

**APPENDIX D-4**  
**Beneficiary Eligible Mitigation Action Certification**

**BENEFICIARY ELIGIBLE MITIGATION ACTION CERTIFICATION**

Beneficiary Louden Tribal Council

Lead Agency Authorized to Act on Behalf of the Beneficiary City of Galena  
*(Any authorized person with delegation of such authority to direct the Trustee delivered to the Trustee pursuant to a Delegation of Authority and Certificate of Incumbency)*

<b>Action Title:</b>	Diesel Engine Replacement and Powerhouse Upgrades
<b>Beneficiary's Project ID:</b>	VW Engine - 2019
<b>Funding Request No.</b>	<i>(sequential)</i> 1
<b>Request Type: (select one or more)</b>	<input type="checkbox"/> Reimbursement <span style="float: right;"><input checked="" type="checkbox"/> Advance</span> <input type="checkbox"/> Other (specify): _____
<b>Payment to be made to: (select one or more)</b>	<input type="checkbox"/> Beneficiary <input checked="" type="checkbox"/> Other (specify): <u>City of Galena</u>
<b>Funding Request &amp; Direction (Attachment A)</b>	<input checked="" type="checkbox"/> Attached to this Certification <input type="checkbox"/> To be Provided Separately

**SUMMARY**

<b>Eligible Mitigation Action</b>	<input type="checkbox"/> Appendix D-2 item (specify): _____
<b>Action Type</b>	<input checked="" type="checkbox"/> Item 10 - DERA Option (5.2.12) (specify and attach DERA Proposal): _____
<b>Detailed Description of Mitigation Action Item Including Community and Air Quality Benefits (5.2.2):</b> See addendum	
<b>Estimate of Anticipated NOx Reductions (5.2.3):</b> See addendum	
<b>Identification of Governmental Entity Responsible for Reviewing and Auditing Expenditures of Eligible Mitigation Action Funds to Ensure Compliance with Applicable Law (5.2.7.1):</b> See addendum	
<b>Describe how the Beneficiary will make documentation publicly available (5.2.7.2).</b> See addendum	
<b>Describe any cost share requirement to be placed on each NOx source proposed to be mitigated (5.2.8).</b> See addendum	
<b>Describe how the Beneficiary complied with subparagraph 4.2.8, related to notice to U.S. Government Agencies (5.2.9).</b> Louden Village Tribe (Beneficiary) was not notified by any government agency of their interest.	

If applicable, describe how the mitigation action will mitigate the impacts of NOx emissions on communities that have historically borne a disproportionate share of the adverse impacts of such emissions (5.2.10).

N/A

**ATTACHMENTS**  
**(CHECK BOX IF ATTACHED)**

- |                                     |                     |   |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | <b>Attachment A</b> | <b>Funding Request and Direction.</b>   |
| <input checked="" type="checkbox"/> | <b>Attachment B</b> | <b>Eligible Mitigation Action Management Plan Including Detailed Budget and Implementation and Expenditures Timeline (5.2.4).</b>   |
| <input checked="" type="checkbox"/> | <b>Attachment C</b> | <b>Detailed Plan for Reporting on Eligible Mitigation Action Implementation (5.2.11).</b>   |
| <input checked="" type="checkbox"/> | <b>Attachment D</b> | <b>Detailed cost estimates from selected or potential vendors for each proposed expenditure exceeding \$25,000 (5.2.6). [Attach only if project involves vendor expenditures exceeding \$25,000.]</b> |
| <input checked="" type="checkbox"/> | <b>Attachment E</b> | <b>DERA Option (5.2.12). [Attach only if using DERA option.]</b>  |
| <input type="checkbox"/>            | <b>Attachment F</b> | <b>Attachment specifying amount of requested funding to be debited against each beneficiary's allocation (5.2.13). [Attach only if this is a joint application involving multiple beneficiaries.]</b> |

**CERTIFICATIONS**

By submitting this application, the Lead Agency makes the following certifications:

1. This application is submitted on behalf of Beneficiary Louden Tribal Council, and the person executing this certification has authority to make this certification on behalf of the Lead Agency and Beneficiary, pursuant to the Certification for Beneficiary Status filed with the Court.
2. Beneficiary requests and directs that the Trustee make the payments described in this application and Attachment A to this Form.
3. This application contains all information and certifications required by Paragraph 5.2 of the Trust Agreement, and the Trustee may rely on this application, Attachment A, and related certifications in making disbursements of trust funds for the aforementioned Project ID.
4. Any vendors were or will be selected in accordance with a jurisdiction's public contracting law as applicable. (5.2.5)
5. Beneficiary will maintain and make publicly available all documentation submitted in

**support of this funding request and all records supporting all expenditures of eligible mitigation action funds subject to applicable laws governing the publication of confidential business information and personally identifiable information. (5.2.7.2)**

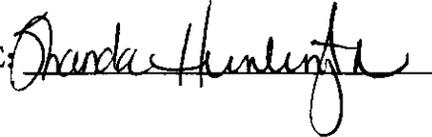
**DATED:** 8/27/19

Shanda Huntington, City Administrator

[NAME]

[TITLE]

City of Galena

**SIGNATURE:** 

[LEAD AGENCY]

for

Louden Tribal Council

[BENEFICIARY]

**[SAMPLE ATTACHMENT B - USE OF THIS FORMAT IS NOT MANDATORY]**

**PROJECT MANAGEMENT PLAN**  
**PROJECT SCHEDULE AND MILESTONES**

<b>Milestone</b>	<b>Date</b>
Lead Agency Provides Notice of Availability of Mitigation Action Funds	6/18/19
Project Sponsor Submits Proposal to Lead Agency	6/18/19
Lead Agency Provides Written Approval of Project Sponsor's Proposal	6/18/19
Lead Agency Incorporates Project Sponsor's Proposal into Mitigation Plan	6/18/19
Trustee Acknowledges Receipt of Project Certification and Funding Direction	10/29/19
Trustee Allocates Share of Funds for Approved Project	11/13/19
Lead Agency Directs Funding (Advance Funded Projects)	11/15/19
Project Sponsor Obtains Cost Share, Notifies or Certifies to Lead Agency	11/15/19
Project Sponsor Enters into Contracts, Purchase Orders, etc. - Start	11/15/19
Project Sponsor Enters into Contracts, Purchase Orders, etc. - Complete	12/30/19
Project Installation(s) – Start	3/31/20
Project Installation(s) – Complete	9/30/20
Project Sponsor provides detailed invoices for all claimed project costs, documentation for emission reduction estimates, required certification documents to Lead Agency to support direction to Trustee for Payment (Reimbursement, Direct-to-Vendor) or final accounting (Forward Funded Projects)	-
Lead Agency completes review and certifies payment direction to Trustee (Reimbursement)	-
Trustee Acknowledges Receipt of Direction for Payment(s) (Advance Funded, Reimbursement)	-
Project Sponsor Certifies Project Completion	9/30/21
Lead Agency Reports Project Completion	9/30/21

**PROJECT BUDGET**

<b>Period of Performance: _____</b>				
<b>Budget Category</b>	<b>Total Approved Budget</b>	<b>Share of Total Budget to be Funded by the Trust</b>	<b>Cost-Share, if applicable (Entity #1)</b>	<b>Cost-Share, if applicable (Entity #2)</b>
1. Equipment Expenditure	\$ 843,368	\$ 167,384	\$ 575,984	\$ 100,000
2. Contractor Support <i>(Provide List of Approved Contractors as Attachment with approved funding ceilings)</i>	\$ 109,300	\$	\$ 109,300	\$
3. Subrecipient Support <i>(Provide List of Approved Subrecipients or Grant Awardees as Attachment with approved funding ceilings)</i>	\$	\$	\$	\$
4. Administrative <sup>1</sup>	\$	\$	\$	\$
<b>Project Totals</b>	\$ 952,668	\$ 167,384	\$ 685,284	\$ 100,000
<b>Percentage</b>	100 %	18 %	72 %	10 %

<sup>1</sup> Subject to Appendix D-2 15% administrative cap.

**PROJECTED TRUST ALLOCATIONS:**

	2017	2018	2019	2020	2021
1. Anticipated Annual Project Funding Request to be paid through the Trust	\$	\$	\$ 167,384	\$	\$
2. Anticipated Annual Cost Share	\$	\$	\$ 785,284	\$	\$
3. Anticipated Total Project Funding by Year (line 1 plus line 2)	\$	\$	\$ 952,668	\$	\$
4. Cumulative Trustee Payments Made to Date Against Cumulative Approved Beneficiary Allocation	\$	\$	\$ 0	\$	\$
5. Current Beneficiary Project Funding to be paid through the Trust (line 1)	\$	\$	\$	\$	\$
6. Total Funding Allocated to for Beneficiary, inclusive of Current Action by Year (line 4 plus line 5)	\$	\$	\$	\$	\$
7. Beneficiary Share of Estimated Funds Remaining in Trust	\$	\$	\$	\$	\$
8. Net Beneficiary Funds Remaining in Trust, net of cumulative Beneficiary Funding Actions (line 7 minus line 6)	\$	\$	\$	\$	\$

## Addendum to Louden Tribal Council D-4 for VW Trust Settlement

Summary Questions from D-4:

**Q: Detailed Description of Mitigation Action Item including Community and Air quality Benefits:**

A: Replacement of engine and its generator for non-tiered Caterpillar 3512 @ 600 kW (Serial Number 3512A/67Z00587) with a Tier 2 Detroit Diesel Series 60, 6063MK35 @ 305 kW along with Controlled Power 8-section switchgear accessory. The air quality benefits will occur in an area close to the K-12 Public School and City Office. See table in addendum for air quality benefits as calculated by Gray Stassel Engineering.

