1. BACKGROUND AND PROJECT SCOPE

1.1. BACKGROUND

This statement of work defines the National Renewable Energy Laboratory (NREL) Shuttle Service requirements. NREL is the U.S. Department of Energy’s primary laboratory for research and development of renewable energy and energy efficiency technologies and is located in Golden, Colorado. Sustainable operations both support and are central to NREL’s mission. As a living laboratory NREL is a leader within the federal government demonstrating advanced technologies to help promote their adoption in the market place. NREL’s sustainable commuting program aims to modify staff commuting habits by providing options that reduce vehicle miles traveled, greenhouse gas emissions, and fuel consumption. Strategies include providing transit passes to encourage the use of mass transit and offering shuttles to connect with RTD transit services and to facilitate movement on campus as well as providing vouchers for vanpool fare, incentive parking for high occupancy vehicle parking, and bicycle facilities, among other options.

Many of the regional transit services provided by RTD terminate within five miles of the NREL South Table Mountain (STM) campus. NREL provides peak hour shuttle services that connect with these RTD hubs providing the “last mile” connection that enables staff to utilize mass transit. In addition, an onsite circulator shuttle moves staff between the central parking garage and buildings on the STM campus throughout the day.

This Statement of Work describes the shuttle transportation services required to transport staff between near-by RTD park-n-Rides/Transfer Centers in the morning and evening peak hours and a separate service that circulates staff throughout the STM campus all day.
1.2. SCOPE OF WORK

NREL requires a subcontract for Best in Class shuttle services. It is anticipated that the shuttle service provider will provide an all-inclusive shuttle/van service that includes pre-trip, during-trip, and post-trip services. Such services include but are not limited to the following:

- Providing logistics services, working with the Technical Monitor for operations, including contingency plans, developing schedules / routing / timetables;
- Maintaining shuttle vehicles so that they are clean inside and out and ready for service every day;
- Ensuring vehicles have been checked by NREL Security, when requested;
- Providing qualified and trained drivers who consistently exhibit excellent customer service;
- Flexibility to accommodate schedule and service changes due to weather, construction, lab closures, or other unexpected events;
- Real-time management of vehicles and drivers ensuring reliable and time-sensitive service;
- Management of any lower-tier subcontractors;
- Preparing post-trip review and reports;
- Provide pre-event logistics planning, working closely with Technical Monitor.
- Provide qualified drivers and perform appropriate driver training and testing in accordance with State and Federal Department of Transportation regulations for motor carriers (i.e. 49 CFR parts 382, 383, and 390-399, where applicable).
- Provide documentation of compliance with such driver qualifications, training, and testing in a timely manner.
- Provide round trip transportation from pick-up locations to drop-off locations as noted in Section 1.2 Scope.
- Provide contingency planning in the event of shuttle break downs to maintain services.
- Have mechanics available in case of emergencies.
- Be able to maintain a base of communications between NREL, subcontractor, and drivers of vehicles during service hours, including radio or cell phone communication with drivers.
- Provide shuttle vehicles that use alternative fuels (i.e., E85, CNG, plug-in hybrids).
- Provide shuttles vehicles that have been serviced (vehicle fluids filled (fuel, window washer fluids, etc.), cleaned and free of trash and debris, etc.) prior to pick up of passengers.
- Provide shuttle vehicles that can accommodate at least one ADA passenger per vehicle (STM route only).
- Provide shuttle vehicles that can accommodate at least one bicycle.
- Provide shuttle vehicles that have seatbelts for the driver and all passengers (no standing capacity will be permitted). Vehicle driver and passengers will be required to wear seatbelts while vehicle is in motion.
- Provide Monthly Progress Reports and review (described in 3.1.3, Subcontract Report Deliverables, below)
- Conduct Pre-trip Safety Assurance check
- Work day begins after vehicles have been inspected, fueled, and cleaned/serviced

Three shuttle service routes are required. For all three routes, the Subcontractor will be responsible for providing shuttle buses or vans, properly licensed drivers and safe and timely service during the hours of operation described in more detail below.

1.2.1. Federal Center Station Service Route

Transport NREL staff between RTD’s Federal Center Station park-n-Ride to their assigned working areas as indicated on the map entitled, “Shuttle Services to Federal Center– Exhibit A”.

