Department of Environmental Conservation
Division of Air Quality

Request for Proposals (RFP)
RFP # 18-211-20-A

Addendum One

MOVES, Mobile Sources, Modeling & Technical Support

Date of Issue: January 23, 2020

The RFP Package is hereby clarified or changed as follows:

1. Questions and Answers;
2. Attachments.

The questions and answers begin on page two. This Addendum is hereby made part of the RFP and is a total of 11 pages.

All other terms and conditions for this RFP remain unchanged.

Issued by: Sarena Hackenmiller
Procurement Specialist
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Questions and Answers

Question 1: Regarding FY2020 Task 1 outlined in Section 3.03 - to provide context needed to scope out this task, we have the following questions:

a. Has DEC previously developed and/or proposed a modification to either MOVES2014 or MOVES2014a to estimate emissions at cold temperatures?

Answer 1a: Please see Attachment 11 for the approach, used in the recently submitted Serious SIP, for how MOVES2014 was used to estimate emissions at cold temperatures.

b. Is EPA's approval and underlying documentation of DEC's request for adjustments to the Fairbanks PM2.5 SIP to account for vehicle plug-in use available for review (e.g. "Vehicle Characterization Report - Volume 1" referenced in Fairbanks plug-in benefit spreadsheet posted on https://dec.alaska.gov/air/anpms/communities/fbks-pm2-5-serious-sip/)?

Answer 1b: Please see Attachment 11 for the approach, used in the recently submitted Serious SIP, for how MOVES2014 was used to estimate emissions at cold temperatures.

c. Is DEC assuming Task 1 updates would be based on existing data or new data? If new data, should we assume that data collection on cold temperature emissions, vehicle activity, and/or plug-in would be gathered as part of this RFP, or is DEC gathering new data under a separate effort?

Answer 1c: For purposes of the proposal assume new data would be gathered or provided by DEC.

Question 2: Regarding the requirement in RFP Section 3.10 to provide evidence that subcontractors hold a valid Alaska business license within 5 days' notice of selection of the proposal for award: Would it suffice to provide evidence that the application is in process?

Answer 2: Yes.

Question 3: Would DEC consider allowing offerors to submit fully loaded labor rates (including an unburdened hourly rate, indirect markup, and fee) in the Cost Proposal (Attachment 7) instead of showing unburdened rates? While DEC indicates that it will review any confidentiality claims submitted with proposals, it does not guarantee that it will agree to hold trade secrets and other proprietary proposal data in confidence. As pricing data is of commercial, financial, and professional value to contractors and maintained in confidence, allowing other contractors to view such detailed financial information puts the offeror at a competitive disadvantage for future proposals.

Answer 3: The RFP is very clear regarding the use of Attachment 7 in Section 7.07. If the cost proposal contains confidential information, then the attached confidentiality of records application and certification form (Attachment 12) must be submitted. Only those records or information covered under AS 46.14.520 may be kept confidential. If the information provided in the cost proposal meet the requirements, and the certification statement is submitted, then the information will be kept confidential.

Question 4: Because responses to these questions will affect our technical and cost proposal, we are concerned with the short turnaround between the question deadline of January 20th and the hard copy proposal deadline of January 27th, given January 20th is a holiday and January 27th a Monday. Would DEC consider extending the proposal deadline?

Answer 4: See Addendum One, issued January 17, 2020.

Question 5: For the purpose of compiling a cost estimate, can DEC provide guidance on the number of in-person coordination meetings and/or training sessions to assume for the FY2020 tasks?

Answer 5: Given that FY2020 ends on June 30, 2020, please assume 1 MOVES/mobile emission inventory training trip to Anchorage that is 3 days in length.

Question 6: Regarding RFP Sec. 1.07 Return Instructions, can the electronic version of the proposal include a Word format for the main technical proposal and PDF format for appendices and attachments (i.e., resumes, signed forms)?

Answer 6: Technical proposals must be submitted as a Word document. Attachments to the proposal may be submitted as PDFs. Cost proposals must be submitted as a PDF document.

Question 7: Regarding RFP Sec. 1.07, can the electronic version of the proposal be submitted on a USB drive rather than on a CD?

Answer 7: No.

Question 8: Do Debarment (Appendix B) and Lobbying (Appendix C) forms need to be submitted for subcontractors?

Answer 8: Yes, subcontractors must complete Appendices B and C. Prime contractors shall not subcontract with debarred parties.

Offerors must acknowledge receipt of this addendum prior to the submittal deadline.

