable and long-lived.

6. **Maximize the useful life of any certified engine configuration or verified technology used or funded by the eligible entity**
   Record drawings will be prepared for each grantee documenting of the completed work. Operations and Maintenance (O&M) manuals will be updated and incorporate manufacturer's recommended maintenance and service intervals for all generation equipment. AEA will continue to provide technical support through its Circuit Rider Maintenance program to assist communities to maximize the useful life of the installed generation equipment.

7. **Conserve diesel fuel**
   Installing newer certified, more efficient engines will both reduce the emissions per quantity of fuel combusted, as well as produce electricity more efficiently further reducing emissions, as well as saving money. In most rural communities, diesel is well over $4 per gallon and can be significantly higher in many. Occasionally, a community may experience a fuel shortage if fuel transport is delayed. Again, increased fuel efficiency can make existing stored supplies last longer, reducing the chances of shortages.

EPA's Strategic Plan Linkage and Anticipated Outcomes/Outputs

EPA Order 5700.7, "Environmental Results under EPA Assistance Agreements," requires that all assistance agreements be aligned with the Agency's Strategic Plan. EPA requires that grant applicants and recipients adequately address environmental outputs and outcomes to be achieved under assistance agreements. Grantees will be expected to report progress toward the attainment of project outputs and outcomes during the performance period. Applicants will be evaluated on the effectiveness of their plan for tracking and measuring progress toward achieving anticipated outputs and outcomes.

EPA Order 5700.7, Environmental Results under Assistance Agreements, may be found at: www.epa.gov/ogd/epa_order_5700_7a1.pdf.

1. **Linkage to EPA Strategic Plan**
   The fuel efficiency and emission reductions that result from this project will help meet EPA's objectives of reducing criteria pollutants, diesel particulate matter, volatile organic compounds, and air toxics. The project will improve tribal air quality by replacing engines in three native Alaska villages. Greenhouse gas emission reductions will result from improved fuel efficiency of the engines.

2. **Outputs**
   The term "output" means an environmental activity, effort, and/or associated product related to an environmental goal and objective that will be produced or provided over a period of time or by a specified date. Outputs may be quantitative or qualitative, but must be measurable during an assistance agreement funding period. States and territories must include a description of how they will track and measure progress toward the environmental goal throughout the assistance agreement period in one to two paragraphs.

   a. The expected outputs from this project will include
      i. Decommission five non-certified engines and replace with four Tier 2 and Tier 3 marine engines.
      ii. Reduction of air pollutants as estimated in the tables below

Hughes uses about 47,000 gallons of diesel fuel to generate about 458,000 kwh annually. Estimated emission reductions for replacing one 2004 mechanical non-certified engine with a Tier 3 marine engine, and replacing two 2004 mechanical non-certified engines with one Tier 2 marine engine is shown in the table below.

HUGHES

Annual Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	6.51	0.46	--	4.01	361
Replacement Engine	1.87	0.04	--	1.73	300
Percent Reduced	71%	91%	--	57%	17%

Over a 10-year lifespan would have the following emissions reductions.

10-year Lifespan Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	65.1	4.62	--	40.12	3606
Replacement Engine	18.7	0.41	--	17.29	3003
Percent Reduced	71%	91%	--	57%	17%

Table Note: the above emissions figures assume the new DERA marine engines run 6000-hours/year. With a useful life of 60,000-hours, the expected lifespan of the engine is 10-years.

Kokhanok uses about 41,000 gallons of diesel fuel to generate about 416,000 kwh annually. Estimated emission reductions for replacing one 2003 mechanical non-certified engine with one Tier 3 marine engine is shown in the table below.

KOKHANOK

Annual Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	5.91	0.42	--	3.64	318
Replacement Engine	1.70	0.04	--	1.57	273
Percent Reduced	71%	91%	--	57%	14%

Over a 10-year lifespan would have the following emissions reductions.

10-year Lifespan Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	59.1	4.2	--	36.4	3176
Replacement Engine	16.7	0.38	--	15.7	2728
Percent Reduced	71%	91%	--	57%	14%

Table Note: the above emissions figures assume the new DERA engine runs 6000-hours/year. With a useful life of 60,000-hours, the expected lifespan of the engine is 10-years.

Chignik Lagoon has historically used about 40,000 gallons of diesel fuel to generate about 400,000 kwh annually. In 2015, Chignik Lagoon installed a run-of-river hydroelectric system to reduce its reliance on diesel generated electricity. The old mechanical, non-certified gensets run in parallel with the new hydro, and continue to consume about 9,000-gallons/year. An electronically controlled, certified marine engine will integrate with the new hydro-controls and further reduce diesel fuel consumption and associated emissions. Emission reductions for replacing one 1995 mechanical non-certified engine with one Tier 2 marine engine is shown in the table below.

