



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Solicitation Response

Proc Folder : 438901
 Solicitation Description : Locomotive Traction Control Unit
 Proc Type : Agency Purchase Order

Date issued	Solicitation Closes	Solicitation Response	Version
	2018-05-16 11:00:00	SR 0804 ESR05071800000005056	1

VENDOR
000000179685 NATIONAL RAILWAY EQUIP.

Solicitation Number: ARFQ 0804 RMA1800000002

Total Bid : \$0.00 Response Date: 2018-05-15 Response Time: 17:03:30

Comments:

FOR INFORMATION CONTACT THE BUYER
 Dusty J Smith
 (304) 558-9398
 dusty.j.smith@wv.gov

Signature on File	FEIN #	DATE
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All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Traction Control System	0.00000	EA	\$63,400.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
73161603			

Extended Description :	Traction Control System for SBVR 102 - (GP38) locomotive
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Comments: see attached detailed Quote, NFORCE Flyer & Field Service Fees Flyer



NRE
1100 Shawnee Street
Mt Vernon, Ill 62864

Quote

To:	West Virginia DOT 1900 Kanawha Blvd. East Charleston, WV 25305	Quote No:	EST180504-01
Attn:	Dusty Smith	Terms:	Net 30
Subject:	GP38 Locomotive Traction Control Unit, REV. A	Delivery:	See below
		F.O.B.	NA
		Freight:	Prepaid
		Cust. No:	N/A
		Prices:	Firm 30 days
		Date:	May 14, 2018

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INTRODUCTION

This Quote is in response to your Solicitation RMA180000002 dated May 3, 2018 to design and implement an NFORCE microprocessor control system for one (1) West Virginia DOT GP38 locomotive.

SCOPE

This document will describe the technical requirements for the design, manufacture and acceptance of an NRE NFORCE microprocessor locomotive control system for one (1) West Virginia GP38 locomotives.

EXCEPTIONS

See the Tech Support Exception section below. No other exceptions

NON-RECURRING COST

Your locomotive print and wire run list will be reworked to incorporate NRE's "NFORCE" traction control system and would be provided to you as a PDF (from the AutoCAD print we produces). Please be advised that as a lower cost option, we can provide a marked up "Red-Line" print from the paper print that you would provide us. If you choose the Red-Line print it would reduce the bid total by \$5,000.

MATERIAL COST, ONE (1) NFORCE SYSTEM WITH NLIMIT (AESS)

The **total cost for the NFORCE parts is \$45,600** in single quantities. Materials would consist of an NFORCE module box (with NLIMIT) supporting harnesses, and miscellaneous ancillary equipment. A PDF file of the AutoCAD updated print copy is also included. An NFORCE kit part number will be provided at time of order.

The following options would be included per your specification:

- D32 DC Main Generator Control & Protection
- Generator Field Control by means of BFD module
- Dynamic Braking Control
- DB Extended Range (If equipped)
- Transition Control
- Field Shunting Control (If equipped)
- Ambient Based D77 Traction Motor Protection
- Voltage & Current Based Adhesion
- Sanding Control
- Self-Load Control
- Road/Yard Control
- Traction Motor Cutout Control from TMC Switch
- Engine Cooling Fan Control
- Engine Governor Control
- Air Compressor Control
- Automatic Ground Relay Control
- NVISION Touch Screen
- Alarm/Failure Monitoring
- Control system Event Logging
- Duty Cycle Logging

NOTE: Our standard NVISION III screen is available and would reduce the total price by **\$4,000** - it provides the same information as the quoted NVISION Touch Screen.

As information about our NFORCE for your review, the following options are available at additional cost:

- *NCOMPASS (location monitoring & software communication system)*
- *Battery Charging Control (DC AUX GEN)*
- *Contactors & Relay Control (Magnetic Switchgear)*
- *Load Meter Control*
- *AESS Integrated Idle Limiting*
- *NRE Electronic Actuator (with load regulator, a no oil system)*
- *Slow Speed Control*
- *Integrated Event Recorder*

TECH SUPPORT COST, NOTE - EXCEPTION TO BID:

It's been confirmed by the West Virginia DOT that the following is included in the bid: "A.1: The tech support is for two years and includes whatever is needed including email, phone, onsite or software modifications." The inclusion of **onsite support whenever it is needed** necessitates us to assume the worst case scenario for bidding purposes i.e. we could be responsible for the onsite NFORCE installation labor and an unknown quantity of additional field service trips over 2 years (essentially unlimited field service trips).

