

Renewable Energy Program: **Jamestown's Transportation Center**

North Dakota Industrial
Commission



Proposal

Project Title: Jamestown's
Transportation Center

Applicant: Energy Hunters Inc & S&R
Truck Plaza & Café

Principal Investigator:
Fu Zhang, University of Arkansas,
Civil Engineering Department
frzhangd@email.uark.edu

Main Research/contact staff:
Hong Durandal, Energy Hunters Inc

Date of Application: 08-01-2021

Amount of Request: **\$252,500**

Total Amount of Proposed Project:
\$696,500

Duration of Project: 2 yrs

Point of Contact (POC):
312-725-3470
info@energy-hunters.com

POC Address:
S&R Truck Plaza & Café
1609 Business Loop E,
Jamestown, ND 58401

Energy Hunters Inc
7531 Avenue J
Houston, TX 77012

1.0 ABSTRACT

Objective:

Research and develop slow rate charging (solar energy supply and/or grid electricity supply) tied to adaptable modular battery storage units to charge Freight and Battery Electric Vehicles (BEVs) using S&R Truck Plaza & Café as a case study. Create scalable energy storage centers while optimizing slow rate electricity charging for heavy transport, truck fleet management, and personal electric vehicle transport in North Dakota. Evaluate the performance of such charging stations, evaluating trip type, charge time, and user interaction in addition to providing a complete evaluation of the location in terms of traffic flow, traffic characteristics, and demographics possibly acquiring new locations to compare stations, location, and traffic characteristics to identify their key variables.

Expected Results:

We expect that taking advantage of the time spent parked at S&R Jamestown truck stop and slower rates charging of batteries will reduce peak energy demand and energy supply costs. The two DC Chargers of up to 150kW each and the adaptable and expandable modular battery storage units charging at slower rates can demonstrate a successful electric heavy-duty truck stop and BEVs in North Dakota that can be scaled throughout I-94 and major state Highways. This can demonstrate the opportunity of this new industry and reduce the infrastructure investment required for the transition to electrification and its scalability and profitability.

Duration:

The total duration of the project will be 2 years and the possibility of extension.

Market studies, design engineering, sizing, optimization, construction, and integration and testing of the entire system (solar, batteries, grid slow rate charging, and control) will take about 1 year. Operation and knowledge dissemination will take another 1 year performing collecting data, selecting the right statistical models to evaluate the data, and turning the study into a report.

Total Project Cost:

\$696,500 (Please see Budget section for complete details)

Participants:

National and local partners:

- U.S. Department of Energy
- Gas Technology Institute (GTI)
- S&R Truck Plaza & Café (S&R) (CENEX)
- Energy Hunters Inc
- Otter Tail Power Company

2.0 PROJECT DESCRIPTION

Objectives:

Jamestown's Transportation Center objective is to demonstrate how a continuous supply of solar and grid electricity can effectively supply 24/7 slow rate charging electricity for heavy duty electric trucks and Battery Electric Vehicles (BEVs). Modular battery storage units will be installed on site to gather electricity at slow rates. The project will demonstrate the effectiveness of an adaptable slow rate and low-cost renewable energy and grid electricity supply that can adjust the number of battery storage units installed based on demand.

We understand that there is a similar project in Fargo, Fargo's Smart Energy Ramp, that its objective is to optimize the use of renewable energy with artificial intelligence while reducing the impact on the grid.¹ However, our project does not intend to replicate what Fargo's Smart Energy Ramp is working on to demonstrate the management of high spikes and uneven consumption of electricity from Battery Electric Vehicles. Instead, our project in Jamestown has the objective to demonstrate that slower rate electricity supply to modular battery storage units can be adaptable and scalable. In addition to BEVs, our project focuses on freight for mid-range (within North Dakota and neighboring states) and long-range hauling from Michigan to Montana along I-94 (Michigan, Indiana, Illinois, Wisconsin, Minnesota, North Dakota, and Montana).

A solar rooftop behind-the-meter system will be installed onsite, two DC Chargers of up to 150kW output capacity each, two modular energy storage units with the ability to add additional modules to increase capacity. Prior to determining the solar and battery size, a market research study will be conducted to evaluate adjacent transportation hubs and EV Charging stations. Slower rate electricity supply from the solar system and electric grid will be injected 24/7 to the batteries. We have selected a solar system instead of a wind system due to the scalability of solar and smaller footprint onsite.