**Q: Estimate of Anticipated NOx Reductions (5.2.3):**

A: Through the conversion of new engine and new switchgear, which provides 100% of the electricity to the community of Galena.

The following table captures the current and proposed engine fleet and the pre- and post-project annual fuel consumption and emissions profile. Note Emissions Reductions are aggregated for powerhouse, not by engine.

Engine #	Brand/Model	Nameplate Generation (kW)	Proposed Replacement	Pre/Post Annual Fuel Consumption (gallons diesel)	Pre/Post Emissions	Note
1	Caterpillar 3512	800	--	93.584/0	NOx: 23%	
2	Caterpillar 3456	500	--	9.407/83.775	PM2.5: 43%	
3	Caterpillar 3512A	600	Detroit Diesel S-60. 305 kW	104.448/62.327	HC: 33%	Serial #: 3512A/67Z00585
4	Caterpillar 3512	1050	--	165.806/211.696	CO: 40%	
5	Caterpillar 3516	600	--	53.188/33.133	CO2: 8%	
6	Caterpillar 3416	450	--	428/0	--	
TOTAL	--	--	--	426,861/390,935= 35,926 gallons saved annually; 502,964 gal lifetime	Aggregated across all engines, not just #3	Post emissions & consumption includes switchgear

**Q: Identification of Governmental Entity Responsible for Reviewing and Auditing Expenditures of Eligible Mitigation Action Funds to Ensure Compliance with Applicable Law (5.2.7.1):**

A: Tribal Administrator, Susie Sam, will be responsible for auditing expenditures of eligible mitigation Action funds.

**Q: Describe how the Beneficiary will make documentation publicly available (5.2.7.2).**

A: The Louden Tribal Council will establish a webpage dedicated to the funding received from the vw Settlement Trust, which will include a link for members of the public to request additional information and documents related to the funding request and expenditure of funds. This website will be hosted by Louden's Lead Agency, City of Galena. City of Galena and the Louden Tribal Council will endeavor to respond to such requests within ten (10) business days and, when documents are requested, will advise the individual within that timeframe of the procedure for reviewing such documents. The Tribe does not have ordinances or policies for matters governing the publication of confidential business information and personally identifiable information. To the extent that Tribal law does not address an issue, the Tribe may look to Alaskan law as a non-binding source of guidance.

**Q: Describe any cost share requirement to be placed on each NOx source proposed to be mitigated (5.2.8)**

A: Through the EPA IGAP program, the Louden Tribe has taken the lead on environmental initiatives in the community for over a decade, including water protection, solid waste education and outreach, and energy efficiency of the Tribal Council building. Louden Village Council is contributing their allotment of \$167,384 of VW Settlement Trust funds to this project. The City of Galena will contribute \$685,284 in match and EPA DERA funds, and the Alaska Energy Authority \$100,000.

## Louden Tribal Council for VW Trust Settlement

### Attachment C

#### **Detailed Plan for Reporting on Eligible Mitigation Action Implementation (5.2.11)**

The Loudon Tribal Council will for each Eligible Mitigation Action (EMA) no later than 6 months after receipt of the first disbursement of Trust Assets and thereafter no later than January 30 (for the preceding six month period of July 1 to December 31) and July 30 (for the preceding six month period of January 1 to June 30) of each year will submit to the Trustee a semi-annual report describing the progress implementing each EMA during the six month period leading up to the reporting date including a summary of all costs expended on the EMA through the reporting date.

Such reports shall include a complete description of the status including actual or projected termination date, development, implementation and any modifications of each approved EMA. The reports will be signed by an official with authority to submit the report and will contain an attestation that the information is true and correct and that the submission is made under penalty of perjury.

Because funding from this opportunity will be utilized as the Voluntary match through the EPA DERA program, the EPA grants manager who oversees the DERA program will also be overseeing any and all expenditures from this opportunity. Any and all work completed under this opportunity will be reported to the EPA under regular DERA reports and we will be sure to include this information on the publicly available website for the City of Galena, AK.

<https://www.ci.galena.ak.us/>

**Louden Tribal Council for VW Trust Settlement**

**Attachment D (5.5.6)**

**Detailed Cost Estimates**

## Controlled Power, Inc.



17909 Bothell Everett Hwy. S.E., Suite 102  
Bothell, Washington 98012  
(425) 485-1778 FAX (425) 485-0658

MARCH 13, 2019

HIGH STANDARD  
ANCHORAGE, AK  
ATTN: JOHN CRAVENS

QUOTE# 6737-B  
FOB: BOTHELL, WA  
DELIVERY: 20-24 WEEKS AFTER SUBMITTAL APPROVAL

### CITY OF GALENA POWER PLANT 5KV, 3P / 3W, 40KA

8 SECTIONS OF FREESTANDING, MEDIUM VOLTAGE SWITCHGEAR, SAFETY LABELED, SEISMIC ZONE 3-4 RATED, NEMA I APPROXIMATELY 95" H X 288" W X 95" D, THREE PHASE, THREE WIRE SYSTEM WITH INSULATED 1200A COPPER BUS. FROM A FRONTAL VIEW, REF. DWG #12581 TO #12584 SUPPLIED TO HIGH STANDARD WITH THIS PROPOSAL. SWITCHGEAR WILL BE CRATED FOR SHIPMENT TO ALASKA AND WILL CONTAIN THE FOLLOWING:

#### SECTION #101 (SOLAR) TO INCLUDE THE FOLLOWING:

- 1 DRAW OUT VACUUM BREAKER, 1200A, 5KV, 40KA, (5-CYCLE) WITH 125VDC CHARGED, CLOSED, AND TRIPPED; 6-MOC & 3-TOC SWITCHES
- 1 DRAWOUT PT TRAY WITH 2 POTENTIAL TRANSFORMERS, FUSED 35/1 RATIO.
- 1 LOT OF INSULATED 1200A COPPER BUS, THREE PHASE
- 1 GROUND BUS
- 1 PROTECTIVE RELAY WITH ETHERNET COMMUNICATION (SEL-700G)
- 1 EASYGEN 3500XT CONTROLLER
- 1 IKD I/O EXPANSION MODULE
- 9 CURRENT TRANSFORMERS, (SIZED AS REQUIRED)
- 1 GROUND FAULT CURRENT TRANSFORMER, 50/5 RATIO
- 1 125VDC CONTROL POWER DISCONNECT BLOCK WITH FUSES
- 4 CURRENT TRANSFORMER SHORTING BLOCKS
- 1 LOT DEVICENET BLOCKS
- 1 BREAKER SWITCH: LOCAL / REMOTE / OFF
- 1 #86 LOCKOUT RELAY WITH MANUAL RESET / READY LIGHT
- 1 CIRCUIT BREAKER CONTROL SWITCH WITH LIGHTS: OPENED / CLOSED / TRIPPED
- 1 STRIP HEATER

## **Controlled Power, Inc.**



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### **SECTIONS #102 THROUGH #105, (GENERATOR) TO INCLUDE THE FOLLOWING IN EACH SECTION:**

- 1 DRAW OUT VACUUM BREAKER, 1200A, 5KV, 40KA, (5-CYCLE) WITH 125VDC CHARGED, CLOSED, AND TRIPPED; 6-MOC & 3-TOC SWITCHES
- 1 DRAWOUT PT TRAY WITH 2 POTENTIAL TRANSFORMERS, FUSED 35/1 RATIO.
- 1 LOT OF INSULATED 1200A COPPER BUS, THREE PHASE
- 1 GROUND BUS
- 1 PROTECTIVE RELAY WITH ETHERNET COMMUNICATION (SEL-700G)
- 1 EASYGEN 3500XT CONTROLLER
- 1 IKD I/O EXPANSION MODULE
- 1 2301A SPEED CONTROL MODULES FOR THE MUI ENGINE GENERATORS (**ONLY**)
- 9 CURRENT TRANSFORMERS, (*SIZED AS REQUIRED*)
- 1 GROUND FAULT CURRENT TRANSFORMER, 50/5 RATIO
- 1 125VDC CONTROL POWER DISCONNECT BLOCK WITH FUSES
- 4 CURRENT TRANSFORMER SHORTING BLOCKS
- 1 LOT DEVICENET BLOCKS
- 1 BREAKER SWITCH: LOCAL / REMOTE / OFF
- 1 #86 LOCKOUT RELAY WITH MANUAL RESET / READY LIGHT
- 1 CIRCUIT BREAKER CONTROL SWITCH WITH LIGHTS: OPENED / CLOSED / TRIPPED
- 1 STRIP HEATER