To provide customary Tech Support guidelines, I have included the below in the bid pricing:

Onsite Tech Support provided for a 2 years period limited to 2 separate trips of 7 days each trip: *NRE's Tech Support includes email, phone, or software modifications for as long as you own this equipment at no charge.*

I have also attached NRE's Field Service Fee Schedule for your review.

Total Tech Support cost including expenses: ----- **\$17,800** (two one week trips, included in the bid total)

We respectfully comment that we have no way of pricing/forecasting unlimited onsite field service (Tech Support) as implied is required in your bid hence we take exception to this item in the bid. However the following statement is included in our bid response: *NRE's tech support includes email, phone, or software modifications for as long as you own this equipment at no charge.*

ASSUMPTIONS

This Quote assumes the following:

- West Virginia DOT is tax exempt, no tax include herein.
- It is understood that the NFORCE Operational Manual is all that is required for training materials.
- We are providing the described materials and Tech Support as defined herein; we are not responsible for installing this equipment.
- A onetime 1.75% "Transaction Fee" is included

PROJECT DELIVERABLES

- Locomotive Disconnect & Installation Document: 8 weeks from receipt of order
- Hardware: 8 weeks from receipt of order
- Software & Validation Procedure: 8 weeks from receipt of order
- Final software & reference documents: 2 week after completion of validation

QUOTE SUMMARY

One (1) NRE NFORCE Locomotive Traction Control Unit (material): ----- **\$45,600**
 Two (2) years of onsite Tech Support limited to a total of 2 trips 7 days each trip. ---- **\$17,800**
Bid Grand Total ----- \$63,400

Thank you for the opportunity to quote your requirements. If you should have any questions or need any additional information, please feel free to contact me.

Sincerely,

Steve Sonni

Steve Sonni

s.sonni@nre.com.

Key Account Manager
Commuters & Government
Cell: 206-669-3744
www.nre.com



2018



FIELD SERVICE FEE SCHEDULE

Service	Rate
Weekday Labor	\$95.00/hour per technician / Min 4 hrs.
Weekend Labor	\$142.50/hour per technician
Travel Time	\$60.00/hour per technician
Per Diem	\$75.00/day per technician
Lodging	Actual Cost
Air Fare	Actual Cost
Mileage	\$ 1.40 / mile
Wheel Truing	\$2,500.00/axle

1-618-NRE-HELP

Visit <http://www.nre.com/nre-help> for quick access to NRE Field Services!



QUARTERLY INSPECTION SCHEDULE

YEAR 1	YEAR 2
Quarterly 92 Day Inspection 20 hours & Material \$2,500/ locomotive	Quarterly 92 Day Inspection 20 hours & Material \$2,500/ locomotive
Semi-Annual 184 Day Inspection 28 hours & Material \$3,180/ locomotive	Semi-Annual 184 Day Inspection 28 hours & Material \$3,180/ locomotive
Quarterly 92 Day Inspection 20 hours & Material \$2,500/ locomotive	Quarterly 92 Day Inspection 20 hours & Material \$2,500/ locomotive
Annual 368 Day Inspection 48 hours & Material \$5,280/ locomotive	Bi-Annual 368 Day Inspection 48 hours & Material \$8,980/ locomotive
Annual Inspection cost: \$13,460.00 Annual Expense* cost: \$14,400.00	Annual Inspection cost: \$17,160.00 Annual Expense* cost: \$14,400.00
Load test extra cost: \$1,200 Recommended at least once a year, per locomotive.	
<p>Complete FRA locomotive servicing & inspections based on the FRA schedule for 2 years. This agreement can be extended for an indefinite amount of years as mutually agreed to, but be aware that costs increase at each 3rd year interval. Inspections included required materials: Brushes, oil filters, air filters, fuel filters, turbo lube filters, spin on filters, traction motor brushes. Except for filters, consumables not included, such as: oils, coolants, brake shoes & other consumables, all will be supplied by customer based on our recommendations. Additional repairs are at an extra labor cost @ \$95/hour. Any delays are not the fault of NRE, customer may incur stand by charges including but not limited to weather delays.</p> <p>*EXPENSES INCLUDE: Air Fare (if needed) 2 Days Travel Time, Lodging and meals, rental (if needed) travel time</p>	