The project will demonstrate how Heavy-Duty electric trucks and BEVs can take advantage of slower rate and managed electricity supply and how hubs can be expanded along I-94 in North Dakota without significant infrastructure changes. Furthermore, our project does not replicate efforts but offers a complementary assessment and analysis of an agile methodology solution for freight and BEVs that can help adapt to the current changes in transportation.

Methodology:

For the project sizing, engineering, optimization, construction, and operations, we will use primarily the agile methodology². The Agile methodology allows for changes to be made and adapt after the initial planning that enhance the project's outcomes and optimizes efficiency in

¹ Fargo's Smart Energy Ramp, R-038-048sp.pdf (nd.gov); <http://www.nd.gov/ndic/renew/projects/R-038-048sp.pdf>

² Stanford University, Agile Development Methodology [website], <https://uit.stanford.edu/pmo/agile-development-methodology>, (accessed 20 March 2021).

its implementation and optimization. This goes in line with the intended objective of our project which is to demonstrate the effectiveness and scalability of an adaptable transportation center.

A demand and supply market study will help determine the base case scenario size of the two modular battery storage units and the kW supply based on demand and supply estimates. The agile methodology will be used to adapt the number of modular battery storage units as demand increases. The main benefit of this is that it will allow the Transportation Center to control electricity costs (from the solar and grid supply input). We will have demand projections that include seasonality between the summer and winter. We expect higher volume during the summers and lower during the winters. For the agile methodology to be effective we intend to continuously monitor our DC chargers and battery storage units to obtain real-time and accurate data from customers. Thus, we will implement a refresh to our analysis and projections every quarter to determine if changes and adaptation is required.

We understand the limitations and drawbacks of the agile methodology of continuous adaptation and costs. We will focus on the battery storage sizing adaptation and kW supply as our main variables to control but only if we can maintain cost optimization. We will limit or stop adaptation if costs are too high and are detrimental to the project's budget.

During the preparation and implementation of the project we will have several phases of activities and tasks. The first phase will begin with the market demand and supply studies by researching inflow from I-94 traffic data and electric vehicle registration. In addition, data from existing and planned EV Charging stations will be considered for our economic model and demand forecasts.

The Engineering and design phase will be completed by conducting site surveys from S&R and electrical requirements from Ottetail Power Company. This will result in design drawings that will determine the area where the solar system, battery storage units, and Chargers will be installed. For the optimization and engineering phase we will work with an engineering consulting firm that will help us validate our engineering and design. This will help us ensure that our project will be optimizing the number of battery modules and slow charging rates. Civil and electrical works will be performed by Energy Hunters staff and sub-contractors to help us complete digging, trenching, concrete, and other civil engineering works and as well the cabling and connection of the machines.

Interconnection and system Integration will be completed with Ottetail Power Company to ensure the Batteries and Solar system are connected to the grid and the EV Chargers to the battery storage units. In addition, beta tests will be made to ensure the system is working and all our monitoring equipment is installed, including power inflow and outflow.

Marketing and education plan will be designed by Energy Hunters before the commencement of operation of the project. We will create brochures in print material to be distributed in North Dakota. In addition, we will identify three dates to present the project to the community of Jamestown at local venues.

Research and Anticipated Results:

A recent study by the National Renewable Energy Laboratory (NREL) reveals the promise of near-term electrification within electric charging hubs.³ Heavy-duty trucks are responsible for 15% of the total U.S. transportation energy use and greenhouse gas emissions. The Electrification of these Heavy-Duty trucks would be a significant step toward transportation decarbonization in the United States. However, the opportunity for battery electric vehicles in Heavy-Duty trucking is challenging due to concerns about range and charging requirements but can be addressed through new research projects such as the one in Jamestown.

NREL researchers used real-world data from NREL's Fleet DNA clearinghouse to simulate EV charging at transportation hubs and made the charging loads results publicly available. Our research will be conducted at a major truck stops along I-94 with real truck utilization. We expect that taking advantage of the time spent parked at S&R Jamestown truck stop and modular energy battery storage units to charge at slower rates will reduce peak energy demand and energy supply costs. The two DC Chargers of up to 150kW each and the adaptable modular battery storage units charging at slower rates can demonstrate a successful electric Heavy-Duty truck stop in North Dakota that can be scaled throughout I-94 and major state Highways.

The NREL study concludes that charging requirements could be met at power levels in line with current light-duty (regular electric passenger vehicles) charging technology (≤ 100 kW/vehicle) for the truck fleets studied. In conclusion, the team also found in their simulations that most of the substations studied could supply the charging loads of 100 trucks charged at 100 kW per vehicle without any upgrades (see figure 1 for results⁴).