The proposal documents require acknowledgment individually of all addenda to the drawings and/or specifications. This is a **mandatory requirement** and any proposal received without acknowledgment of receipt of addenda may be classified as not being a responsive proposal.

End of Addendum

Attachment 11

MOVES Operating Mode Distribution Adjustments to Reflect Plug-In Benefits

Approach Used to Account for Plug-In Block Heater Emission Effects Using MOVES in Fairbanks $PM_{2.5}$ SIP Inventories

Overview

Engine block heaters or "plug-ins" are widely used in Fairbanks during winter to ensure engine startup and drivability during harsh ambient conditions. Based on chassis dynamometer emission testing conducted in Fairbanks during winter 2010-2011, they also provide a significant reduction in vehicle starting emissions by keeping the engine warmer than the ambient environment when parked with the engine off. Within the Fairbanks $PM_{2.5}$ SIP, the effects of these plug-in reductions are not being accounted for as a control measure but rather as an adjustment to baseline (and projected baseline) light-duty vehicle starting exhaust emissions.

EPA's MOVES2014b vehicle emissions model is being used to generate vehicle emissions for the on-road mobile source portion of the SIP inventory. Despite MOVES' far-reaching scalability and the complex set of conditions it is designed to address, the model's input structure does not explicitly incorporate support for cold temperature plug-in effects. However, an approach was conceptually designed and informally presented to EPA/OTAQ that accounts for measured plug-in effects by iteratively adjusting MOVES' default *OpModeDistribution* table in a manner that when executed, generates reductions in output start exhaust emissions that equal those from the local measurement study (as a function of ambient temperature).

The processes for assembling local fleet, activity, ambient and other SIP-level inputs to MOVES and running the model follow EPA guidance and are explained elsewhere in the Fairbanks SIP. This document focuses on describing how measured emission reductions from block heater plug-in use in Fairbanks during winter were accounted for via iterative adjustment to the starting operating mode distributions used within the model. The approach specifically adheres to OTAQ's requirement that it be applied within MOVES' inputs and design structure, rather than as an off-model adjustment. The following explanation provides a "proof of concept" of these procedures for the 2013 baseline calendar year fleet and a single winter daily average temperature of -20°F. Within the SIP inventories, similar procedures are being applied for a range of daily average ambient temperatures from -50°F to 0°F at 10°F increments to cover the entire range of ambient conditions across the SIP attainment modeling episodes.

Measurement-Based Plug-In Reductions

Table 1 summarizes the reductions in starting exhaust $PM_{2.5}$ developed from measured data in the Fairbanks 2010-2011 testing program resulting from use of plug-ins while a vehicle is parked or "soaked." The column "Default Daily Soak Dist" lists the daily average soak time fractions extracted from MOVES for light-duty vehicles. The next column, "% $PM_{2.5}$ Redn" shows relative starting exhaust $PM_{2.5}$ emission reductions developed from the measurement data as a function of soak time. The plug reductions are as expressed percentages relative to the emissions of the vehicle if it had not been plugged in when parked. Only reductions for $PM_{2.5}$ are shown. (Although plug-in effects were also measured for gaseous pollutants, only directly emitted $PM_{2.5}$ reductions are applied for the SIP inventory adjustments.) The rightmost columns show plug-in usage fractions (percentage of trips) as a function of both soak time and ambient temperature.

Table 1
Local Measurement-Based Starting Exhaust $PM_{2.5}$ Emission Reductions from Plug-In Use

OpMode ID	Soak Time Intervals (min.)	Default Daily Soak Dist.	% $PM_{2.5}$ Redn	% Plug-In Use as a Function of Soak Time (minutes) and Daily Ambient Temperature (°F)					
				-50°F	-40°F	-30°F	-20°F	-10°F	0°F
101	Soak Time < 6	0.185	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
102	6 ≤ to < 30	0.205	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
103	30 ≤ to < 60	0.096	4.4%	25.9%	14.0%	2.4%	0.0%	0.0%	0.0%
104	60 ≤ to < 90	0.058	7.3%	44.4%	32.5%	20.8%	9.4%	0.0%	0.0%
105	90 ≤ to < 120	0.042	10.3%	56.6%	44.7%	33.1%	21.6%	10.4%	0.0%
106	120 ≤ to < 360	0.162	23.5%	86.8%	74.9%	63.2%	51.8%	40.6%	29.6%
107	360 ≤ to < 720	0.114	53.0%	100.0%	100.0%	93.1%	81.7%	70.5%	59.5%
108	720 ≤ Soak Time	0.139	70.8%	100.0%	100.0%	100.0%	100.0%	89.4%	78.4%
Daily Composite Plug-In Trip Fraction (%)				39.9%	35.9%	31.3%	27.4%	22.6%	18.5%
Daily Composite Plug-In $PM_{2.5}$ Reduction (%)				16.4%	15.9%	15.1%	**14.1%**	12.2%	10.4%