CHIGNIK LAGOON

Annual Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	1.40	0.10	--	0.86	101
Replacement Engine	0.54	0.02	--	0.37	64
Percent Reduced	62%	78%	--	57%	36%

Over a 10-year lifespan would have the following emissions reductions.

20-year Lifespan Results (short tons)	NOx	PM2.5	HC	CO	CO2
Baseline Engine	28.0	1.99	--	17.3	2016
Replacement Engine	10.7	0.45	--	7.4	1281
Percent Reduced	62%	78%	--	57%	36%

Table Note: the above emissions figures assume the new DERA engine runs 3000-hours/year when hydro is insufficient to meet the electric load. The expected engine lifespan is 20-years, based on a useful life of 60,000-hours.

NOTE: The above emissions estimates are based on replacing the non-certified generator with a Tier 2 6081 (180 kW) marine generator. As part of this project, additional data will be collected and reviewed to determine if a smaller genset will meet the community load. Upon completion of engineering analysis, if a Tier 3 4045 (100 kW) marine generator will work, and one can be located for purchase, it will be installed instead of the 6081.

3. **Outcomes**

The term “outcome” means the result, effect, or consequence that will occur by carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective. Outcomes may be environmental, behavioral, health-related, or programmatic in nature, but must be quantitative. They may not necessarily be achievable within an assistance agreement funding period. States and territories must include a description of project outcomes resulting from the project outputs, in two to three paragraphs.

Expected outcomes from the project include

- **Short-term outcomes** – Five existing prime power, non-certified diesel engines will be taken out of service, and replaced with four, cleaner, more fuel efficient marine Tier 2 and Tier 3 engines. Engine replacements will lead to immediate reductions in diesel fuel use and decreased emissions.

- **Medium-term outcomes** – The new electronically controlled certified marine engines will save up to 15,000-gallons of diesel fuel/year with associated reductions in exhaust emissions.

- **Long-term outcomes** – AEA anticipates that diesel engines will be continued to be used for many years in rural Alaska for prime power generation. The estimated useful life of the DERA engines in prime power application is 10-years (60,000-hours). Replacing older technology engines with cleaner and more efficient ones now will provide emission reductions and fuel savings for many years to come, as well as provide health benefits for the residents in the communities.

Project Partners

AEA will continue to consult with the Alaska Department of Environmental Conservation (ADEC) Division of Air Quality to ensure compliance with all applicable emissions regulations.

Sustainability of State Program

In Alaska, the cost of fuel and energy are the highest in the nation. Through on-going programs, AEA works with rural communities to assist them in maintaining reliable power supplies while reducing costs.

ADEC maintains a website that includes information on diesel reduction projects funded through DERA grants. AEA will work with ADEC to update this website with details on this new DERA funding within 60 days of the receipt of the grant. The posting will include the amount of the grant and a description of the technology being funded.

Quality Assurance and Quality Control

This project does not involve data generation or other measures requiring quality assurance and quality control plans or procedures.

Use of Funds Restrictions

No EPA awarded funding will be used for:

- Costs of emission reductions that are mandated under federal law
- Matching funds for other Federal grants
- Expenses incurred before the project period
- Funding retrofit technologies on EPA's or CARB's "formerly verified technologies" lists
- Emissions testing and/or air monitoring activities

BUDGET NARRATIVE

Project Budget

This AEA amended work plan incorporates EPAs recent 2016 Alaska DERA waiver approvals. AEA appreciates the EPA understands the uniqueness of prime diesel generated power in remote areas of Alaska, and has approved the use of certified marine Tier 2 and Tier 3 engines prior to 2013 for replacement of non-certified engines, horsepower increases greater than 25%, reduced mandatory cost-share requirement for projects benefiting rural Alaska Tribal people, replacing two small gensets with one larger genset for improved reliability and emissions reductions, and increased administrative cost cap due to AEAs greater level of technical support. AEA is using the state DERA funds to assist with engine repowers in rural communities in Alaska that are federally recognized Alaskan Native Tribes. Following is the proposed project budget:

	Federal FY 2016					
Budget Category	**EPA Base Allocation**	**Voluntary State Match**	**EPA Match Incentive**	**Mandatory Cost Share**	***Other Contribution**	**Total**
1. Personnel	$0	$53,799	$0	$0	$0	**$53,799**
2. Fringe Benefits	$0	$25,689	$0	$0	$0	**$25,689**
3. Travel	$0	$18,600	$0	$0	$0	**$18,600**
4. Supplies	$0	$0	$0	$0	$0	**$0**
5. Equipment	$0	$0	$0	$0	$0	**$0**
6. Contractual	$0	$0	$0	$0	$0	**$0**
7. Program Income	$0	$0	$0	$0	$0	**$0**
8. Other: Sub Award Grants	$190,827	$95,308	$95,414	$111,318	$152,874	**$645,741**
9. Total Direct Charges	**$190,827**	**$193,396**	**$95,414**	**$111,318**	**$152,874**	**$743,829**
10. Indirect Charges @ 10%	$0	$5380	$0	$0	**$0**	**$5,380**
Grand Total	**$190,827**	**$198,776**	**$95,414**	**$111,318**	**$152,874**	**$749,209**

Note: AEA's indirect charges are calculated at 10% of the Personnel total. This methodology has been previously approved by the Denali Commission, a Federal agency.