Our research will examine slow charging and its benefits and challenges for the Heavy-Duty trucks industry and North Dakota. We intend to share our data on our results on with the state of North Dakota, the North Dakota Industrial Commission, NREL, and other researchers.

³ Borlaug, B., Muratori, M., Gilleran, M., Woody, D., Muston, W., Canada, T., Ingram, A., Gresham, H., and McQueen, C. (2021). "Heavy-Duty truck electrification and the impacts of depot charging on electricity distribution systems, Nature Energy, NREL.

⁴ Ibid

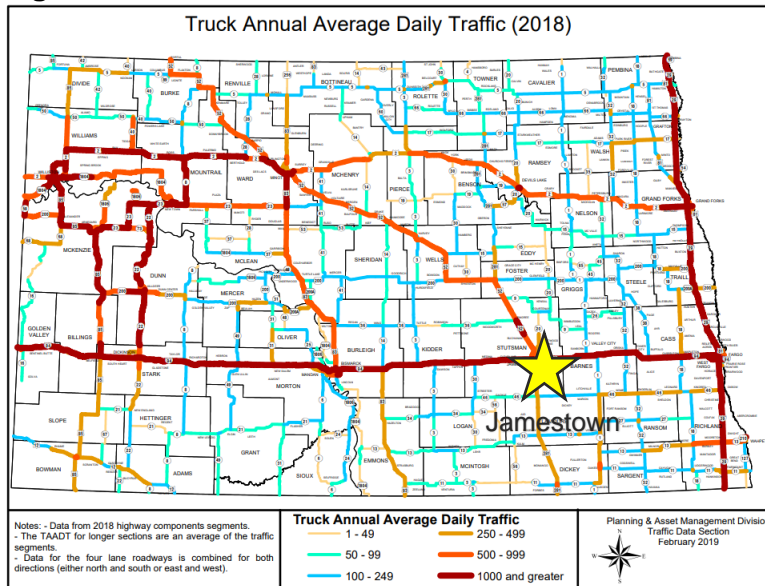
Figure 1.

Fleet	EV load profile	Charging strategy	Substations requiring any upgrade (n=36)	New feeder breaker required	Transformer upgrade required	New transformer required	New substation required
Fleet 1: 10 EVs	Average Day EV Profile	100 kW Immediate	2	1	1	0	0
		100 kW Delayed	2	1	1	0	0
		Constant Min	1	1	0	0	0
	Peak Day EV Profile	100 kW Immediate	3	1	1	0	1
		100 kW Delayed	3	1	1	0	1
		Constant Min	1	1	0	0	0
Fleet 1: 100 EVs	Average Day EV Profile	100 kW Immediate	6	2	2	1	1
		100 kW Delayed	8	1	3	2	2
		Constant Min	3	1	1	0	1
	Peak Day EV Profile	100 kW Immediate	8	1	3	2	2
		100 kW Delayed	8	1	3	2	2
		Constant Min	3	1	1	0	1
Fleet 3: 10 EVs	Average Day EV Profile	100 kW Immediate	2	1	1	0	0
		100 kW Delayed	2	1	1	0	0
		Constant Min	1	1	0	0	0
	Peak Day EV Profile	100 kW Immediate	3	1	1	0	1
		100 kW Delayed	3	1	1	0	1
		Constant Min	2	1	1	0	0
Fleet 3: 100 EVs	Average Day EV Profile	100 kW Immediate	5	2	2	0	1
		100 kW Delayed	5	2	2	0	1
		Constant Min	4	1	2	0	1
	Peak Day EV Profile	100 kW Immediate	5	1	2	1	1
		100 kW Delayed	6	2	2	1	1
		Constant Min	4	1	2	0	1

Facility and Truck Annual Average Daily Traffic (ND):

The location of the facility is: 1609 Business Loop E, Jamestown, ND 58401. Strategically located between Bismarck and Fargo along I-94 where Truck Annual Average Daily Traffic exceeds 1,000 trucks/day and Highway 52 with significant truck traffic flow of more than 500 trucks/day. The truck stop will operate the electric charging station offering support to clients when charging. Energy Hunters will provide the training and will manage the solar and grid electricity supply and battery storage units and integration of the systems.

Figure 2.



Resources:

The research project will be using Energy Hunters and Federal resources for the capital expenditure and labor from North Dakota and surrounding areas. Please see full budget for complete breakdown of resources and as well refer to appendix for letter of support from GTI for the US Department of Energy (DOE) funds for the project in North Dakota.