### **SECTION 106 (MASTER) TO INCLUDE THE FOLLOWING:**

- 1 DRAW OUT, PT TRAY WITH POTENTIAL TRANSFORMERS, FUSED 35/1 RATIO (BUS)
- 1 LOT OF INSULATED 1200A COPPER BUS, THREE PHASE
- 1 GROUND BUS
- 1 125VDC CONTROL POWER DISCONNECT BLOCK WITH FUSES
- 2 16-POINT COPPER ETHERNET SWITCH
- 1 LOT DEVICENET BLOCKS
- 1 CONTROL LOGIC PLC SYSTEM WITH RACK, PROCESSORS, POWER SUPPLIES, I/O MODULES, PROSOFT ETHERNET CARD, DEVICENET SCANNER, EWON (FOR REMOTE ACCESS), AND WILL INCLUDE RSLOGIX USER LICENSE
- 1 LOT DEVICE NET BLOCKS, AS REQUIRED
- 1 15" COLOR TOUCHSCREEN OPERATOR INTERFACE UNIT AND SOFTWARE WITH THE FOLLOWING SCREENS: SYSTEM OVERVIEW, BUS STATUS, GENERATOR STATUS, EXPANSION TANK STATUS, ALARM/EVENT HISTORY, GENERATOR KW RATING, GENERATOR KW RATING ADJUST, DEMAND LEVEL, DEMAND LEVEL SET POINT ADJUST, AND USER LOGIN
- 1 STRIP HEATER

### **SECTIONS 107 & 108 (FEEDER) TO INCLUDE THE FOLLOWING IN EACH SECTION:**

- 1 DRAW OUT VACUUM BREAKER, 1200A, 5KV, 40KA, (5-CYCLE) WITH 125VDC CHARGED, CLOSED AND TRIPPED; 6-MOC & 3-TOC SWITCHES

## **Controlled Power, Inc.**



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- 1 DRAW OUT, PT TRAY WITH POTENTIAL TRANSFORMERS, FUSED 35/1 RATIO
- 1 LOT OF INSULATED 1200A COPPER BUS, THREE PHASE
- 1 GROUND BUS
- 1 MULTIFUNCTION FEEDER RELAY (SEL-700G) WITH ETHERNET COMMUNICATION
- 6 CURRENT TRANSFORMERS, (SIZED AS REQUIRED)
- 1 125VDC CONTROL POWER DISCONNECT BLOCK WITH FUSES
- 2 CURRENT TRANSFORMER SHORTING BLOCKS
- 1 LOT DEVICENET BLOCKS
- 2 #86 LOCKOUT RELAY WITH MANUAL RESET / READY LIGHT
- 2 CIRCUIT BREAKER CONTROL SWITCH, WITH LIGHTS: OPENED / CLOSED / TRIPPED
- 1 STRIP HEATER

### **SHIP LOOSE ITEMS**

- 1 SET OF ACCESSORIES FOR TESTING, INSPECTION AND MAINTENANCE, LIMITED TO THE FOLLOWING:
  - 1 BREAKER REMOVAL LIFT TRUCK (MANUAL)
  - 1 CIRCUIT BREAKER RACKING HANDLE
  - 1 TEST COUPLER
  - 1 BREAKER TEST CABINET WITH TEST COUPLER
  - 1 ELECTRICALLY OPERATED RACKING DEVICE, 120VAC W/25FT CORD
  - 1 FREESTANDING FULLY ENCLOSED DC POWER SYSTEM, 80"H X 32"W X 32"D, WEIGHING APPROX. 1500LBS, SAFETY LABELED, IBC SEISMIC RATED, AND WILL CONTAIN THE FOLLOWING:
    - 1 DC LOAD CENTER WITH 100A, 2-POLE MAIN BREAKER AND (12) 2-POLE (UP TO 60A) FEEDER BREAKERS
    - 1 IQ CHARGER, 115-120/208-230VAC, 60HZ INPUT, 25A OUTPUT, 120VDC OUTPUT VOLTAGE, MODBUS DATA COMMUNICATION AND (5) INDIVIDUAL FORM C ALARMS WITH A RIPPLE FILTER
    - 1 100A HOUR BATTERY SYSTEM, 10-YEAR VRLA DESIGN, BATTERIES SECURED AND PRE-WIRED, AND FLEXIBLE BATTERY JUMPER

PLUS ALL WIRING, FUSES, TERMINAL BLOCKS, RELAYS, TIMERS BASES, DRAWINGS AND MANUALS  
(PROVIDED IN DIGITAL FORMAT ONLY FOR ALL SUBMITTAL AND FINAL O&M MANUALS)

### **SWITCHGEAR TEST:**

THE SWITCHGEAR WILL BE TESTED TO APPLICABLE ANSI STANDARDS. THE BREAKER, BUSSING AND SHEET METAL TESTS WILL BE SOURCED FROM THE EQUIPMENT MANUFACTURER WITH CERTIFIED TEST REPORTS. APPLICABLE ANSI TESTS AS PERTAINING TO THE CONTROL AND RELAYING PORTIONS

## **Controlled Power, Inc.**



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OF THE SWITCHGEAR WILL BE PERFORMED BY **CONTROLLED POWER, INC.** THREE (3) WEEKS NOTICE WILL BE GIVEN TO **HIGH STANDARD** TO WITNESS TESTING OF THE SWITCHGEAR.

### **START-UP AND COMMISSIONING ASSISTANCE**

THIS WILL BE DETERMINED AFTER ACCEPTANCE OF THE PROPOSAL. CPI RATES ARE **\$1,700.00** PER WEEK DAY AND **\$2,000.00** PER WEEKEND DAY/HOLIDAY.

### **DOCUMENT AND DESIGN**

PRELIMINARY DESIGN SUBMITTALS WILL BE AVAILABLE 30 WORKING DAYS AFTER RECEIPT OF ORDER. THE CPI SUPPLIED LOGIC WILL BE CAPABLE OF THE FOLLOWING:

- REMOTE OPERATION
- START/STOP OF GENERATORS
- PLACE THE GENERATORS ON-LINE
- TAKE GENERATORS OFF-LINE
- MANUAL START CAPABILITY OF GENERATOR(S)
- INCREASE AND DECREASE POWER OUTPUT
- OPERATE IN BLACK START SEQUENCE FOR EMERGENCIES

### **FINAL DESIGN**

THE FOLLOWING DOCUMENTS ARE INCLUDED IN THE DELIVERY: **(ALL SUBMITTALS AND FINAL O&M'S WILL BE PROVIDED IN ADOBE ACROBAT 9.0 PDF FILE FORMAT SENT VIA EMAIL. CD CAN BE SENT UPON REQUEST)**

1. INSTRUCTION MANUALS FOR ERECTION OF EQUIPMENT.
2. ELECTRICAL AC/DC WIRING, INTERCONNECT AND WIRE NUMBER LISTS. **NOTE: AC/DC WIRING AND INTERCONNECT DIAGRAMS WILL BE FURNISHED FOR GEAR AND ENGINE/GENERATOR SETS AND ASSOCIATED EQUIPMENT.**
3. OPERATING AND MAINTENANCE MANUALS.
4. ELECTRONIC FILES.
5. COMPONENT INSTRUCTIONS.
6. TEST RECORDS FOR WORKSHOP TESTS.

### **WARRANTY OF QUALITY, GUARANTEE PERIOD**

THE GUARANTEE PERIOD IS TWELVE (12) MONTHS FROM AFTER THE EQUIPMENT IS SHIPPED FROM **CONTROLLED POWER'S** FACILITY. A COPY OF **CONTROLLED POWER'S** WARRANTY TERMS WILL BE FORWARDED TO **HIGH STANDARD**.

## Controlled Power, Inc.

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### PAYMENT TERMS

1. 15% ON SUBMITTAL OF DRAWINGS
2. 40% ON START OF MANUFACTURING
3. 42% WITH SHIPPING DOCUMENTS
4. 3% UPON FINAL STARTUP AND ACCEPTANCE, BUT NOT TO EXCEED 180 DAYS AFTER SHIPMENT.

### PRICING:

8-SECTION SWITCHGEAR PER THE ABOVE QUOTE (INCLUDES THE SHIP LOOSE ITEMS):

**YOUR COST: \$635,271.00**

IF YOU HAVE ANY FURTHER QUESTIONS CONCERNING THIS QUOTE, PLEASE FEEL FREE TO CONTACT ME AT ANY TIME.

SINCERELY,

DAVID WILDER  
VP/SALES AND MARKETING  
EMAIL: [DWILDER@CONTROLLEDPowerINC.COM](mailto:DWILDER@CONTROLLEDPowerINC.COM)  
DW/CMN

## HIGH STANDARD LLC

1110 West 6<sup>th</sup> Room 202,  
Anchorage, Alaska. 99501  
jcravens@highstandard.tech  
907.952.4446



Estimate: 032519-01

DATE: 03/25/2019

Customer: City of Galena

Project: Replace generator

Location: Galena Utilities

Cost Estimate.

Description: Remove Caterpillar genset model 3512 and replace with new Detroit generator model 60 Series.