At the bottom of Table 1, daily composite plug-in usage fractions and $PM_{2.5}$ starting exhaust reductions are shown. Table 2 shows the adjusted OpMode Distribution that leads to a 14.1% reduction in direct $PM_{2.5}$ starting emissions for gasoline LDVs at -20°F in Fairbanks. The steps leading to the formulation of that adjusted MOVES *OpModeDistribution* table are explained in detail in the following section.

Table 2 OpMode Distribution Adjustment to Achieve 14.1% Direct $PM_{2.5}$ Start Emission Reductions for Gasoline LDVs at -20°F		
OpMode ID	Soak Time Intervals (minutes)	Adjusted OpMode Distribution
101	Soak Time < 6	0.225
102	6 ≤ Soak Time < 30	0.247
103	30 ≤ Soak Time < 60	0.116
104	60 ≤ Soak Time < 90	0.069
105	90 ≤ Soak Time < 120	0.050
106	120 ≤ Soak Time < 360	0.108
107	360 ≤ Soak Time < 720	0.082
108	720 ≤ Soak Time	0.103
Resulting Start Exh. Direct $PM_{2.5}$ Reduction		14.1%

MOVES Modeling Steps

1. *Enable Save Generators in Base RunSpec* - An existing Fairbanks MOVES RunSpec was loaded reflecting 2008 vehicle activity and population. This run was configured to span weekends and weekdays. The run configuration was modified to run in inventory mode and the input temperature was set to a fixed -20°F for all hours of the day. The "Start Operating Mode Distribution Generator" option within the Advanced Performance Features Panel was enabled (checking Save Data) to save the model's "default" OpModeDistribution values that are dynamically generated during execution for the baseline run. General output options were set to capture starts and population and units were configured for grams, joules and miles for the mass, energy and distance respectively. Output emissions details for time and location were set to "Hour" and "County". All other fields in the "Output Emission Detail" panel were left at defaults except the Fuel Type, Emission Process and Source Use Type options were all checked.

2. *Execute Baseline Run* - The MOVES model was then executed to generate and output emissions reflecting the baseline or unadjusted operating mode distributions. MOVES outputs were exported to a processing spreadsheet in which daily starting exhaust emissions were tabulated for gasoline passenger cars (SourceTypeID=21) and passenger trucks[1] (SourceTypeID=31) to determine baseline starting exhaust emissions prior to adjusting operating mode distributions.

[1] The analysis and adjustments were restricted to gasoline-fueled cars and passenger trucks because the plug-in measurement study was limited to these vehicle types. Although plug-in reductions may occur for other vehicle

3. *Export Baseline Operating Mode Distributions* - The data in the Start Operating Mode Distribution Generator were exported into a spreadsheet in order to adjust the *OpModeDistribution* table for light duty vehicle starts (source types 21 and 31) using fuel type 1 (gasoline) for the $PM_{2.5}$ pollutant processes (polprocid 11102 and 11202).

4. *Adjust Starting Operating Mode Distributions* - Adjustments to the baseline distributions were performed by reducing the frequencies in the longer soak categories and increasing fractions in the shorter soak categories to simulate the effects of reduced start exhaust emissions. The cutoff between long and short soak categories was arbitrarily set at OpModeID 106 (2 to 6-hour soaks). Frequencies for OpModeIDs 106,107,108 were decreased using a constant multiplier for each of these three soak categories. Once those soak categories were reduced all of the soak categories for source types 21 and 31 for the $PM_{2.5}$ pollutant processes were then renormalized to sum to 1. The initial adjustment multiplier was set to 80% (0.80). A new set of starting OpMode distributions were then calculated in this manner. These adjustment multipliers were applied universally over all hours of the day for the aforementioned source types, but using the hour-specific soak fractions reflected in the baseline *OpModeDistribution* table.

5. *Load Adjusted Operation Model Distributions* - The adjusted OpMode distributions were exported from Excel and then imported into a new separate MySQL database and *OpModeDistribution* table matching the structure required by MOVES.

6. *Create RunSpec for Adjusted Distributions and Re-Run MOVES* - The MOVES model was then configured with the existing default inputs with the adjusted *OpModeDistribution* table imported through the Manage Inputs Data Sets panel of the MOVES GUI. No other configuration changes from the baseline RunSpec were made except to change the output database name. The model was then executed again to generate start emission outputs using the new *OpModeDistribution* table.