NREL currently operates a peak hour route that stops at RTD’s Federal Center Station (2nd Place/Routt St.). This service transports staff between the RTD park-n-Ride and NREL facilities at STM and Denver West, as has been identified on Exhibit A. The route serves commuters who use RTD bus and light rail routes as wells as those that walk or bike to the park-n-Ride. The Federal Center shuttles run between the hours of 6:00 – 9:30 a.m. (“morning shift”) and between 3:30 to 6:30 p.m. (“evening shift”).

The Federal Center shuttles run a modified fixed route with established stops and scheduled service with approximately 15-minute wait at any given stop. The shuttle schedules are coordinated with RTD bus arrivals/departures so that wait time for riders who transfer between the NREL shuttle and RTD services is minimized. See Exhibit A for a detailed list of stops and schedule.

This route currently supports on average between 30-50 boardings per day but it is anticipated that ridership will grow.

1.2.2. Applewood Transfer Center Service Route

Transport NREL staff between RTD’s Applewood Transfer Center to their assigned working areas as indicated on the map entitled, “Shuttle Services to Applewood– Exhibit B”.

NREL currently operates a peak hour route that stops at RTD’s Applewood Transfer Center (38th Avenue/ Youngfield). This service transports staff between the RTD transfer center and NREL facilities at STM and Denver West, as has been identified in Exhibit B. The route serves commuters who use RTD bus routes as wells as those that walk or bike to the transfer center. The Applewood shuttles run between the hours of 6:00 a.m. to 9:30 a.m. (“morning shift”) and between 3:30 p.m. to 6:30 p.m. (“evening shift”).

The Applewood shuttles run a modified fixed route with established stops and scheduled service with approximately a 15-minute wait at any given stop. The shuttle schedules are coordinated
with RTD bus arrivals/departures so that wait time for riders who transfer between the NREL shuttle and RTD services is minimized. See Exhibit B for a detailed list of stops and schedule.

This route currently supports an average of 15 boardings per day but it is anticipated that ridership will grow.

1.2.3. STM Circulator Service Route

Circulate NREL staff around the STM campus as indicated on the map entitled, “Circulator Shuttle – Exhibit C”.

NREL currently operates an approximate 1.5 mile loop route that circulates through the STM campus. The service transports staff between the parking garage and their buildings as well as between buildings on campus between the hours of 6:00 a.m. and 6:30 p.m. The route operates a higher frequency of service with about 5 minutes wait time and operates a less frequent service with a wait of approximately 10 minutes mid-day between the hours of 9:30 a.m. and 3:30 p.m.

The STM Circulator shuttles run a fixed route with established stops and scheduled service (with on request stops to other buildings onsite as needed). See Exhibit C for a detailed list of stops and schedule.

This route currently supports on average about 400 boardings per day with large fluctuations in ridership with daily volumes as low as 300 boardings per day to more than 600 boardings per day, weather dependent.

1.2.4. Operating Plan

The Subcontractor shall provide their Shuttle Operating Plan (SOP) as part of their proposal and after award a site specific plan will be provided to the Technical Monitor.

1.3. The following services may be ordered as options in addition to the basic scope of work described in sections 1.2.1 to 1.2.3.

1.3.1 CHARTER SERVICE

In addition to the regular daily service to the RTD park-n-Rides and the STM Circulator service NREL may order charter service for special events. These services may only be order by the Technical Monitor.

1.3.2 DRIVER AND MAINTENANCE ONLY SHUTTLE SERVICES

Provide a shuttle driver for advanced technology demonstration vehicles. Consistent with the living laboratory approach, NREL often considers partnering with advanced vehicle or vehicle systems manufacturers for possible application of advanced vehicle technologies on the NREL
STM campus. These advanced vehicles and systems could include, but are not limited to, all electric shuttle vehicles, plug-in and wireless charging systems, hybrid systems, hydrogen vehicles, etc. In the event that a partner is identified and a **commercially available** vehicle or system was provided to NREL for demonstration purposes, NREL may order shuttle vehicle driver and maintenance services only (no vehicle). NREL has onsite electric vehicle charging stations and a hydrogen fueling station to support these vehicles.