Estimate includes retrofitting mechanical and electrical circuits to enable the Detroit generator to work with existing switchgear.

Commission and testing of generator after installation.

Charge	Rate	Amt	
Labor	150.00	150	22,500.00
Travel	150.00	8	2,400.00
Over Baggage		200.00	200.00
Meals		600.00	600.00
Outside Contractor			33,600.00
Other	NA	0	
		<b>TOTAL</b>	<b>59,300.00</b>



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
Air and Radiation Division  
1200 Sixth Avenue, Suite 155  
Seattle, WA 98101-3140

Susie Sam, Tribal Administrator  
Louden Tribal Council  
P.O. Box 244  
Galena, AK 99741

June 18, 2019

Re: FY 2018/2019 Tribal Clean Diesel Funding Assistance Program  
Announcement Number: EPA-OAR-OTAQ-18-04

Dear Tribal Administrator Susie Sam,

On June 5, 2018, the U.S. Environmental Protection Agency issued a Request for Applications (RFA) under the Tribal Clean Diesel Funding Assistance Program — FY 2018/2019. A national review panel, reviewed, scored, and assessed the proposals for projects that were submitted in response to the RFA. I am pleased to inform you that your proposal was selected for further consideration. Your proposal requested assistance for \$468,230 and we are recommending that it be fully funded at that amount.

Please keep in mind, this does not mean that you are being offered a grant, only an EPA award official can make a monetary offer. However, your proposal is being referred for further consideration and is an important step toward an offer.

I have been assigned as the Project Officer, in the Air and Radiation Division, to negotiate elements of your proposal, a budget, the proposed project start date, and other application requirements before completion and submittal of a final grant application. Upon completion of these negotiations through our discussions, you will be asked to submit your signed, official grant application package to me by email.

If you have any questions regarding this correspondence, please contact me at 206-553-2728 or by email at: [krauss.kayla@epa.gov](mailto:krauss.kayla@epa.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read "Kayla Krauss".

Kayla Krauss, Project Officer

cc:

Shanda Huntington, Galena City Manager

Lucita Valiere, National Tribal DERA Lead

Karl Pepple, Region 10 DERA Lead

Kelly McFadden, Manager – Air Permits and Toxics Branch

Debra Suzuki, Manager – Air Planning and State/Tribal Coordination Branch

**Louden Tribal Council  
Attachment E**

Revised 8/9/2019

**ENVIRONMENTAL PROTECTION AGENCY (EPA)  
Tribal Clean Diesel Funding Assistance Program FY 2019  
Request for Applications (RFA)  
EPA-OAR-OTAQ-18-04**

**Project Title: Diesel Engine Replacement and Powerhouse Upgrade for Galena, Alaska**  
**Applicant (Organization) Name:** Louden Tribal Council  
**Address (Street, City, State, Zip):** PO Box 244, Galena, Alaska 99741  
**Office Phone and Fax Numbers:** Phone: (907) 656-1711; Fax: (907) 656-2491  
**Contact Name, Email address and Website (if applicable):** Susie Sam, susiej.sam@loudentribe.com  
**Unique Entity Identifier - DUNS number:** 1352608130000

**Eligible Entity:** The Louden Tribal Council (a.k.a. Galena Village) is a federally recognized Tribal Government based in Galena, Alaska, with jurisdiction over air quality, and therefore eligible to apply under this RFA in accordance with 42 U.S.C. 16131 and CFDA 66.039. For this application (and associated VW Settlement activities) we are partnering with the City of Galena, which will be a sub-awardee, as they own and operate the electric utility generation and distribution infrastructure in our community.

**Total Project Cost:** \$952,668  
**EPA Funds Requested:** \$468,230  
**Mandatory Match:** ~~\$211,884~~ \$181,433 (City of Galena)  
**Voluntary Cost Share:** ~~\$272,554~~ \$303,005 (City of Galena: \$35,621 VW: \$167,384 AEA: \$100,000)

**Target fleet:** The Louden Tribe and City of Galena propose to replace a non-tiered diesel engine-generator set (gen-set) with a certified Tier 2 gen-set and accessories in the Galena powerplant. This is a Stationary Certified Engine Replacement. To optimize operation of the new, more efficient engine it will be necessary to upgrade the manual switchgear in the powerplant to allow for improved load sharing and more efficient engine dispatch among the new and existing fleet in the powerplant. As described in more detail below, the automated switchgear is the accessory that is included in this request and will affect all six engines in the powerplant.

**Type of Upgrade:** Engine Replacement of non-tiered Caterpillar 3516 @ 600 kW with a Tier 2 Detroit Diesel Series 60, 6063MK35 @ 305 kW along with Controlled Power 8-section switchgear accessory.

**Short Project Description:** The Tribal and City governments in Galena, Alaska, are collaborating to replace a non-tiered diesel gen-set with a more efficient and smaller Tier 2 unit and automated switchgear in the community's electric utility powerhouse that will result in almost 36,000 gallons of diesel fuel savings annually, 23% NOx and 43% PM 2.5 emissions reductions, and improved safety conditions for local plant operators. The automated switchgear is necessary to achieve this expected fuel savings through optimized engine dispatch and is essential for integration of a planned high penetration solar-battery-diesel hybrid system that has recently been funded, will be the largest in Alaska, and achieve an additional 80,000 gallons of diesel fuel savings.

**Place of Performance:** The engines and switchgear are located in the electric utility powerhouse in Galena, Alaska, a First-Class city on the Yukon River, approximately 266 miles west of Fairbanks. Within the community of Galena, the powerhouse and resulting diesel exhaust is located within 1,000 feet of the Tribal health clinic, City Council building, local school, Tribal sponsored daycare and elders housing; approximately 70% of all community housing is within 1 mile of the powerplant.

**Section 1. Project Summary and Approach**

**A. VEHICLES AND TECHNOLOGIES:**

The primary diesel emissions reduction approach proposed here is to replace a non-tiered, inefficient Caterpillar 3516, 600 kW gen-set with a Tier 2 Detroit Diesel Series 60, 305 kW gen-set and automated switchgear to more efficiently run Galena's powerplant. Currently over-sized engines are frequently running at low efficiencies as we must have significant excess capacity (spinning reserve) in case of a rapid increase in demand, which often happens when the large airport runway lights must be turned on for incoming airplanes or for rapid swings in power consumption at the school. If a smaller, properly-sized engine were running and we needed to switch to a larger one, our current manual switchgear requires operators to place themselves in serious danger of electrocution and be

always ready to make the transition. Automated switchgear will provide substantial safety improvements and allow for the best-sized engine to meet the load at all times. This will result in a significant shift in operation that includes using the proposed smaller engine for many more hours and reducing run time on engines that are over-sized for the load, running inefficiently, and creating excessive emissions. As described in more detail below, the automated switchgear will also allow for significantly more diesel fuel savings and reduced engine start-ups once solar and batteries are installed, providing a zero-emission generation source.

The following table captures the current and proposed engine fleet and the pre- and post-project annual fuel consumption and emissions profile. Note Emissions Reductions are aggregated for powerhouse, not by engine.

1	Caterpillar 3512	800	--	93,584/0	NOx: 23%	
2	Caterpillar 3456	500	--	9,407/83,775	PM2.5: 43%	
3	Caterpillar 3512A	600	Detroit Diesel S-60, 305 kW	104,448/62,327	HC: 33%	Serial #: 3512A/67Z00585
4	Caterpillar 3512	1050	--	165,806/211,696	CO: 40%	
5	Caterpillar 3516	600	--	53,188/33,133	CO2: 8%	
6	Caterpillar 3416	450	--	428/0	--	

All engines and switchgear are owned and operated by the City of Galena, the certificated electric utility provider for our community. They will own and operate the proposed new gen-set as well.

***Mandated Measures Justification:***

EPA has acknowledged that the unique conditions in remote rural Alaska, unconnected by road or large transmission grid, render Tier 4 and 4i diesel units impractical, expensive, and unreliable for stationary prime power applications. Specifically, Tier 4 units require diesel exhaust fluid (urea) that has a freeze point of 15°F and Alaska’s extreme cold temperatures render this system unreliable and unreasonably expensive to maintain. The urea is also considered Hazardous Material, which complicates transport and adds additional expense to non-road connected villages such as Galena. Tier 2 and 3 generators have proven their reliability over millions of hours and hundreds of locations across rural Alaska, and provide emissions and performance improvements above non-tiered engines.

Regarding our powerplant, we have evaluated various Caterpillar, John Deere, Detroit Diesel, and Cummins engines and have settled on the specific engine identified here because of its superior combination of fuel efficiency, low emissions, reliability, availability, cost, and smaller size to better address our smaller load as compared to when the Air Force was stationed in Galena. The Tier 2 engine replacement is not a required action—we are doing this voluntarily in excess of regulations to meet our own fuel reduction and energy security goals as a community, which include a commitment to clean air and water, improved economy and health for all Galena residents, and limiting our need for shipping in diesel fuel. The engine proposed for replacement, a Caterpillar 3516, is used for more than 500 hours annually and has more than three years of expected life remaining. For prolonged life, our diesel engine maintenance regimen includes a top-end overhaul at 15,000 hours for 1200 RPM engines and at 10,000 hours for 1800 RPM engines, and major overhauls at approximately 30,000 hours. Engines usually receive three major overhauls, expiring at over 100,000 hours of operation. If replaced under DERA, we will disable the engine by placing a hole through the engine block. No DERA funding awarded will be used for costs of emissions reductions that are mandated under federal law, matching funds for other federal grants, expenses incurred prior to the project period, emissions testing and/or air monitoring activities, or fueling infrastructure.