7. *Tabulate and Compare Starting Exhaust Emission Outputs* - The MOVES outputs were exported for this revised simulation and compared against the original emissions outputs from the baseline run.

Steps 4 through 7 were repeated a number of times until the start emission outputs from Source Types 21 and 31 using Fuel Type 1 showed an emission reduction of 14.1% from the baseline MOVES run based on the default OpMode distributions. (As shown earlier in Table 1, 14.1% is the daily composite $PM_{2.5}$ reduction from plug-in use for the proof-of-concept test case at -20°F.)

Table 3 shows the results of these iterations for the multipliers, daily OpMode distribution composites and emissions reductions. After five iterations, the adjusted OpMode distributions using a 51.4% multiplier yielded a targeted 14.1% reduction in starting exhaust $PM_{2.5}$.

types, those reductions were not measured. Therefore, adjustments made within MOVES were restricted to those vehicle and fuel types for which test measurements were collected.

Table 3
Iterative Approach to OpMode Distribution Adjustments and Start Emission Reductions for Gasoline LDVs at -20°F[2]

OpMode ID	Soak Time Intervals (minutes)	Default Distribution	Iterations				
			1	2	3	4	5
101	Soak Time < 6	0.185	0.199	0.239	0.227	0.226	0.225
102	6 ≤ Soak Time < 30	0.205	0.220	0.260	0.248	0.247	0.247
103	30 ≤ Soak Time < 60	0.096	0.103	0.123	0.117	0.117	0.116
104	60 ≤ Soak Time < 90	0.058	0.062	0.072	0.069	0.069	0.069
105	90 ≤ Soak Time < 120	0.042	0.045	0.052	0.050	0.050	0.050
106	120 ≤ Soak Time < 360	0.162	0.143	0.092	0.106	0.108	0.108
107	360 ≤ Soak Time < 720	0.114	0.103	0.072	0.081	0.082	0.082
108	720 ≤ Soak Time	0.139	0.126	0.090	0.101	0.102	0.103
OpMode Distribution Adjustment Multiplier			80%	40%	50%	51%	51.4%
Resulting Start Exh. Direct $PM_{2.5}$ Reduction			5.1%	18.5%	14.6%	14.3%	**14.1%**

Adjustments to the OpMode distributions were restricted to directly emitted $PM_{2.5}$ for light-duty passenger vehicle source types 21 and 31. As explained earlier, no plug-in adjustments were developed for gaseous pollutants. Therefore, a separate set of MOVES runs based on the default soak distributions were used to estimate emission rates for gaseous pollutants within the SIP on-road inventory workflow. This separate MOVES run was also required to calculate the $PM_{2.5}$ emissions from the source types other than 21 and 31 as well as the emissions from vehicles in source types 21 and 31 using fuels other than gasoline.

The steps laid out above are being repeated over the range of temperatures modeled during the 2008 baseline episodes. The OpMode distribution adjustments are being calculated at 10°F intervals from -50°F to 0°F to cover the full range of possible conditions and provide reasonable plugin benefits over the two SIP attainment modeling episodes.

Based on the information in Table 1 and using the steps laid out above OpMode distribution adjustments were iteratively calculated for -50°F and 0°F, the two endpoints of the temperature range used in the SIP modeling. The target reduction in starting exhaust directly emitted $PM_{2.5}$ would be

[2] See Table 1 for the measurement-based daily-composite $PM_{2.5}$ reduction target for -20°F along with the range of $PM_{2.5}$ reduction targets spanning temperatures -50°F to 0°F.

16.4% at -50°F. Two deviations were made from the methodology used for the -20°F. First the baseline starting emissions were calculated using a uniform daily temperature input of -50°F. And second the starting OpMode distribution adjustment multiplier was set based on the final step in the -20°F scenario. Table 4 summarizes the three iterative adjustments made to capture the final targeted direct $PM_{2.5}$ starting exhaust reduction of 16.4%.