1.3.3 **ALTERNATES –ENHANCEMENTS** - These alternates are not a part of the basic scope and prices for the Alternates identified below will be negotiated upon funding availability:

1.3.3.1 **ALTERNATE 1**  GPS Tracking and User Interface

Enable passengers to see where the shuttle vehicles are located and plan their travels. Equip shuttle vehicles with GPS tracking equipment and provide a mobile device application that shows where the vehicles are in real-time (e.g., NextBus). The refresh time needs to be more frequent than 15-seconds because stops are so close together. The software needs to be supported and hosted by a third party. The GPS tracking system needs to be secure so that only DOE and NREL staff can view vehicle locations.

1.3.3.2 **ALTERNATE NO. 2 - Wi-fi Capability**

Enable shuttle passengers to connect with internet on the shuttles. Equip shuttle vehicles with wifi system (equipment and service) that provides passengers with internet access from their smartphones, tablets, and laptops on shuttle vehicles.

1.3.4 **ALTERNATE 3 – ADVANCED VEHICLE TECHNOLOGIES**

As a living laboratory and a model sustainable campus, NREL demonstrates new technologies to help advance market adoption of cleaner and more sustainable technologies. NREL’s current shuttle vehicles use E85 fuel. However, NREL is always looking for opportunities to use more sustainable vehicles. As such, the following services may be ordered as required:

1.3.4.1 Advanced Vehicles

Provide services described in section 1.2 Scope of Work but with advanced alternative fuel shuttle vehicles (e.g. all electric or hydrogen).

1.4 **ADMINISTRATION, MANAGEMENT AND GENERAL SERVICES**

NREL shall provide the subcontractor with supplemental information, comments, objectives, constraints, clarifications, and approvals as required for timely completion of the work.

The NREL Technical Monitor is the primary point of contact and will perform day-to-day coordination and communication with the Subcontractor. This includes direction and approval
of technical actions and resolution of questions and conflicts as well as communication with the subcontractor and management. Contractual issues shall be directed to the Subcontract Administrator. The Subcontractor, at the award of the subcontract, shall designate a Project Manager who shall be the principal point of contact with NREL throughout the project.

1.5 PROJECT MANAGEMENT

The Subcontractor shall attend a kick-off/planning meeting, quarterly performance meeting, and be available to attend ad hoc meetings to discuss issues of concern. All meetings will be held at NREL's offices unless otherwise agreed.

1.4 GENERAL

The Subcontractor shall cooperate fully with NREL and furnish such information and advice to NREL as it may reasonably require with respect to the management of the services provided.

1.5 QUALITY ASSURANCE

The Subcontractor shall provide safe, reliable passenger vehicles and ensure that all services are consistent with generally accepted industry practices and standards for the transportation industry. The Subcontractor shall abide by all State and Federal laws and regulations regarding transportation safety.

1.6 SCHEDULE DEVELOPMENT AND CONTROL

The Subcontractor shall be responsible for planning and development of shuttle service routes and schedules in coordination with the Technical Monitor. Schedules and routes may need to be occasionally altered to accommodate transportation demand changes. Existing route maps for the shuttle services are attached. The Subcontractor is expected to provide all services in a timely manner, as required by NREL accepted schedules.

1.7 MANAGEMENT AND COORDINATION MEETINGS

The Subcontractor shall conduct periodic management and coordination meetings with NREL, as mutually agreed, for the administration of this subcontract scope. The Subcontractor may also be requested to attend meetings conducted by NREL for the purpose of providing technical support for the Technical Monitor.

2.0 SUBCONTRACT DELIVERABLE REQUIREMENTS
2.1 Shuttle Services
2.2 Option A- Charter Services
2.3 Option B- Driver Only Services
2.4 Option C-1 GPS Tracking and User Interface
2.5 Option C-2 Wifi Capability
2.6 Option D Advanced Vehicle

2.7 SUBCONTRACT REPORTS AND DELIVERABLES

Provide NREL with the following:

2.7.1 Schedule Development
2.7.2 Provide shuttle schedules to Technical Monitor and shuttle riders.
2.7.3 Subcontract Report Deliverables

Monthly Progress Report: The subcontractor shall prepare and submit by the 15th day of each subcontract month, a progress/status report. This report shall communicate an assessment of the subcontract status, explain variances and problems, report accomplishment of performance (i.e., number of riders by day, miles driven by day, quantity of alternative fuels used by day, number of transportation vehicles deployed by day and shift, etc.)

