UNIVERSITY OF HOUSTON
Campus Facilities Planning Committee
Agenda Item Description Form

1. **Item:** SunStop Advanced Stand-Alone Electric Vehicle Charging Station powered by solar panels, with battery and fuel cell energy storage

2. **Requesting Department:** Patrick Peters, College of Architecture

3. **Contact Names & Phone Numbers:** Patrick Peters, x3-2387

4. **Presenter:** Patrick Peters with Kevin Conlin

5. **Recommendation/Action Requested:** Approval of the site.

6. **Summary:**

   Approval is requested for the attached SunStop Advanced Stand-Alone Electric Vehicle Charging Station to be sited in the parking lot adjacent to Building 9 of the University of Houston Energy Research Park campus.

   The SunStop Advanced Stand-Alone Electric Vehicle Charging Station is the commercialization outcome of applied research work conducted in the Gerald D. Hines College of Architecture and supported by the UH Green Building Components Initiative (UHGBC). The work combines the advantages of shaded electric vehicle charging with an off-grid, renewable energy source to demonstrate a technologically innovative platform for the DOE-funded and nationally implemented ECOtality EV Project.

   The proposed station provides a stand-alone solar powered electric vehicle charging station with four level 2 chargers, electric scooter and bike charging, wifi hotspot and shaded parking. The station will be provided and maintained by Sun-Stop LLC and the the charging stations will be provided and maintained by ECOtality.

7. **Proposed Start Date:** The four Blink Charging Stations to be installed upon CFPC approval. Stand-Alone Station to be installed in 2013.

8. **Supporting Documentation Description:** Attached renderings, site plan, summary of features, and biographical sketch of two team members.

SUNSTOP
Charging At The Speed Of Light

SUNSTOP + UNIVERSITY of HOUSTON

Advanced Stand-Alone Electric Vehicle Charging Station

SUNSTOP
Charging At The Speed Of Light

Proposal A Stand-Alone EV Charging Station at the Energy Research Park
designed to achieve 99.99 % reliability

The power generated from the PV panels can charge electric vehicles, be stored in the long-life stationary battery, and can be used to generate and compress hydrogen - typically this extra energy would be wasted. Stand alone system does not require costly grid connection.

Station Specifications

- 6 kw PV array
- 50 kwh backup battery
- 4 level 2 EV chargers
- 6 scooter charging outlets
- 120 v AC and USB ports for personal electronics
- 5 kw fuel cell
- 50 kwh fuel cell storage

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SunStop Stand-Alone Electric Vehicle Charging Station

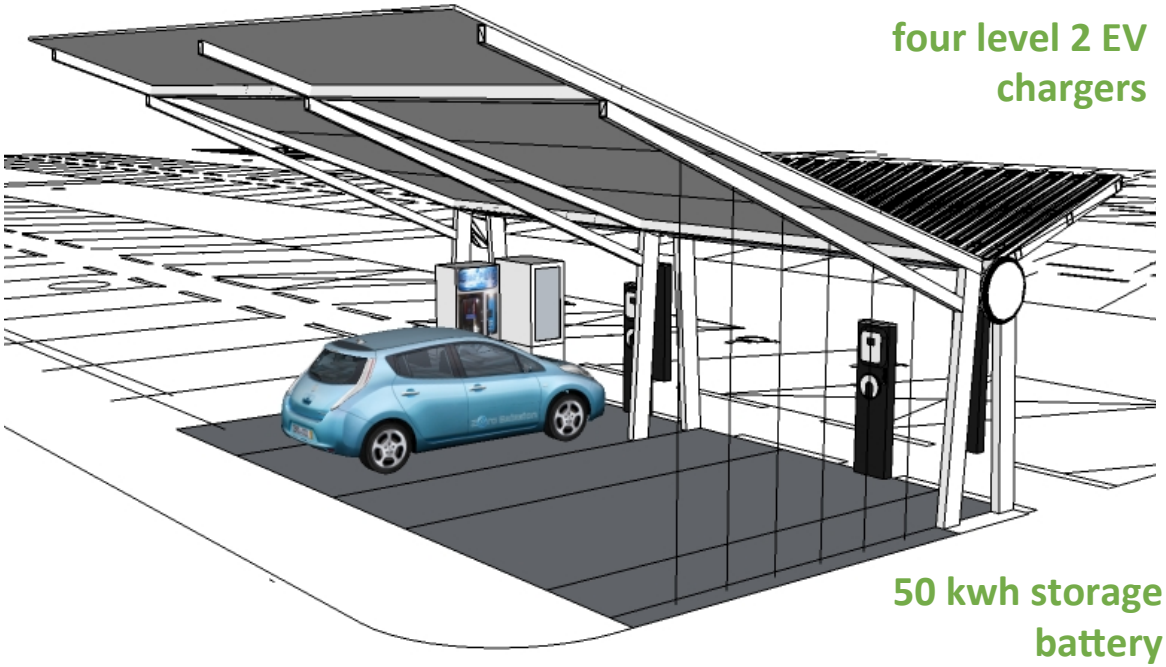
A Multi-Service Design with Wide Array of Benefits