*Other Contribution is funding from the Denali Commission

Explanation of Budget Framework

1. Personnel

AEA personnel costs cover the staff time needed to manage the grant, including technical assistance, preparing and submitting regular reports to EPA, preparing and submitting a final report to EPA at the conclusion of the project, providing project and grant oversight, and completing site visits to document project completion. There is also AEA project manager, rural electric utility worker and contract administrator staff time to help the sub award grantees, if requested, with start-up and commissioning and connection of the engines/generators.

	Federal FY 2016				
Category	**EPA Base**	**State Match**	**EPA Incentive**	**Mandatory Cost Share**	**Total**
Project Manager @150hrs, $77.16/hr wage, $33.75/hr fringe	$0	$11,574	$0	$0	**$11,574**
Assist Project Manager @ 350hrs, $58.19/hr wage, $28.14/hr fringe	$0	$20,367	$0	$0	**$20,367**
Rural Electric Utility Worker @ 300hrs, $61.24/hr wage, $29.09/hr fringe	$0	$18,372	$0	$0	**$18,372**
Contract Administrator @ 100hrs, $34.86/hr wage, $20.51/hr fringe	$0	$3,486	$0	$0	**$3,486**
Total	**$0**	**$53,799**	**$0**	**$0**	**$53,799**

Note: Only the hourly billable wage totals for each staff position are shown in this table. The totals in the table are without fringe benefits included. These billable hourly wage rates include holiday and leave. Reference the next table, “2. Fringe Benefits” for the projects fringe benefits details and totals.

2. Fringe Benefits

Benefits include: Health Insurance, Public Employees Retirement System, Supplemental Benefit System, Medicare, Workers Compensation, and Unemployment. The health insurance rate varies slightly by position type and averages 10%. Below is an estimation of the total project expenditures for fringe benefits for the positions and hours in the previous budget category "1. Personnel".

	Federal FY2016				
Category	**EPA Base**	**State Match**	**EPA Incentive**	**Mandatory Cost Share**	**Total**
Health Insurance Premium 10% (avg)	$0	$9,017	$0	$0	**$9,017**
Public Employees Retirement System 22.00%	$0	$11,836	$0	$0	**$11,836**
Supplemental Benefits System 6.13%	$0	$3,298	$0	$0	**$3,298**
Medicare 1.45%	$0	$780	$0	$0	**$780**
Workers Compensation 1.01%	$0	$543	$0	$0	**$543**
Unemployment 0.40%	$0	$215	$0	$0	**$215**
Total 40.99%	**$0**	**$25,689**	**$0**	**$0**	**$25,689**

3. Travel
   This budget includes 2 trips for a two person team to each of the three communities to perform site visits and help the sub recipient grantees and their contractor with the final installation, connection of the engine/generators, programing the switchgear and commissioning. Travel is budgeted based on experience within the region. With these presumptions, costs are broken down as follows. Round trip airfare $1000, ground transportation per visit $500, per diem $60/day, lodging $90/night. Presumed each trip is for two days with an overnight stay (two days of per diem) a total of 6 total trips by AEA staff to the communities will be needed.

	Federal FY2016				
Category	**EPA Base**	**State Match**	**EPA Incentive**	**Mandatory Cost Share**	**Total**
Airfare for 2 persons, 2 trips per village, 3 villages from Anchorage, 12 round trip air tickets	$0	$12,000	$0	$0	**$12,000**
Lodging for 2 persons, 2 trips per village, 3 villages, 2 nights per trip, $90 per night, 24 nights	$0	$2,160	$0	$0	**$2,160**
Per diem for 2 persons, 2 trips per village, 3 villages, 2 days per trip, $60 day, 24 days	$0	$1,440	$0	$0	**$1,440**
Surface transportation, 2 trips per village, 3 villages, 6 rentals includes car/four wheeler, gas, parking, etc, $500 per rental	$0	$3,000	$0	$0	**$3,000**
Total	**$0**	**$18,600**	**$0**	**$0**	**$18,600**

4. Supplies
   There are no Supply costs associated directly to AEA with this project. DERA funding will be provided to the sub recipient grantees via a grant agreement and therefor reported to EPA through the “Other” line. Please see line 8. “Other” section below for further breakout.