**B. ROLES AND RESPONSIBILITIES:**

The Louden Tribe is the lead applicant. We are partnering on this project with the City of Galena, which owns and operates our community's electric utility and diesel fuel infrastructure, who will serve as a subrecipient. The Louden Tribe and the City of Galena have signed a Memorandum of Agreement (included as an attachment) to delineate our roles and responsibilities: The Louden Tribe will oversee the project and review and ensure all reporting is submitted to EPA. Any DERA funding awarded by EPA to Louden, along with our VW Settlement Trust funds, will go toward the proposed diesel gen-set replacement and switchgear. The City will provide the remaining mandatory and voluntary match, manage the gen-set replacement and powerplant upgrade, and provide all necessary grant management, reporting, and performance monitoring. This is also documented with a cost share letter attached.

We also work closely with the Tanana Chiefs Conference (TCC), in particular Dave Messier, Rural Energy Program Manager. Dave and TCC will provide program oversight and guidance as they have experience with previous DERA projects replacing diesel gen-sets in nearby communities and assist with selection of necessary engineering contractor(s).

The Alaska Energy Authority (AEA) has provided significant assistance in the preparation of this proposal by conducting the BAT and DEQ analysis and over the years with expert consultation and support for our various energy projects. Among other support, under the DERA project, AEA is providing \$100,000 to the City of Galena toward the switchgear upgrade (documented in AEA's letter of support) and they will continue to provide guidance and ensure we are meeting the terms and requirements of our obligations under DERA.

High Standard LLC's owner, John Cravens, has over 15 years of experience in our powerplant maintenance including repairing and replacing engines and is a certified Cat and Detroit Diesel mechanic. He has unique knowledge of our system and has worked in dozens of powerplants across the state on engine repower and heat recovery projects. Mr. Cravens works closely with Darryl Thurmond, the City's lead powerplant operator, and led the recent evaluation of all the engines and switchgear, significantly informing our current plan of action and DERA request.

DeerStone Consulting LLC's owner, Dr. Brian Hirsch, has been working with the community of Galena, both the Louden Tribe and the City, on various clean energy projects for over 10 years, and is currently leading the solar-battery hybrid project. He will serve in a technical assistance role to ensure that any new powerplant upgrades are compatible with the proposed solar-battery-inverter controls and requirements to maximize penetration of the variable/intermittent renewable generation. He also has experience with DERA implementation of diesel gen-set replacements, specifically with the community of Kokhanok and the Alaska Energy Authority in FY 2018/19.

**C. TIMELINE AND MILESTONES:**

We expect this to be a 2-year project, especially since switchgear lead-time from order to manufacture is approximately 6 months, and delivery can only be cost effectively accomplished via river barge in the ice-free summer months on the Yukon River. We assume an October 1, 2019 (FY2020) start date. Timeline and milestones are presented in the table below. Data collection will include diesel fuel consumption reductions pre- and post-replacement, run time hours for all gen-sets pre-and post-switchgear upgrade, calculations of subsequent emissions reductions, and actual costs to complete the project. Power Cost Equalization (PCE) reporting will serve as the primary system performance documentation, supplemented with emissions calculations using EPA guidelines.

Task 1	Conduct site visit to collect necessary information for bid documents	10/15/2019
Task 2	Bid Documents, procurement put out to bid	11/15/2019
Task 3	Selection of Contractor and signature of final bid documents	12/30/2019
Task 4	Order switchgear	1/15/2020
Task 5	Shipment of Engine-Generator set to Galena	2/1/2020
Task 6	Gen-set replacement, inspection trip; begin performance data collection	3/31/2020
Task 7	Shipment of switchgear	6/30/2020
Task 8	Complete switchgear installation & commissioning; site inspection	9/30/2020
Task 9	Begin expanded data collection	10/1/2020
Task 10	Complete all reporting and verify fuel reduction through PCE records	9/30/2021

## **Section 2. Project Location**

### **A. PROJECT LOCATION:**

Galena, Alaska, located on the north bank of the Yukon River about 270 air miles west of Fairbanks in the Yukon-Koyukuk (Y-K) Census Area, is a remote community deep in the Interior of Alaska with no road access – airplanes, river boat, snow machine, and dog team are the primary means of transportation for people and products. The entire project proposed here will take place within the boundaries of the City, located at -156.9275 longitude, 64.733 latitude. The large majority of electricity is produced by diesel gen-sets with some residential and commercial power supplemented with solar photovoltaics (PV). The City of Galena owns and operates the diesel-based power plant, which consists of six gen-sets, two heat recovery loops, manual switchgear that requires the powerplant to be staffed 24 hours/day 365 days/year and dangerous human intervention in an electrically “hot” setting to switch engines with no service interruption. Electricity costs are about 65 cents/kWh, over three times the price in Anchorage, Alaska, and over 400% higher than the average price of electricity in the lower 48. Diesel fuel comprises about half the cost of electricity production, so any fuel savings will meaningfully reduce the cost of electricity and improve our local economy and air quality.



### **B. AREAS OF POOR AIR QUALITY:**

The US Air Force stationed in Galena since World War II because of its strategic location as part of the Lend-Lease Program with Russia, but left in 2010. The Air Force’s legacy includes both an oversized and aging powerplant and significant soil and groundwater contamination from Diesel Range Organics (DRO) and other toxic pollutants that is now being mitigated with ground water pumps and fans that aerate the contamination into the local airshed, and use significant amounts of diesel-generated electricity. Within the community of Galena, the powerhouse and resulting diesel exhaust is located within 1,000 feet of the Tribal health clinic and day care, Head Start, City Council building, local elementary and high school and an Elders Housing facility. About 70% of all residents live less than 1 mile from the powerhouse. Though Galena is not an official PM 2.5 non-attainment area (like Fairbanks), significant residential and commercial wood burning and atmospheric inversions during the cold winter season create serious localized impacts to air quality that are exacerbated by concentrated diesel emissions, especially near the powerplant. Childhood and adult asthma is prevalent in the community.

### **C. AREAS THAT RECEIVE A DISPROPORTIONATE QUANTITY OF AIR POLLUTION FROM DIESEL FLEETS:**

In 2018 the City of Galena burned over 426,000 gallons of diesel fuel providing electricity to our community. Heating fuel consumption is notoriously hard to accurately monitor, but the general guideline in rural Alaska is that heat accounts for about 2/3 of all diesel demand in a community, with the remaining third being electricity generation and heavy equipment use. Since we burn a great deal of woody biomass to meet our heating needs, total diesel heating fuel is conservatively estimated, with input from our local fuel supplier, at 575,000 gallons of diesel fuel annually for heat and heavy equipment, for a total of about 1 million gallons of diesel fuel each year. This is for our small community of under 500 people plus about 220 boarding school students and staff in the winter when our diesel fuel consumption and atmospheric inversions are most acute, resulting in a literal, localized cloud and continuous smell of diesel fumes for months in the winter. It should be noted that our recently installed biomass heating system for the boarding school currently displaces about 230,000 gallons of diesel heating fuel annually.

## **Section 3. Benefits to the Community**

With a population of 470 people according to the 2010 US Census, of which over 63% are listed as American Indian or Alaska Native ([U.S. Census](#)), Galena serves as a regional hub for approximately six villages in Interior Alaska. There are no roads into or out of the community that connect to a broader road system resulting in very high prices for all imported goods.

Following the end of the Cold War in 1993, operation of the Galena Air Force Station was turned over to a contractor before being officially closed in 2010. The base is now controlled by the City of Galena, the Galena School District, and the Alaska Department of Transportation; its closure caused severe economic hardship as the

highest paying jobs left with the closing of the Air Station and we lost 30% of our population. Several of the buildings were repurposed to serve as the Galena Interior Learning Academy (GILA) – a boarding high-school with a technical trade focus—but resulted in legacy, under-utilized infrastructure needing ongoing attention and consuming large amounts of energy that are paid for by the remaining residents in the community. GILA houses and educates approximately 200 students from all across Alaska and has become the primary economic engine in the community as the largest employer, consumer of energy, and State-affiliated institution. As mentioned above, the US Air Force’s legacy also includes significant soil and ground water contamination from DRO and other pollutants that continues to cause health problems in the community, requires additional consumption of diesel fuel for mitigation, and impacts air quality.