An innovative energy solution that supports electric vehicles *and* is an off-grid power source.

6 kw solar photovoltaic (PV) array

rainwater harvesting

shaded WIFI hotspot



four level 2 EV chargers

two covered parking spots

charging for bikes, scooters and personal electronics

50 kwh storage battery

5 kw fuel cell – excess solar power is used to generate and compress hydrogen

four electric vehicle charging stations – ADA compliant

a relationship with mutual benefits

UNIVERSITY of HOUSTON

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Benefits to University of Houston

- UH Energy Research Park site provides demonstration of alternative energy research and environmental support for educational mission
- All maintenance and service responsibilities fall to SunStop
- Green energy with no carbon footprint, no carbon emissions
- Showcases UH's commitment to green energy initiatives and sustainability

Benefits to SunStop

- Demonstrates long-term commitment to advanced solar micro-grids for transportation
- Opportunity to develop a truly green EV fueling station, deployable anywhere

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APPENDIX

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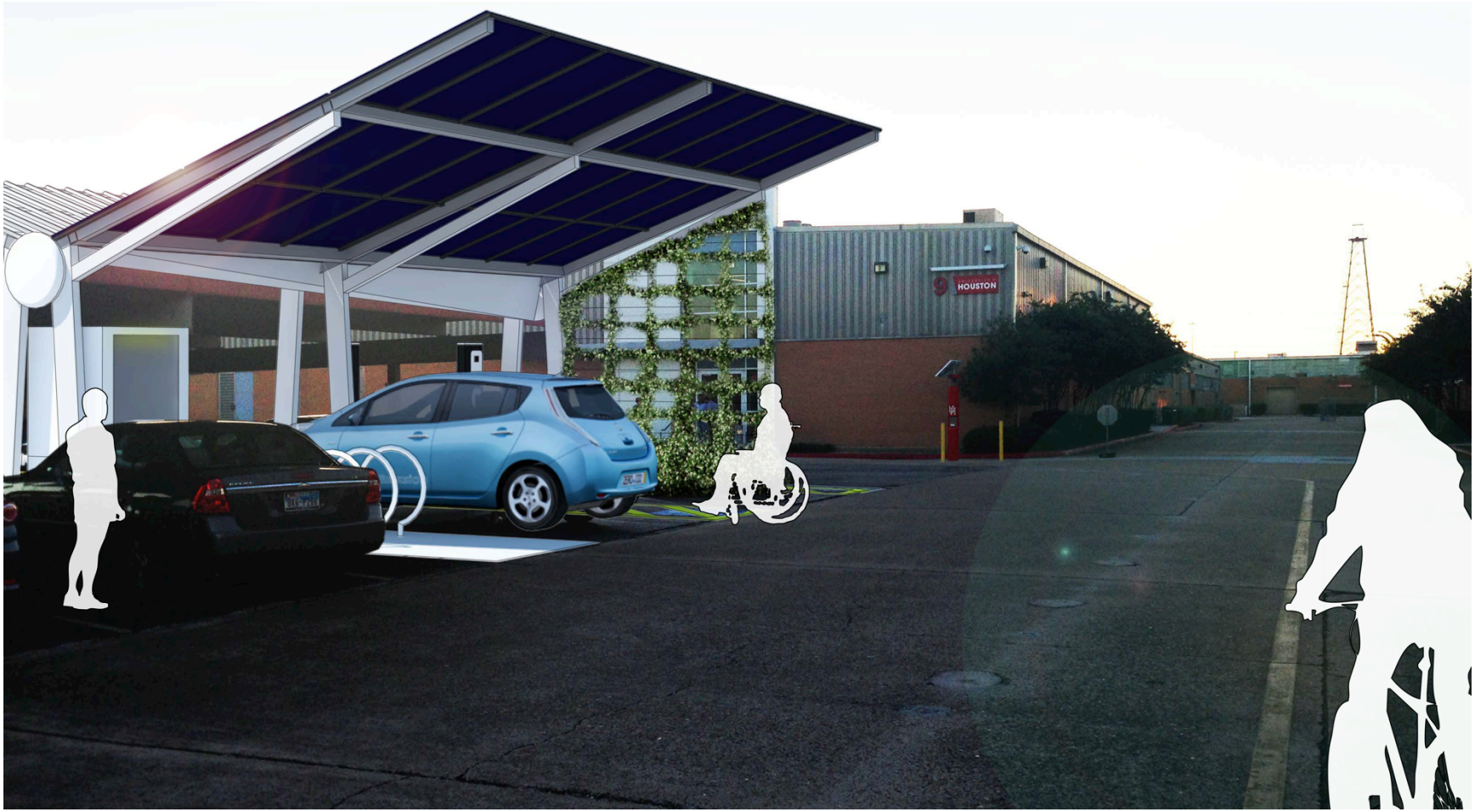