Table 4
Iterative Approach to OpMode Distribution Adjustments and Start Emission Reductions for Gasoline LDVs at -50°F[3]

OpMode ID	Soak Time Intervals (minutes)	Default Distribution	Iterations		
			1	2	3
101	Soak Time < 6	0.185	0.225	0.214	0.234
102	6 ≤ Soak Time < 30	0.205	0.247	0.236	0.256
103	30 ≤ Soak Time < 60	0.096	0.116	0.111	0.121
104	60 ≤ Soak Time < 90	0.058	0.069	0.066	0.071
105	90 ≤ Soak Time < 120	0.042	0.050	0.048	0.051
106	120 ≤ Soak Time < 360	0.162	0.108	0.122	0.097
107	360 ≤ Soak Time < 720	0.114	0.082	0.091	0.075
108	720 ≤ Soak Time	0.139	0.103	0.113	0.094
OpMode Distribution Adjustment Multiplier			51.4%	43.5%	45.3%
Resulting Start Exh. Direct $PM_{2.5}$ Reduction			14.1%	17.1%	**16.4%**

The 0°F scenario again followed the approach from the -20°F with the exceptions of the meteorology profile inputs reflecting 0°F hourly temperatures and the first iteration adjustment. The first iteration adjustment at 0°F was determined based on interpolating the -20°F results between the 80% adjustment and 5.1% direct $PM_{2.5}$ reduction and 51.4% adjustment with 14.1% direct $PM_{2.5}$ reduction. Interpolation yields an estimated adjustment of 63.2% for the first iteration step. Table 5 summaries the OpMode Distribution adjustments and resulting direct $PM_{2.5}$ starting exhaust reductions for each of the three iterations.

[3] See Table 1 for the measurement-based daily-composite $PM_{2.5}$ reduction target for -50°F along with the range of $PM_{2.5}$ reduction targets spanning temperatures -50°F to 0°F.

Table 5
Iterative Approach to OpMode Distribution Adjustments and Start Emission Reductions for Gasoline LDVs at 0°F[4]

OpMode ID	Soak Time Intervals (minutes)	Default Distribution	Iterations		
			1	2	3
101	Soak Time < 6	0.185	0.213	0.215	0.214
102	6 ≤ Soak Time < 30	0.205	0.235	0.236	0.236
103	30 ≤ Soak Time < 60	0.096	0.110	0.111	0.111
104	60 ≤ Soak Time < 90	0.058	0.066	0.066	0.066
105	90 ≤ Soak Time < 120	0.042	0.047	0.048	0.048
106	120 ≤ Soak Time < 360	0.162	0.124	0.122	0.122
107	360 ≤ Soak Time < 720	0.114	0.092	0.091	0.091
108	720 ≤ Soak Time	0.139	0.113	0.112	0.113
OpMode Distribution Adjustment Multiplier			63.2%	62.1%	62.3%
Resulting Start Exh. Direct $PM_{2.5}$ Reduction			10.1%	10.5%	**10.4%**

[4] See Table 1 for the measurement-based daily-composite $PM_{2.5}$ reduction target for -50°F along with the range of $PM_{2.5}$ reduction targets spanning temperatures -50°F to 0°F.

Attachment 12

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CONFIDENTIALITY OF RECORDS
APPLICATION AND CERTIFICATION

STATE OF _____)
: ss.
_____JUDICIAL DISTRICT)

Applicants Name _____
Applicants Title _____
Representing _____
Address _____
Telephone _____
Facsimile _____

In accordance with the provisions of the Alaska Statute dealing with confidentiality of records (AS 46.14.520), application is hereby made to the Alaska Department of Environmental Conservation to protect the following records from public disclosure, and consider these records to be confidential records of the department, for a period of _____ years, unless the applicant gives prior written approval for disclosure to a third party. I understand that records, reports, and information, and parts of records, reports, and information that contain emissions data are public records and must be disclosed upon request.

RECORDS SUBJECT TO AS 46.14.520:

_____
_____
_____
_____

I hereby certify, under oath, that (1) public disclosure would tend to adversely affect the owner's and operator's competitive position; and (2) the records, reports, or information, or parts of the records, reports or information, would divulge production figures, sales figures, processes, production techniques, or financial data of the owner and operator that are entitled to protection as trade secrets under AS 45.50.910 – 45.50.945 (Alaska Uniform Trade Secrets Act).

I further certify that I have authority to apply on behalf of _____.

_____
Applicant's Signature

THIS CERTIFIES that on this _____ day of _____, 20___, _____ ___appeared before me, a notary public in and for the State of _____, for the purposes stated herein.

IN WITNESS WHEREOF, I have affixed my signature and seal on the day and year first above written.

_____
Notary Public, State of _____
My commission expires: _____

G:\DIAS\DIAS-Procurement\Procurement\6 Solicitations in Progress\AQ MOVES, Mobile Sources, Mobility & Tech Support\b. Solicitation\a. Solicitation - RFP 18-211-20\Addendum\Att 12 Confidentiality Form (2).doc