After the Air Force left, we identified over 25% line loss in our distribution system, wasting 1 of every 4 gallons of diesel fuel used to generate electricity. The primary reasons for this line loss were old transformers and improper metering that were a legacy of the US Air Force infrastructure that was no longer in full use, but still consumed large amounts of power. This issue has recently been addressed under our RACEE project with the US Dept of Energy through extensive distribution system mapping, evaluation, and re-routing, disabling or reducing the size of transformers wherever possible. However, this is a very costly and multi-year project and still results in substantial amounts of generated power that does not produce revenue for our City-owned electric utility. This also contributes to our high electric rates even after the PCE subsidy is applied to eligible kWh’s (the first 500 per month for residential customers and an allocation based on population for community facilities). Because electricity costs are so high and many modern electrical conveniences are prohibitively expensive, Galena residents use far less electricity than the average Alaskan and U.S. residential customer who use 7,200 kWh/year and 10,932 kWh/year respectively. The average residential customer in Galena only uses 3,440 kWh/year.

In May of 2013, Galena experienced a catastrophic flood when the spring break-up on the Yukon River caused an ice jam approximately 20 miles downstream, backing up the River and affecting 90% of homes and buildings in the City. Homes closest to the river were submerged to their roofs. Most of the residents had to evacuate due to diesel fuel and sewage contamination, along with water and ice damage. The flood took all six diesel-powered generators offline and moved the fuel storage tanks off their pads. On June 25, 2013, the President issued a Major Disaster Declaration for Alaska (DR-4122), authorizing FEMA to provide Individual and Public Assistance to Galena.

Crowley Fuels provides fuel oil to Galena. In December of 2017, the cost of fuel oil was \$5.88 per gallon for terminal pricing. Further, it should be noted that Galena historically has extremely high heating degree days which increase the demand, and hence overall cost, for heating fuel on an annual basis. In nearby Fairbanks, Alaska, for example, the mean heating degree days for 63 years of data collection (1949-2013) is 13,933, while the mean heating degree days in Washington, DC from December 1, 2016 to November 30, 2017 (most recent data) was 3433 (and cooling degree days were 1837 over that same time period). In other words, just in terms of heating, the demand for energy to stay warm in Fairbanks, Alaska, (and by extension, Galena) was about four times the demand in Washington, DC on an annual basis. It is not an exaggeration that residents sometimes must choose between heating their homes or feeding their families. Hunting, fishing, harvesting firewood and other locally available resources are important parts of the community’s subsistence economy among both indigenous Alaska Natives and more recent residents.

All of these extraordinary conditions—a de-activated Air Force Base; a catastrophic flood; a small, remote, majority indigenous population; damaged and legacy energy infrastructure; DRO soil and water contamination; extremely high heating degree days—factor into our community’s embrace of diesel fuel reduction strategies and innovative thinking, perhaps best exemplified by our pursuit of the largest solar energy and battery system in Alaska. This project, a collaboration among all the stakeholders presented in this proposal, Tesla Inc., and others, has already received \$1.5 million in funding from the US Department of Agriculture’s High Energy Cost Grant Program, and is slated for preliminary construction in late fall 2020. This solar project as currently designed will result in over 80,000 gallons of diesel fuel saved annually in addition to the 36,000 gallons saved under this DERA proposal and will require the automated switchgear discussed above. The connection between these two projects is discussed further in the “Project Sustainability” section below but in many ways the eventual reduction in excess of 80,000 gallons of diesel fuel is premised on the activities included in this DERA project and accrue as community benefits.

#### **Section 4. Community Engagement and Partnerships**

As mentioned throughout this narrative, this proposed project, like many others in Galena, reflect a broad collaboration among stakeholders within the community as well as numerous supporting organizations and service

providers outside the community. The primary engagement and partnership is between the Louden Tribe and the City of Galena and is formalized through both a Memorandum of Agreement between the two parties and a letter of commitment from the City of Galena documenting the City's financial contribution to this project.

Through the EPA IGAP program, the Louden Tribe has taken the lead on environmental initiatives in the community for over a decade, including water protection, solid waste education and outreach, and energy efficiency of the Tribal Council building. Louden is also contributing approximately ~~\$125,000~~ of VW Settlement Trust funds to this project. ~~\$125,000~~  
~~\$167,384~~

~~\$217,054~~ ~~\$484,438~~ The City of Galena owns and operates the electric utility and sewer and water utilities, and will be providing up to ~~\$484,438~~ of cost share contribution to this project through the mandatory and voluntary cost share and contribution from AEA. ~~(\$100,000)~~

Sustainable Energy for Galena Alaska (SEGA) was created for the community-based biomass project, managing local forest lands, providing biomass heat for the Galena Interior Learning Academy (GILA), and generally overseeing the energy infrastructure in the community. GILA is the largest consumer of electricity and heat in the community and will directly benefit from reduced diesel fuel consumption, improved air quality, and lower energy costs. Currently SEGA provides biomass heat to GILA that accounts for displacement of about 230,000 gallons of diesel heating fuel annually; another 30,000 gallons of diesel heating fuel are still burned for GILA. Both SEGA and GILA have provided letters of support for this project.

Outside the community stakeholders, the Alaska Energy Authority has provided a letter of commitment for contributing \$100,000 to the City of Galena toward switchgear upgrades and will continue to provide technical support and assistance as we implement this project and the solar-battery hybrid deployment.

Tanana Chiefs Conference has submitted a letter of support documenting their ongoing support of our energy efforts and will continue to provide technical expertise for management and implementation of this DERA project, ensuring we are complying with all requirements and regulations and helping us to achieve efficiencies and save money.

High Standard LLC has submitted a letter of support for the project and a price quote for the diesel gen-set replacement. They also drafted specifications and solicited a price quote for the necessary automated switchgear.

DeerStone Consulting LLC has submitted a letter of support for providing technical assistance to ensure the powerplant upgrade is optimized for future integration with the planned solar-battery system and to support compliance with DERA requirements.

It should be noted that in the last eight months there have been two Special Community Meetings held to discuss our energy infrastructure development plans: one with a focus on the proposed solar-battery hybrid system and one with a focus on the diesel gen-set replacement and switchgear upgrade. All of these stakeholders and partners were involved in one or both of these meetings and have contributed to the design of the projects to date. Both Louden Tribe and the City commit to soliciting input and informing our community through regular Tribal and City Council meetings, Special Community meetings for this project, and ongoing dialogue and accountability to all stakeholders, including our funders. This has been a primary ingredient for our success to date and will not change as we progress.

### **Section 5. Project Sustainability**

Because of our extreme dependence on diesel fuel and associated impacts such as environmental contamination, our community is acutely focused on and committed to diesel reduction in all forms. To date, we have aggressively reduced power distribution line loss, for example, from over 25% of generation when the Air Force left in 2010 to under 8% today, thus improving efficiency and reducing fuel consumption significantly. This was achieved in large part with support from the US Department of Energy's RACEE program, and has created awareness in our electric utility staff and our community about the benefits of energy efficiency. Further, the RACEE program required long-term commitments to ongoing energy efficiency improvements that we are continuing to implement, including LED lighting throughout the community, numerous small-scale solar projects, and energy education initiatives.

We have also implemented a large biomass-based district heating system for the former Air Force base that is now the Galena Interior Learning Academy (GILA), a regional boarding school, that displaces 230,000 gallons of diesel heating fuel annually with locally available woody biomass and an improved water-based distribution system. Not

only has this reduced our diesel dependence, but it has created jobs and reduced energy costs for GILA, which contributes to long-term sustainability of our local economy and community while improving energy security.

Further, Galena has received \$1.5 million from the US Department of Agriculture to initiate a 1.2 MW solar PV and 850 kW/1.2 MWh lithium-ion battery project that will be the largest such system in Alaska. Total budget for the project is approximately \$4.5 million, and we are actively pursuing additional grant funding and debt financing. Once this system is installed, the new configuration with automated switchgear will allow for over 2,200 hours annually when either all diesel generators are turned off (with only solar and batteries producing power) or the new Tier 2 Detroit Diesel 305 kW will be powering the entire village. This high-penetration hybrid system will save in excess of 80,000 additional gallons annually, reduce staffing needs, and, depending on financing, cut electricity costs by 3-12 cents/kWh.

For this project, we looked extensively at various engine upgrades and other options to reduce our fuel consumption and diesel emissions. The Detroit Diesel Series 60, 305 kW gen-set and automated switchgear that we have selected will maximize fuel savings within the constraints of available funding and pragmatic next steps, and are both precursors to the solar-battery hybrid system. Collectively, the new gen-set, switchgear, and solar-battery hybrid system will result in about 116,000 gallons of fuel and energy cost savings and diesel emissions reductions, all of which contribute to sustainability.

The City’s most recent (2017) annual financial audit shows combined accounts receivable between “Governmental” and “Business-type” activities in excess of \$4 million, and managing combined infrastructure and capital assets valued at over \$59 million. The City imposes a 3% general sales tax and a 6% sales tax on short term housing, tobacco and liquor. The City’s recurring utilities and sales tax revenues are reliable and provide substantial collateral for leveraging additional financing as needed for cost-effective projects such as the ones proposed here.