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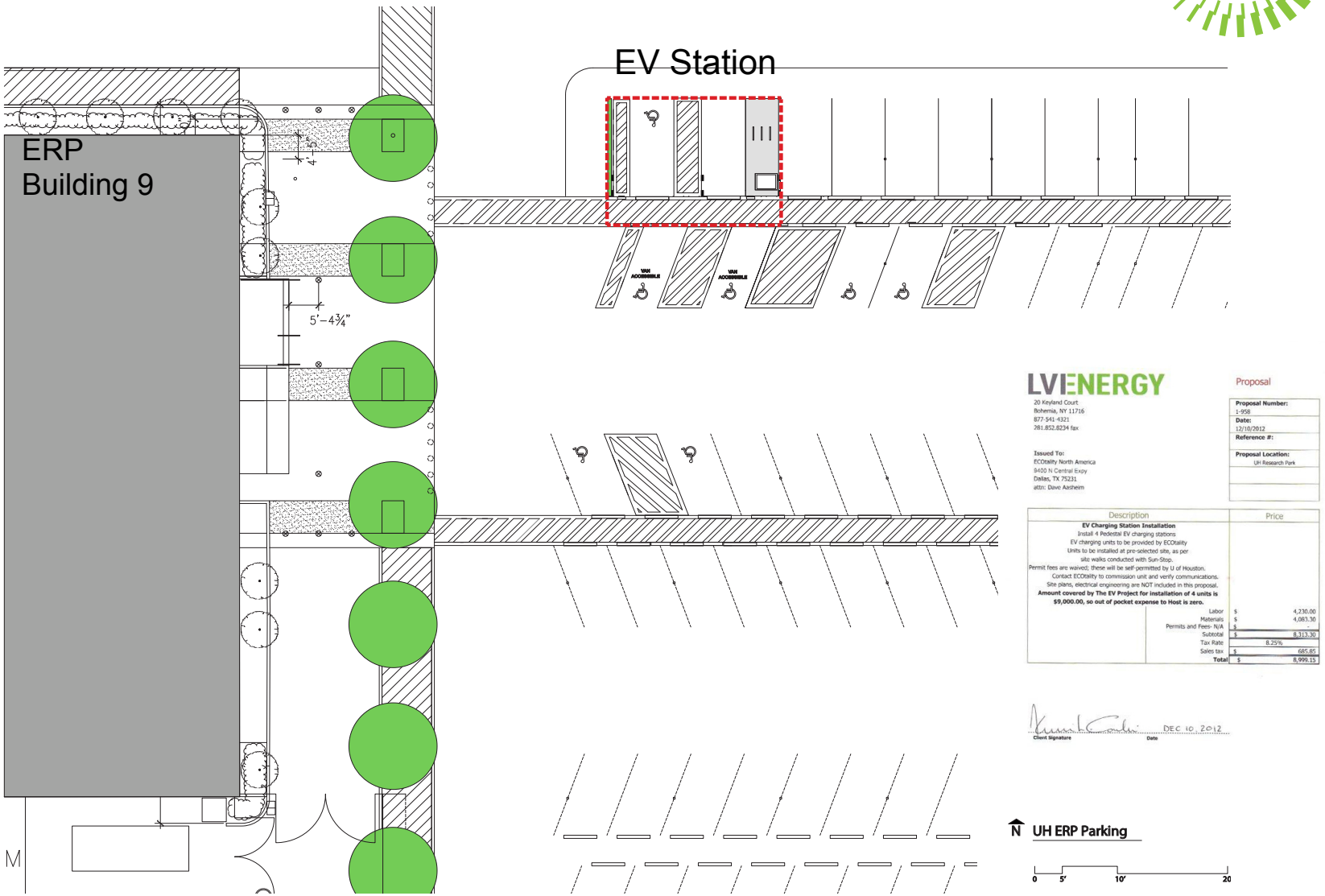