Our Contribution and Capabilities:

Our research is unique in that it provides a complementary view to ongoing research in Fargo and nationally of what it would look like to electrify Heavy-Duty Trucks. New competing technologies will come into play, but the proposed research study can help anticipate and prepare North Dakota to the effects of this transition. Data from customer usage, battery usage, slow charge rates supply, demand estimates, and expansion of battery modules will be key in the transition to electrification.

Energy Hunters has developed a complete plan to ensure the project contributes to new research and knowledge dissemination in North Dakota. Energy Hunters excels in development and project management from its experience and track record. For this research project we are working together with the Gas Technology Institute (GTI) and the US Department of Energy (DOE) to ensure our work is organized, data oriented, and with clear deliverables. For our research we will publish quarterly research briefs in print and electronic formats and share with the North Dakota Industrial Commission and the local community. Energy Hunters will publish a research paper at the end of the 2-year period. In addition, we will hold 3 separate community meetings (dates TBD) to showcase the project. We will also make available print materials and QR codes for digital brochures to North Dakota visitor centers to promote the research project.

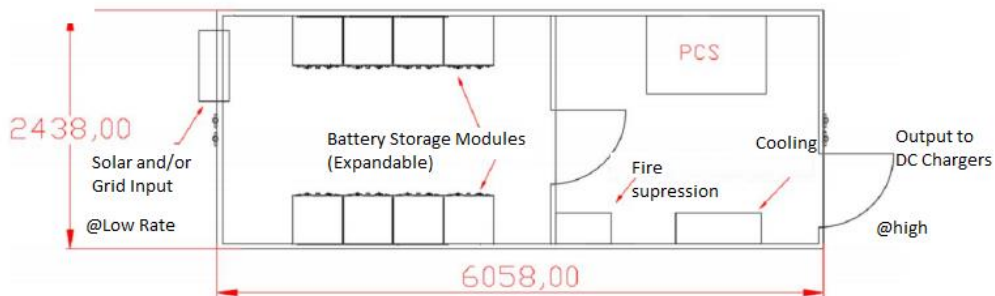
Technology and Innovation:

Energy storage project size is usually fixed and rarely adjusted. In this research project, Energy Hunters proposes to evaluate and investigate adjustable modular battery storage units. We will combine the latest technology with two up to 150kW DC Chargers, solar roof top, and two modular battery storage units. The final design and size of the solar and battery storage units will be determined after market demand and supply studies are conducted. This system is not available commercially and will require our research to ensure the project can be implemented. The system will get electricity supply from the solar system and grid at a determined slow rate charge. In addition, ChadeMo, CSS, and Tesla plug adaptors will be available. RFPs will be launched for all components and we will work and develop with the selected manufacturer the battery storage solution.

Figure 3 – DC Charger Minimum Design Requirements

Input Rating	3-phase 260V-530V AC, 50/60Hz
Power Factor	>=0.99
Efficiency	95.50%
Power Output	Up to 150 kW
Output Voltage	150V-750V / 150V-550V / 150-1000VDC
Output Current	200A MAX
Electrical Protection	Over current, Short circuit, Over voltage, Under voltage, Ground fault, Lightning Surge, Over temperature
Display	8" TFT LCD touch screen
Supporting Language	English, Spanish, or other required local language
User Authentication	RFID card reader, user name & password, mobile No. & pin code
Push Buttons	3 Physical buttons for Multi-functional purpose, Emergency stop
Charge Options	Charge by duration, by energy, by amount
Operating Temperature	(-30 C to +55 C) in operation, (-40 C to +75 C) in storage
Working Humidity	95% relative humidity, non-condensing
Altitude	Up to 6000 feet (2000 m)
IP Performance	IP55
Cooling	Forced air
Charging Cable Length	16.4 ft (5 m), straight cable
Dimension (H x W x D, mm)	1816 x 1007 x 640 mm
Net Weight	400Kg
Network Interface	Ethernet, 4G
OCPP	OCPP1.6J
Web Portal & Mobile App	Yes, ios/Android
Certification	CE

Figure 4 – Battery Storage System Design



Environmental Impact:

During the construction of the project there will be minimal environmental impact as it will 100% take place in an already sited gas station with all the permitting up to date. No new significant buildings will be raised, and works will be completed on existing infrastructure with