5. Equipment
   There are no Equipment costs associated directly to AEA with this project. DERA funding will be provided to the sub recipient grantees via a grant agreement and

therefor reported to EPA through the “Other” line. Please see line 8. “Other” section below for further breakout.

6. Contractual
   There are no Contractual costs associated directly to AEA with this project. DERA funding will be provided to the sub recipient grantees via a grant agreement and therefor reported to EPA through the “Other” line. Please see line 8. “Other” section below for further breakout.

7. Program Income
   The project being conducted under this grant will not generate income.

8. Other
   AEA will issue sub award grant agreements to Hughes, Kokhanok, and Chignik Lagoon to cover their labor, freight, contractual, material, engineering, and installation as part of the equipment costs associated with this grant. These expenses will be reported to EPA through the “Other” line. Below is a breakout of the budget for these funds

Sub Award Grant

	Federal FY2016					
Category	**EPA Base**	**State Match**	**EPA Incentive**	**Mandatory Cost Share**	**Other Contribution**	**Total**
	HUGHES					
Labor			$36,829			**$36,829**
Freight		13,800				**$13,800**
Contractual		$24,323		$54,666		**$78,989**
Material & Engines	$143,405					**$143,405**
Hughes Total	**$143,405**	**$38,123**	**$36,829**	**$54,666**	$0	**$273,023**
	KOKHANOK					
Labor				$26,565		**$26,565**
Freight				$13,800		**$13,800**
Contractual		$35,154			$82,462	**$117,616**
Material & Engines	$41,630					**$41,630**
Kokhanok Total	**$41,630**	**$35,154**	**$0**	**$40,365**	**$82,462**	**$199,611**
	CHIGNIK LAGOON					
Labor		$8,231	$2,047	$16,287		**$26,565**
Freight		$13,800				**$13,800**
Contractual					$70,412	**$70,412**
Material & Engines	$5,792		$56,538			**$62,330**
Chignik Lagoon Total	**$5,792**	**$22,031**	**$58,585**	**$16,287**	**$70,412**	**$173,107**
Combined Totals	**$190,827**	**$95,308**	**$95,414**	**$111,318**	**$152,874**	**$645,741**

AEA will sub award grant funds to Hughes, Kokhanok, and Chignik Lagoon. Hughes will repower one generator, as well as replace two small generators with one larger generator. Kokhanok will repower one generator and Chignik Lagoon will replace one generator. Three separate grants will be required. One for each community.

The Mandatory Cost Share funds will be in the form of cash contributions.

At least 75% of EPA grant funds and voluntary State match will go towards the engineering, freight, design modifications, purchase and installation of DERA qualified equipment.

9. Direct Charges
   Total direct charges for the project come to $743,829. This includes funds from EPA DERA, State Match, Mandatory Cost Share, and other contributions. $645,741 will be in sub award grants to Hughes, Kokhanok and Chignik Lagoon, and $98,088 will be spent on AEA staff project management, AEA rural electric utility worker, and travel costs.

10. Indirect Charges
    AEA's indirect charges are calculated at 10% of the projects Personnel and Fringe Benefit total. This methodology has been previously approved by the Denali Commission, a Federal agency.

Match Requirements

The State of Alaska has chosen to match the Federal FY 2016 Clean Diesel grant amount in full, $198,776. The matching funds will be used towards eligible Clean Diesel project costs. In addition, the state is providing $111,318 of Mandatory Cost Share. The Voluntary Match and Mandatory Cost Share will come from AEA's Rural Power System Upgrade program. These funds are State monies and allocated by the state legislature. The match funds will be available during the state fiscal years 2017 and 2018. At least 75% of EPA funds and State Match will go towards the repower and replacement equipment, and includes engineering, labor, material, engines and freight.

SIGNATURES

The following forms require signatures by a state's or territory's authorized parties:

- The work plan and detailed budget narrative must be signed and dated by a state's or territory's authorized representative that is also signing the SF-424 form.

  EPA is not using Grants.gov for the submission of work plans and applications. States and territories must submit application/work plans, Preaward Compliance Review (EPA Form 4700-4), Certification Regarding Lobbying, if over $100,000 and, Assurances for Non Construction Program Certification to their Regional EPA office.

Additional Requirement Forms

The following forms do not require signature, but must also be submitted with the application package:

- "Indirect Cost Rate Agreement Rate from Cognizant Agency," if applying for Indirect Cost Rate
- Key Contact Form
- Letter of Match/cost share

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APPENDIX

Resources

States and territories may consult the CFR and OMB circulars as referenced in the Federal Register Notice. Links to these references are:

40 CFR 31: www.gpoaccess.gov/cfr/index.html.
OMB Circular A-87: www.whitehouse.gov/omb/circulars/index.html.