NFORCE LOCOMOTIVE CONTROL SYSTEM

UPGRADE YOUR LOCOMOTIVE CONTROL SYSTEM

New locomotives manufactured today feature improved adhesion, greater reliability, better diagnostics capability and enhanced features over pre-microprocessor locomotives. The NFORCE Control System uses the latest technology specifically to allow aging locomotives to be upgraded to a level of performance matching that of their modern counterparts.

The heart of the NFORCE Control System is a powerful microprocessor that controls the various locomotive systems. The NFORCE System is based on a modular concept, in which functions can be added later without changing the entire system.

The NFORCE System can include the optional NVISION Display Panel (Operator Interface Panel), through which the complete system can be monitored or troubleshooting functions can be performed.





PRIMARY FEATURES

- Main Generator Control
- Transition Control
- Field Shunting Control
- Advanced Wheel Slip/Creep Control
- Traction Motor Management
- Motoring & Dynamic Braking Control
- Speed Indicator Drive
- Automatic Sanding Control

OPTIONAL FEATURES

- Vigilance System
- Slow Speed Control
- Idle Limiting Control
- J1939 CAN Communications
- Engine Governor Control
- Radiator Shutter & Cooling Fan Control
- Air Compressor Control
- Automatic Ground Relay Reset
- Battery Charging Regulation
- Contactor & Relay Control
- Traction Motor Cutout Control
- NVISION Operator Interface Display
- Load Meter Control
- NGAUGE Fuel Monitoring
- NCOMPASS Wireless System

BENEFITS

Initiate locomotive tests from a laptop computer or optional NVISION Display Panel.

Operator Initiated tests include:

- Contactor & Relay tests
- Cooling Fan test
- Self-Load tests (Grids or Load Box)
- Load Meter calibration and tests

Advanced wheel slip/creep control increases dispatch adhesion.

Increased adhesion results in higher starting loads and greater gross tons per mile freight haulage. Additionally, increased adhesion reduces wheel slips and spins that result in excessive wheel wear, traction motor stress and rail damage.

Motor management software calculates heat build-up in the traction motors.

NFORCE monitors loading on the traction motors, logging motor stall alarms based on software calculations. Power is reduced as needed to prevent costly traction motor damage and on-line failure.

Reduce electrical cabinet relays by up to 75 percent.

With NFORCE's reduced need for relays, and therefore, fewer crimp connections, the results are fewer failures resulting from poor connections, broken wires and faulty relays.

Perform and display Self-Load tests in real time.

Self-Load tests can be performed quickly. The optional NVISION Operator Interface Panel displays voltage, currents and horsepower directly on the screen for immediate verification of correct locomotive loading to ensure road service locomotives operate at full power and maximum efficiency.

Optional integrated slow speed control.

Slow speed control operation is designed to run in a notch position that guarantees adequate traction motor cooling. This prevents costly damage from excessive heat build-up in the traction motors when loading in low speed operations. With an integrated system, the need for a separate -and costly- slow speed control system is eliminated.

Optional electronic engine temperature control.

NFORCE eliminates existing water manifold temperature switches, replacing them with a reliable solid-state sensor. Cooling fans are cycled to maximize operating life.

Optional integrated Idle Limiting Control reduces fuel consumption and exhaust emissions.

By monitoring locomotive operating parameters, NFORCE automatically shuts down and restarts the engine during locomotive idle times.