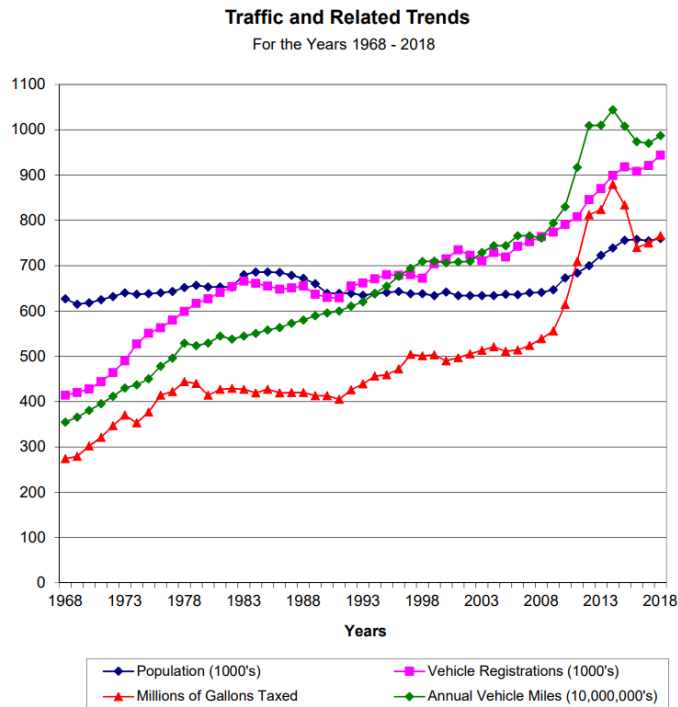
minimal impact to the surrounding environment. No fauna or wildlife will be in danger during the construction and operation of the full life of the project. No nocturnal activities will be conducted, and installations will only be completed during normal business hours.

Why the Project is Needed and Economic Impact:

The Jamestown’s Transportation Center will complement a national Interstate EV charging network connecting communities from Michigan to Montana. The station will provide access to electric charging in a stablished location to light-duty vehicles and Heavy-Duty transportation trucks.⁵

North Dakota is rapidly growing and so its number of vehicles and trucks. Over the past 50 years, it has experienced tax revenue increase from the sale of fossil fuels. Since 2013, this trend has started changing because of better fuel efficiency and slow electrification of fleets. This trend shown in Figure 4 is expected to exacerbate in the next decade.⁶

Figure 5.



The project will retain labor and critical infrastructure that will serve North Dakota for its long-term growth and transition to electrification. The economic benefits of the project will initially be limited to Jamestown as the project is implemented. Along I-94 and around Jamestown, from the North Dakota department of transportation there is at least 500 Trucks on average

⁵ <https://www.dot.nd.gov/business/docs/trafficreports/Annual-Traffic-Report-2018.pdf>

⁶ Ibid

every day.⁷ Assuming a 5% penetration rate of electric Trucks in the Jamestown area, we estimate a \$91,250/yr. from electricity sales. However, the important take away from the project it is the scalability of the solution to other sites along I-94 and as major state and local highways. If the state can encourage and facilitate the transition to electric trucks and scale to another 10 locations, the economic impact for North Dakota can reach \$1 Million/yr. in electricity sales. This does not account indirect economic benefits from food and other goods and services.

Marketing Plan with Electric Truck Rentals and Truck Fleets

Energy Hunters will promote the electric charging service and the research project in Jamestown. We will work on a digital marketing campaign to sign up transportation companies such as Schneider, JB Hunt, and other smaller players in the market that utilize I-94 to transport freight. We will feature competitive electric rates and a familiar refueling service that S&R Truck Plaza and Café offers to its clients. In addition, we will disseminate knowledge of our research with such companies through webinars and live presentations to promote the Jamestown facility.

3.0 BACKGROUND/QUALIFICATIONS

Energy Hunters has experience developing in the United States wind and solar power plants, and battery storage technology to complement and optimize generating assets. In addition, we have experience in the wholesale and retail energy markets and Power Purchase Agreements (PPA) to secure renewable energy. Our long-term goal is to leverage the usage of battery storage technology to optimize use, fulfillment, and payment system management for the North Dakota site in Jamestown.

We have successfully worked with the city of Carmel, Indiana through our grant application to the Indiana Department of Environmental Management for the Level 2 and DC Fast Charging VW Mitigation Program. We secured the grant and implemented the development and procurement plan of EV charging systems for Carmel and now the project is in implementation phase in two sites in downtown.