2.7.4 Lost Items

Items found on shuttles shall be turned into NREL Security at the end of each shift.

2.8 SHUTTLE SECURITY REQUIREMENTS

The STM site is a secured area. As such, all employees, subcontractors, and visitors must wear NREL/DOE badges at all times while on the STM site. In addition, all shuttle vehicles must go through the appropriate security search in order to circulate through the STM site, upon request. Shuttle vehicles must remain within control of the NREL approved driver at all times during the shift.

2.8.4 Shuttle drivers must wear an NREL subcontractor badge and must complete NREL security training prior to driving onto the NREL campus (a one-hour orientation class will be offered after the subcontract is issued and an annual one-hour refresher class will be required for all shuttle drivers).

2.8.5 Shuttle drivers need to be consistent; back-up or replacement drivers must also be badged NREL subcontractors who have gone through NREL security training.

2.8.6 Shuttle drivers will be required to check passengers for NREL/DOE approved badges as they board the vehicle; visitors may board the shuttle vehicle, but they must exit the vehicle at the NREL Education Center or Security gate before the shuttle proceeds through the STM gates. No visitor may enter the STM site without being processed by NREL Security.

2.8.7 Shuttle vehicles may be checked in and be searched by NREL security before entering the STM site upon request (NREL security checks will take approximately 10 minutes per vehicle).

2.8.8 Each driver must maintain control of the specific shuttle vehicle assigned to them during the entire shift; if the vehicle or driver must be changed during a shift, then the
replacement driver must have received and wear an NREL badge before entering the STM site.

2.8.9 Shuttle drivers must provide proof of U.S. Citizenship or provide a current and valid work authorization to perform work in the U.S. (e.g. work visa).

2.9 NREL TRAINING REQUIREMENTS

2.9.4 Shuttle drivers must complete a “new driver” orientation prior to obtaining a subcontractor badge and driving onto the NREL STM campus. New driver orientation is approximately one-hour in length and will be conducted by NREL staff. Content of the training will include, but is not limited to, NREL overview, shuttle services description, and NREL Environment, Health, Safety, and Security practices and procedures.

2.9.5 Shuttle drivers must complete an annual NREL Environment, Health, Safety, and Security refresher training that will review practices and procedures. The refresher training will be conducted by NREL staff and will be approximately one-hour in length.

Attachments:

Exhibit A– Federal Center Route Map and Schedule
Exhibit B– Applewood Route Map and Schedule
Exhibit C– STM Circulator Route Map and Schedule
Exhibit A– Federal Center Route Map and Schedule
### AM—Federal Center Schedule

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- In the morning the NREL shuttle will depart from the Federal Center park-n-Ride at the times listed.
- Passengers will be dropped off at requested NREL buildings in Denver West or South Table Mountain campus.
- Starting in July 2013, if your vehicle is registered at an address within RTD boundaries, you may park for free the first 24-hour period. After this period, a nominal $2.00 fee applies. Patrons with vehicles registered out of the district pay a $4.00 fee every day they park.

### PM—Federal Center Schedule

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Exhibit B– Applewood Route Map and Schedule
### AM—Applewood Schedule

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- In the morning the NREL shuttle will depart from the Applewood Transfer Center and Denver West #52 at the times listed.
- Passengers will be dropped off at requested NREL buildings in Denver West or South Table Mountain campus.

### PM—Applewood Schedule

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NREL Applewood

Shuttle Routes, Stops, and Schedules

June 19, 2013

**Shuttle Stop — SERF**

**Shuttle Stop — FTLB**

**Shuttle Stop — TTF**

**Shuttle Stop — Applewood Transfer Center**

**Shuttle Stop — ESIF**

**Shuttle Stop — DW #52**
Exhibit C– STM Circulator Route Map and Schedule
South Table Mountain Circular Route and Schedule

November 1, 2012

Route Schedule
Morning and afternoon shuttle departures are every 5 to 7 minutes:
• 6:00 a.m. – 9:30 a.m.
• 3:30 p.m. – 6:30 p.m.
Midday departures are approximately every 10 minutes:
• 9:30 p.m. – 3:30 p.m.
Last trip departs:
• RSF at 6:30 p.m.
• ESIF at 6:31 p.m.
• S&T at 6:32 p.m.
• SERF at 6:33 p.m.
• FTLB at 6:35 p.m.