Two online references to Galena’s commitment toward diesel reduction may be found here: [Galena Biomass Project Webinar](#), [Radio Program on Renewable Energy in Galena](#)

**Section 6. Environmental Results—Outputs, Outcomes and Performance Measures**

**A. OUTPUTS AND OUTCOMES:**

The primary outputs from this project will be replacement of 1 diesel gen-set with a smaller, more efficient, and cleaner unit and replacement of manual switchgear with automated equipment. As well, one subaward will be issued from Louden Tribe to the City of Galena who will issue at least two contracts for installation and engineering oversight of the new equipment; a community meeting will be held; a newsletter about the project will be produced and distributed; and a Memorandum of Agreement between the Tribe and City will be activated.

Project outcomes will be almost 36,000 gallons of diesel fuel and corresponding emissions reductions and air quality improvements annually; optimized engine dispatch for increased efficiency and more time between engine overhauls; and improved worker safety conditions. As well, community stakeholders will be more engaged in saving fuel and a zero emissions pathway will be enabled for our solar-battery project. Broadly, outcomes will be improved air quality and health and wellness of local residents and local economy.

<b>Anticipated Outputs and Outcomes</b>		
<b>Activities</b>	<b>Outputs</b>	<b>Outcomes</b>
Replace diesel gen-set	1 diesel gen-set Tier2 installed	35,894 gal annually;502,516 gal lifetime
Upgrade switchgear	1 automated switchgear installed	Extended engine life; efficient dispatch; enable 1.12 million gallons diesel saved over 14 year life of new engine from solar-battery hybrid
Subaward	1 subaward between Tribe & City	Improved collaboration, community engagement

Diesel Emissions Quantifier results tables printed below. Please read DEQ attachment for discussion on methods.

COMBINED ANNUAL SAVINGS						
Annual Results (short tons)	NOx	PM2.5	HC	CO	CO2	Fuel
Baseline Engines	68.21	12.21	6.33	44.82	4802	426,829
Amount Reduced	15.63	5.28	2.11	17.79	404	35,894
Percent Reduced	23%	43%	33%	40%	8%	8%

COMBINED LIFETIME* SAVINGS						
Annual Results (short tons)	NOx	PM2.5	HC	CO	CO2	Fuel
Baseline Engines	954.9	170.9	88.7	627.4	67,226	5,975,606
Amount Reduced	218.8	74.0	29.5	249.1	5,653	502,516
Percent Reduced	23%	43%	33%	40%	8%	8%

\* Based on 14-Year Useful Life

LIFETIME COST EFFECTIVENESS (\$/short ton reduced)*						Total Budget	\$952,668
	NOx	PM2.5	HC	CO	CO2	Capital & Labor	\$902,668
Capital Cost Effectiveness	\$4,125	\$12,205	\$30,548	\$3,623	\$160	Soft Costs	\$50,000
Total Cost Effectiveness	\$4,353	\$12,881	\$32,240	\$3,824	\$169		

\* Based on 14-Year Useful Life

**B. PERFORMANCE MEASURES:**

Performance will be measured through use of the project workplan, budget, and milestones. Specifically, a high level workplan with tasks and timelines is included in Section 1.C above, but we will develop a more detailed workplan to enhance efficiency, hold all participants accountable, and to facilitate reporting. A more detailed budget will also be developed. This workplan will have a timeline, milestones, and tasks assigned to individuals with reporting requirements on a monthly and quarterly basis, including expenditures. Dave Messier from TCC and Darryl Thurmond, the City’s powerplant operator, will oversee the project and develop this task and milestone timeline. All activities will be documented and report up to City Manager Shanda Huntington and Tribal Administrator Susie Sam. Louden Environmental Manager Luis Echenique will also participate for Louden to ensure all tasks are being completed and reported on to EPA.

Selection of qualified engineering and equipment installation expertise will be essential for project success. The City and Tribal Councils will select a subcommittee to review bids and proposals for the engineer and the mechanic. This subcommittee will report to the full Councils for final approval and document the decision-making process.

Ultimately, this project will be evaluated by how much fuel and diesel emissions it saves, and how much better the system loading and dispatch is on the engines in the powerhouse. We will measure pre- and post-engine replacement and switchgear upgrade to determine actual fuel savings and calculate the average loading on an annual basis compared to baseline. These fuel savings numbers will be publicly documented in Power Cost Equalization reporting to AEA, and we will maintain internal logs on engine run-time and evaluate average annual system loading as a metric for overall powerhouse generation efficiency. We expect to have the new engine installed and monitor performance for at least a year before this project is complete and at least 9 months for the switchgear.

**C. PERFORMANCE PLAN:** *[In this section of the workplan applicants must describe their plan for tracking and measuring progress toward achieving the expected project outputs and outcomes, as described in Section 1.C.4 of the RFA]*

Both the Tribal and City Councils are the ultimate responsible local parties, and all participants will be reporting to them through the City Manager and Tribal Administrator.

Dave Messier from Tanana Chiefs Conference will oversee the technical participants and will work closely with Darryl Thurmond, Galena's chief Powerplant Operator to ensure all tasks are complete safely and effectively within the powerplant. The detailed timeline, task list, milestone, and budget will be reviewed monthly for tracking and measuring progress. Dr. Brian Hirsch from DeerStone Consulting will be able to assist with ensuring the powerplant is properly upgraded to enable future solar and battery inputs, and he will also assist with reporting to the City Manager and Tribal Administrator through another technical assistance contract he has to support our community. Our Financial Officer will review budgets monthly and prepare financial reports for the Councils and EPA. Our monthly reporting requirements to AEA and the Regulatory Commission of Alaska to maintain our Power Cost Equalization funding will also be instrumental in documenting fuel savings, which we will then use for ongoing calculation of emissions reductions. As well, our powerplant logs will be used to verify system performance.

**Section 7. Programmatic Capability and Past Performance**

**A. PAST PERFORMANCE:**

The Louden Tribe has successfully implemented and managed EPA Indian General Assistance Program (IGAP) grant activities and reporting for over 15 years, and is doing so presently. Current annual budget is \$128,000, with supplemental funding of approximately \$20,000. We are responsible for environmental stewardship, education and outreach, and engaged in long term sustainability planning for our community, currently working under a MOU with the City to manage our landfill. We also lead a Yukon-Koyukok Environmental Consortium EPA-IGAP grant that manages a solid waste backhaul program for six Alaska Native villages that has been successfully operating for over a decade with a current budget of \$148,000.

Our project partner and subgrantee if awarded, the City of Galena, is currently managing and implementing a \$1.5 million High Energy Cost Grant (HECG) Program award from the US Department of Agriculture. This project is being managed successfully and was awarded in part because of Galena's innovative and challenging energy circumstances, commitment to diesel reduction, and past success. This is an ongoing three-year project.

The City of Galena also received and successfully completed a US Department of Energy RACEE (Remote Alaskan Community Energy Efficiency) award for \$308,716. This project was completed on budget and on time, and reduced our energy consumption through reduction of distribution power line loss, LED lighting, and other actions.

<b>Grantee</b>	<b>Agency - Program</b>	<b>Agreement Number</b>	<b>CFDA Number</b>
Louden Tribe	EPA- IGAP	00J54701	66.926
Y-K Consortium	EPA-IGAP	01J21701	66.926
City of Galena	USDA - HECG	AK0068-A84	10.859
City of Galena	USDOE - RACEE	EE0007854	81.087

**B. REPORTING REQUIRMENTS:**

All of the above grant awards have been completed successfully, or in the case of the USDA HECG program, are still in progress, and are on time and on or under budget. All of the grants require quarterly reporting, which have all been completed. For the IGAP grant to be renewed, program objectives must be met and narrative and financial reports filed regularly. Louden has always met its reporting and activity requirements and we continue to be in good standing with the EPA. The only exception was in the aftermath of the catastrophic flood in 2013, some documentation and computers were permanently destroyed and we had to re-start much of our administrative processes.

The City of Galena's HECG award is only in its second quarter, but they have filed all required reports on time and have already achieved a major program milestone: connecting the village heat recovery system to the one diesel engine in the powerplant that was not connected. This has been performed earlier than was in the original workplan and for less money than was budgeted.

The City's RACEE program was highly demanding in terms of technical requirements, workload, and timing. As mentioned above, we reduced our line loss from over 25% to under 8%, and widely implemented LED lighting and other energy efficiency measures. The project is now complete as scheduled.

**C. ORGANIZATIONAL EXPERIENCE:**

Both Louden Tribe and the City of Galena have broad and deep organizational experience to manage this grant. It should also be noted that after the 2013 flood, Galena was declared a disaster zone, and the community worked with

the Federal Emergency Management Agency and implemented over \$30 million of projects. Just our biomass-district heating project was over \$7 million, completed with a combination of grants and loan financing. We have a highly productive and cohesive team that has performed demanding tasks under daunting conditions, and we are committed to continuing our trajectory toward clean energy and community self-reliance with this project. Running the electric utility also provides both expertise and jurisdiction to implement this project. We have developed a workplan with tasks and timing that will be adhered to by all participants and reviewed regularly for course corrections as needed.

#### D. STAFF AND RESOURCES:

The Louden Tribe will act as a pass-through entity and issue a subaward to the City of Galena, as described in Appendix G of the RFA under "Subawards." Louden's Environmental Office will oversee the project and act as Point of Contact, coordinating with EPA and the City as needed. Contingent on receiving funding, the City will issue a Request for Proposals consistent with City and Federal procurement requirements to perform the scope of work outside of Galena's skill sets.