We have also secured two sites in Minnesota also along I-94 solidifying the network and accessibility for sites to charge. These sites are part of a public-private partnership that we are implementing as well with the US Department of Energy and Gas Technology Institute.

In Texas we have another team working with Silvestri Investments, a commercial real estate company, to adapt more than 10 sites to use EV charging technology and our energy management services.

⁷ Ibid

Energy Hunters Inc (Applicant)

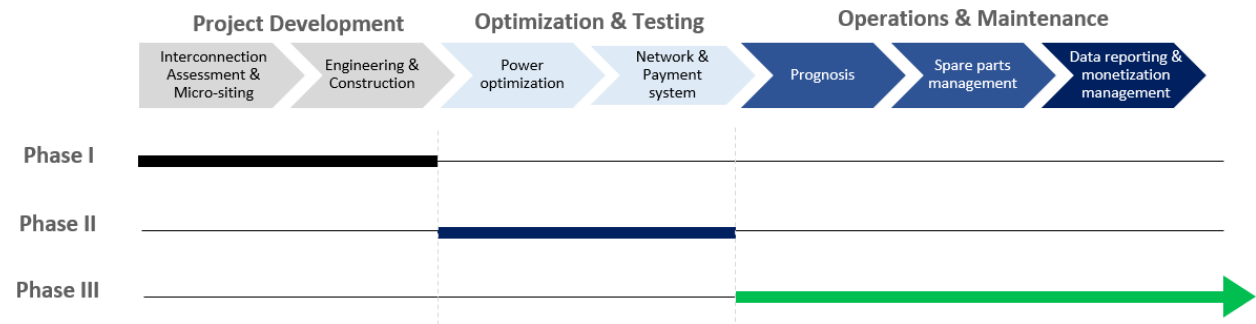
Established in 2019, it provides renewable energy management supply for ground transportation including Electric vehicle charging. We develop electric charging infrastructure and provide the management solution to achieve 100% renewable energy. We work with all levels of electricity supply to provide continuous and uninterrupted electric supply to our clients with energy storage management and AI solutions. We offer an integrated process at every step of the development stages & long-term commitment to our clients.

Figure 6.



We are the developer that oversees the execution of the project from beginning to the end including permitting, optimization, construction, commencement of operation, signage and update all consumer Applications during operation and maintenance.

Figure 7.



EV Charging stations will be operated, maintained and will manage the electricity supply by us with centralized data collection and statistical analysis on usage to optimize operation efficiently and ensure all EV charging equipment is functioning properly.

S&R Truck Plaza & Café (CENEX) (Co-applicant)

Long lasting institution in Jamestown, ND serves an important transportation hub. It is a truck and car fueling and rest stop for many travelers and provides dining for the local community to share and enjoy traditional American meals. It provides CENEX gas from regional and national refineries from co-op owned by North Dakota and Minnesota farmers. CENEX as a company and their parent distributors CHS Inc. have been in good relationship with Energy Hunters. In addition, S&R has signed a Letter of Interest with Energy Hunters and exclusivity (provided in the Appendix).

Gas Technology Institute

The Gas Technology Institute is an American non-profit research and development organization which develops, demonstrates, and licenses new energy technologies for private and public clients, with a particular focus on the natural gas industry. GTI is in Des Plaines, Illinois and is the supervisor of the implementation of the EV Charging station project for Energy Hunters and liaison to the US Department of Energy.

Otter Tail Power Company

It is a utility with strong presence in Jamestown, North Dakota. The company has made a commitment to EV Chargers and developing an exclusive EV rate for its territories and launched a pilot program that encourages EV adoption in in North Dakota and Minnesota. The utility allows interconnection of solar and energy storage systems. Energy Hunters has already provided details of the project and we have prepared a plan to work with them through the interconnection process.

Principal Investigator

Fu Zhang is civil engineer from the University of Arkansas with a master's specializing on Freight and transportation. He has worked in various capacities in the transportation industry including the Arkansas Department of Transportation, Dallas Transportation Authority and most recently at the University of Arkansas. He has expertise in modeling Heavy-Duty traffic projections and road maintenance. He is working with Energy Hunters and the project initiative to understand the impact of electrification of freight and implications for the infrastructure to enable the transition.

Energy Hunters Inc

Hong Durandal has been in the renewable energy industry over the past 4 years. He has worked as a consultant to major wind and solar manufactures in the US and Europe. He has developed more than 1,000 MWs of solar and wind energy projects in the US, Greece, UK, and Latin America. In addition, he has led the transformation of new energy policy in Chile and Vietnam through new adoption of incentive and national tenders for Renewable Energy. In addition, Hong has installed distributed generation solar and energy storage systems in Kentucky and Indiana.