LVENERGY

Proposal

20 Keyland Court
Bohemia, NY 11716
877-541-4321
281.852.8234 fax

Proposal Number:
1-958
Date:
12/10/2012
Reference #:
Proposal Location:
UH Research Park

Issued To:
ECOtality North America
8400 N Central Expy
Dallas, TX 75231
attn: Dave Aarsheim

Description	Price
EV Charging Station Installation Install 4 Pedestal EV charging stations EV charging units to be provided by ECOtality Units to be installed at pre-selected site, as per site walks conducted with Sun-Stop. Permit fees are waived; these will be self-permitted by U of Houston. Contact ECOtality to commission unit and verify communications. Site plans, electrical engineering are NOT included in this proposal. **Amount covered by The EV Project for installation of 4 units is $9,000.00, so out of pocket expense to Host is zero.**	
Labor	$ 4,230.00
Materials	$ 4,083.30
Permits and Fees- N/A	$ -
Subtotal	$ 8,313.30
Tax Rate	8.25%
Sales tax	$ 685.85
Total	$ 8,999.15

Client Signature

DEC 10, 2012
Date

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Stand-alone vs. Grid-connected

Stand-alone Design	Grid-connected Design
Lower installation cost, higher ROI and investment return for owner	Electric connection is the single highest cost component
Qualifies for solar and EV tax credits and incentives	Limited financial incentives available
Minimal site work, quick deployment	Significant permitting, installation and construction costs and disruptive onsite work
Applicable to remote locations such as parks and roadside rest areas	Extremely expensive or simply unfeasible
Can be installed anywhere	Only suitable when grid is nearby
100% carbon-neutral renewable energy	Relies on fossil fuels, is simply displaced pollution
High visual appeal and public awareness captures attention and imagination	Often prominently sit unused for months
Validates an important approach to widespread deployment	Convenience doesn't equal usefulness

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Kevin Conlin / Patrick Peters *25 Years of Experience in Reliability*

- Kevin Conlin is a specialist in ultra high reliability (99.99%) remote power systems for oil, gas, communications and military applications
- Successful career of continuous, cutting edge innovation in standalone energy systems
- Prior to founding Sun Stop, Kevin was the founder or key contributor to Solar SignAge, Photocomm, Solarcraft, Texas Solar Energy Center, Texas Renewable Energy Industry Association, and Heliosolar Design.
- Kevin is also a patent / trademark holder and has presented papers (ENTELEC, Remote Power) and published magazine articles (Oil and Gas Journal, Remote) on high reliability remote power systems.

- Patrick Peters is a LEED AP Architect and Professor of Architecture at the UH Gerald D. Hines College of Architecture
- He has 22 years of experience examining complex climate-based building problems
- For 19 years, Director of the award-winning UH Graduate Design/Build Studio