The City of Galena's staff is led by **Shanda Huntington, City Manager**. Shanda has been working for the City since 2008, first as utility clerk and now overseeing all City operations. She was instrumental in managing all projects associated with the 2013 Flood recovery, overseeing all FEMA funds and projects and working with over 15 different Federal and State agencies and outside donors and supporters. She is a lifelong Galena resident and very committed to improving quality of life in the community and retains institutional memory for the City management. Shanda is not only the City Manager, but has retained her position as Utility Manager so she has intimate understanding of energy use and cost trends in the community and the financial health and capacity of the organization.

**Carmen Jackson, CPA**, is an independent accountant and has been managing the City's detailed finances since 2015. Her primary duties include training staff on accrual accounting and QuickBooks software, and reviewing or completing various business operational documents including grant applications, department budgets, employment forms and benefits, and insurance documents. She also performs audit preparation services. Carmen is familiar with financial management requirements for federal grantees in 7 CFR part 1709 and government-wide financial assistance regulations at 2 CFR part 200 and will ensure that we comply with these regulations during management of any EPA awarded funds.

**Darryl Thurmond, Lead Diesel Mechanic/Chief operator**, has worked for the City of Galena for 23 years, and is responsible for all diesel operations in our powerhouse. Darryl will work with contractors and engineers to oversee the installation and commissioning of the gen-set and switchgear.

**David Messier, Rural Energy Program Manager, BS, MBA, PMP, CEM, Tanana Chiefs Conference (TCC)**, Dave Messier will serve as the technical point of contact for project implementation. Dave has worked extensively with the Galena City School District, City, and Louden Tribal Council on various energy projects and is familiar with Galena's electrical grid and rural utility operations. Dave has strong project management skills in the areas of project design, technology integration, program implementation, plan review and rural logistics along with detailed knowledge of the DERA program. Dave's services under TCC are provided in-kind.

**Tim Kalke, General Manager, Sustainable Energy for Galena Alaska (SEGA)** – Tim will be the local liaison, coordinating with Dave Messier and City staff to ensure the project meets the community energy goals, including education and capacity development as well as reducing energy consumption and fuel costs. Tim is General Manager of SEGA, the biomass harvesting non-profit providing fuel to our community biomass system. He also teaches in our local high school and has developed a course and curriculum for students enrolled in the Sustainable Energy and Natural Resources Program. This project will be incorporated into the curriculum.

#### **Section 8. Budget Narrative and Detail**

##### A. EXPENDITURE OF AWARDED GRANT FUNDS:

Louden is above the Single Audit Threshold for Federal Funds and has a mandatory independent audit annually. The City of Galena has internal controls that have been reviewed annually in financial audits to ensure proper expenditures of grant funds and other public monies. As well, financial statements are reviewed monthly at City Council meetings and reported on by City Manager Shanda Huntington. An overall budget has been developed for this project based on detailed price quotes and estimates for shipping and other activities. The City of Galena will

report monthly to the Loudon Tribe and quarterly to EPA on both activities and finances. The workplan with timeline will be used to ensure timely and efficient expenditures and implementation of project activities.

**B. BUDGET NARRATIVE:** All items listed below are part of the Subaward and fall into "Other" budget category  
**Personnel & Fringe:** Neither Loudon Tribal Council nor the City of Galena as a subrecipient will be receiving any Personnel or Fringe funds from this project budget. All staff labor will be donated in-kind. **Grant reporting not charged.**

**Travel:** No employees will travel under DERA project funds. All travel costs will be included under Contractual.

**Equipment:** The two primary budget items in the project are both equipment that will be used to reduce diesel fuel consumption and emissions: a Detroit Diesel Series 60 gen-set and 8-cabinet medium voltage switchgear. A price quote for the gen-set was received by Pacific Power Group (\$158,352) and for the switchgear from Controlled Power (\$635,271). If awarded, we will put both items out for bid. The gen-set cost is divided with 80% from EPA DERA (\$126,682) and 20% from mandatory cost share (\$31,670), which will be supplied by the City of Galena. For the switchgear, the cost is divided into \$254,108 request to EPA DERA, ~~\$154,108~~ mandatory cost share provided by the City of Galena, and ~~\$227,054~~ voluntary cost share provided by the Tribe's expected VW Settlement Funds (\$127,054) and AEA's \$100,000 contribution. ~~\$154,109~~ ~~\$127,054~~

**Supplies:** A stainless steel exhaust silencer is needed for proper operation of the diesel gen-set. This price was provided by Pacific Power Group.

**Contractual:** High Standard LLC has provided a price quote for installation of the gen-set, which consists of 374 hours @ \$150/hr plus \$2,400 in airfare, \$200 in over-baggage fees for tools, and \$600 for meals. This totals \$59,300. The price quote is used in the budget, though we will put this work out to bid. We are also estimating \$50,000 for engineering expertise to oversee the bidding process, inspect all work and commissioned installations, and monitor and report on the process for proper documentation with EPA. Contractual costs are allocated 80% to the EPA DERA request and 20% to Mandatory Cost Share, which will be provided by the City of Galena.

**Other:** Shipping costs for the gen-set and switchgear are estimated based on known weights and past projects. Shipping will include both land and water components, and are estimated at \$45,500. This is included as Voluntary Cost Share and will be provided by the City of Galena and VW Settlement funds.

**C. BUDGET TABLE:** See revised budget attachment

Category	EPA Request	Mandatory Cost Share	Voluntary Cost Share	Total	Notes
<del>Personnel</del>				0	
<del>Fringe</del>				0	
<del>Travel</del>				0	
<del>Equipment</del>					
<del>Detroit Diesel S- 60 Gen-Set</del>	<del>126,682</del>	<del>31,670</del>		<del>158,352</del>	<del>Pacific Power Group Price quote</del>
<del>8-Section Medium Voltage Switchgear</del>	<del>254,108</del>	<del>154,108</del>	<del>227,054</del>	<del>635,271</del>	<del>Controlled Power Inc. Price quote; AEA &amp; VW partial cost share</del>
<del><b>Subtotal Equipment</b></del>	<del><b>380,790</b></del>	<del><b>185,779</b></del>	<del><b>227,054</b></del>	<del><b>793,623</b></del>	
<del>Supplies</del>					
<del>Stainless Steel Exhaust Silencer</del>		<del>4,245</del>		<del>4,245</del>	
<del>Contractual</del>					
<del>Install new engine; de-commission old</del>	<del>47,440</del>	<del>11,860</del>		<del>59,300</del>	<del>High Standard LLC Price quote</del>
<del>Engineering &amp; Project Mgmt</del>	<del>40,000</del>	<del>10,000</del>		<del>50,000</del>	<del>Estimate based on other projects</del>
<del><b>Subtotal Contractual</b></del>	<del><b>87,440</b></del>	<del><b>21,860</b></del>	<del><b>0</b></del>	<del><b>109,300</b></del>	
<del>Other</del>					
<del>Equipment Shipping</del>			<del>45,500</del>	<del>45,500</del>	<del>Truck &amp; Barge estimate: weight, distance, past projects</del>
<del>Indirect</del>				<del>0</del>	
<del><b>TOTAL</b></del>	<del><b>468,230</b></del>	<del><b>211,884</b></del>	<del><b>272,554</b></del>	<del><b>952,668</b></del>	

Louden Tribal Council for VW Trust Settlement

Attachment E

Category	EPA Request	Mandatory Cost Share (City)	Voluntary (City)	Voluntary (VW)	Voluntary (AEA)	Total	Notes
<i>Personnel</i>							
<i>Fringe</i>							
<i>Travel</i>							
<i>Equipment</i>							
<i>Supplies</i>							
<i>Contractual</i>							
<i>Indirect</i>							
<i>Other</i>							
<i>Subaward to City of Galena</i>							
<i>Equipment</i>							
Detroit Diesel S-60 Gen-Set	126,682	31,670				158,352	Pacific Power Group price quote
8-Section Medium Voltage Switchgear	254,108	127,054		154,109	100,000	635,271	Controlled Power Inc. price quote
<i>Subtotal Equipment</i>	<b>380,790</b>	<b>158,724</b>		<b>154,109</b>	<b>100,000</b>	<b>793,623</b>	
<i>Supplies</i>							
Stainless Steel Exhaust Silencer		849		3,396		4,245	
<i>Contractual</i>							
Install new engine; de-commission old	47,440	11,860				59,300	High Standard LLC price quote
Engineering & project management	40,000	10,000				50,000	Estimate based on other projects
<i>Subtotal Contractual</i>	<b>87,440</b>	<b>21,860</b>				<b>109,300</b>	
<i>Other</i>							
Equipment shipping			35,621	9,879		45,500	Truck & barge estimate based on weight, distance, past projects
<b>TOTAL</b>	<b>468,230</b>	<b>181,433</b>	<b>35,621</b>	<b>167,384</b>	<b>100,000</b>	<b>952,668</b>	
			<b>303,005</b>				