Juan Velazquez is a project engineer with a passion for designing and building renewable energy projects. His engineering career spans utility-scale wind, solar, and storage projects throughout the world, with 4 years of experience leading the engineering on dozens of renewable projects in the US, Mexico, Colombia, Peru, and Israel. In his free time, Juan loves learning about climate tech, EV's, and how we can build a sustainable net-zero carbon future. He holds a BS in Aerospace Engineering from the University of Notre Dame, and was indeed a rocket engineer in a previous life. Juan is a Chicago native who enjoys hiking and exploring local parks, playing guitar, and baking delicious treats.

4.0 STANDARDS OF SUCCESS

The research project will be successful once we achieve the most optimal slow charging rate for the system while minimizing demand charge. Our lowest charging rate will continuously evolve but the objective of the study is to find the base case scenario in which we can base our demand projections. This will provide the platform to understand and be prepared for the electrification transition in North Dakota. In addition, it will demonstrate the ability to transition to electrification of Heavy-Duty electric trucks without significant electric substations infrastructure upgrades.

For our research to be completed we would like our findings and lessons learned of slow rate charging and modular battery storage units to be compared to Fargo’s results and other similar projects. We recommend that at least two other transportation hubs in North Dakota are implemented with the most efficient and cost effective refueling technology and process to further our initial research and our understanding of the nature of freight and electric vehicle trips.

5.0 MANAGEMENT

Energy Hunters’ team will manage the project during construction and operations. Fu Zhang as our PI from the University of Arkansas will conduct the research and advance the required studies and write the research brief reports. Energy Hunters is responsible to manage third parties including construction crews, suppliers, and consultants. GTI and the Department of Energy will serve as guides during the implementation and operation of the project. S&R Truck Plaza & Café will oversee the operation of the EV Chargers and Energy Hunters will manage the electricity supply from the solar system and/or electric grid and the modular energy storage units.

6.0 PROPOSED TIMETABLE

Activity	2021 Sep	2021 Oct	2021 Nov	2021 Dec	2022 Jan	2022 Feb	2022 Mar	2022 Apr	2022 May	2022 Jun	2022 July	2022 Aug	2022 Sep	2022 Oct
Market Demand Study	Yellow	Yellow												
Market Supply Study	Yellow	Yellow												
Engineering and Design			Yellow	Yellow										
RFP Launch					Yellow	Yellow								
Optimization & Engineering					Yellow	Yellow	Yellow							
RFP & Procurement						Yellow	Yellow	Yellow						
Civil Works								Yellow	Yellow	Yellow				
Electrical Works									Yellow	Yellow	Yellow			
Interconnection												Yellow		
System Integration (Solar, Grid, Batteries, EV Chargers)					Yellow	Yellow	Yellow	Yellow					Yellow	Yellow
Marketing and Education Plan					Yellow	Yellow	Yellow	Yellow						

7.0 BUDGET

Project Associated Expense	NDIC's Share	Applicant's Share (Cash)	U.S. DOE Share	Total
ND Demand and Supply Study	\$5,000.00	\$5,000.00		\$10,000.00
Engineering and Design	\$40,000.00		\$40,000.00	\$80,000.00
DC Charging Machines (x2)	\$30,000.00	\$30,000.00	\$60,000.00	\$120,000.00
Solar Modules & Inverter	\$20,000.00	\$10,000.00	\$30,000.00	\$60,000.00
Battery Storage System Management	\$12,500.00		\$25,000.00	\$37,500.00
Lithium-ion Batteries	\$80,000.00	\$20,000.00	\$110,000.00	\$210,000.00
Construction and Labor	\$60,000.00	\$20,000.00	\$80,000.00	\$160,000.00
Marketing Study and Plan Development	\$5,000.00	\$5,000.00	\$5,000.00	\$15,000.00
Other		\$4,000.00		\$4,000.00
Total	\$252,500.00	\$94,000.00	\$350,000.00	\$696,500.00
Percentage Share (%)	36%	13%	50%	100%

Cost Sources & Estimates:

- Demand and Supply Study: Estimated from recent Midwestern research consulting firms.
- Engineering and Design: Based on internal estimates on labor time and quotes for additional detail engineering.
- DC Charging Machines: Actual quotes from national and international manufactures.
- Solar Modules & Inverters: Actual quotes from national wholesale solar and inverter companies in California and Northeast for distributed generation systems under 25 kW.
- Battery Storage System Management and Lithium-ion Batteries: Actual quote from ECOLTO battery manufacturer and other modular battery manufacturers with special customization.
- Construction and Labor: Labor was determined based on \$890-\$1000/hr. (internal estimates) and 160 to 180 man hours of labor to complete all physical works.
- Marketing Study and Plan Development: Internal and external consultant estimate to develop the marketing and educational material.
- Other: Online quotes for travel and shipping.

8.0 CONFIDENTIALITY

No confidential information is provided at this time.

9.0 PATENTS/RIGHTS TO TECHNICAL DATA

Currently the project does not have any patents or rights to technical data.

10.0 STATE PROGRAMS AND INCENTIVES

No state programs or incentives have been received. No application has been submitted in the past to any state programs or to obtain incentives.



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July 22, 2021

Mr. Hong Durandal
CEO/Founder
Energy Hunters Inc
7531 Avenue J
Houston, TX 77012

**Letter of Support for: U.S. Fuels Across America's Highways - Michigan to Montana (M2M)
Department of Energy Program**

Dear Mr. Hong Durandal,

GTI is pleased to partner with Energy Hunters Inc. to support the US Department of Energy (US DOE) alternative fuels initiative the Michigan to Montana Corridor Project (M2M Project) which serves communities connected by the Interstate 94 (I-94) corridor in the Upper Midwest. Energy Hunters has submitted a proposal to become a partner on the M2M Project. GTI has approved your proposal and the US DOE is currently providing final approval. Energy Hunters will install and commission three (3) DCFC charging locations strategically positioned along the I-94 Corridor at CENEX gas stations and other sites. GTI believes that the plan proposed by Energy Hunters Inc. meets the defined current priority to fill identified gaps for publicly available EV vehicle charging stations along I-94.

The three charging locations Energy Hunters Inc. has selected are in the following locations: 1) Ashby, MN 2) Barnesville, MN and 3) Jamestown, ND. For each of the three proposed locations, Energy Hunters Inc. has specified the installation of 100kW electric Charger Power Units and each Charger Power Unit features two charging ports that provide universal compatibility with all EVs and open source software (OCCP).

As a partner in the M2M Corridor Project, Energy Hunters Inc. will be receiving \$676,325 in grant funding which is 50% of the total project costs.

Energy Hunters intends to be a committed partner in M2M Corridor Project. If necessary, please contact me at (847) 544-3405, tbarnes@gti.energy.

Sincerely,

Ted Barnes
Director, R&D
GTI

LETTER OF INTENT FOR POTENTIAL DC FAST CHARGING STATION

Please note that this Letter of Intent (“LOI”) represents non-binding indicative terms and does not, unless otherwise stated herein, create a binding agreement or obligation to consummate any contemplated transaction. Any such obligation or agreement would be created only by the execution of definitive agreements.

Parties:	Energy Hunters LLC (“Energy Hunters”) and S&R Truck Plaza & Cafe (“S&R”)
Address:	1609 Business Loop East, Jamestown, ND 58401
Project:	A DC Fast Charging Station project (the “PROJECT”) connected directly to Otter Tail Power Company with a solar roof to complement system.
Transaction:	S&R is interested in installing two DC Fast Charging systems based upon mutually acceptable terms and conditions. Energy Hunters is interested in developing, permitting, financing, building, and operating the Project.
Intention of the Parties:	Energy Hunters will perform the Development Activities and Due Diligence to provide S&R with site specific pricing and other terms and conditions for the Project.
Exclusivity:	S&R and Energy Hunters agree to work exclusively and in good faith with each other during the Term.
Term:	The term for each Project shall begin on the Effective Date of this LOI and terminate once the Project is built, and fully interconnected and energized.
Notices:	If to S&R (Attn: Dale): 1609 Business Loop East Jamestown, ND 58401 If to Energy Hunters (Attn: Hong Durandal): Energy Hunters LLC 7531 Avenue J Houston, TX 77012
Confidentiality:	The Parties agree that this LOI and the discussions Confidentiality Agreement between the Parties.

IN WITNESS WHEREOF, the Parties have caused this LOI to be duly executed and delivered as of this ____ day of March, 2021 (the “Effective Date”).

S&R Truck Plaza & Cafe

By: Dale R.

Name: 

Title: owner

Energy Hunters LLC

By: Hong Durandal

Name: 

Title: Founder/Owner