eTec

electric transportation
engineering corporation

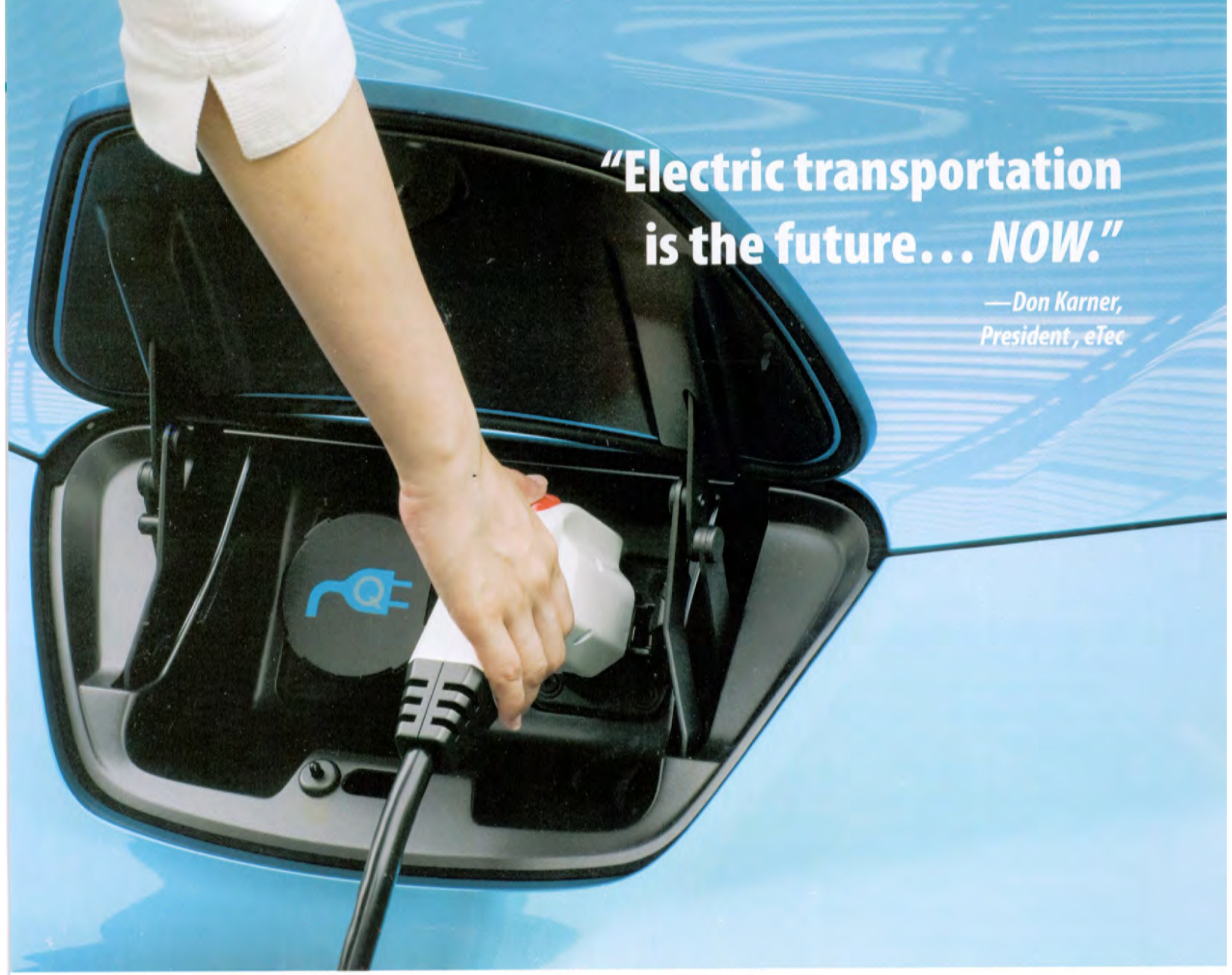
The Leader in Clean Electric Transportation Solutions

THE EV Project

ECOtality's eTec is Project Manager for The EV Project: The largest deployment of EVs and charge infrastructure in history.

Nissan LEAF Zero Emission Vehicle

An ecotality™ Company



eTec

Through industry-leading experience in hybrid (HEV), plug-in hybrid (PHEV), and battery electric vehicle (BEV) infrastructure, eTec provides solutions for cleaner and more efficient transportation.

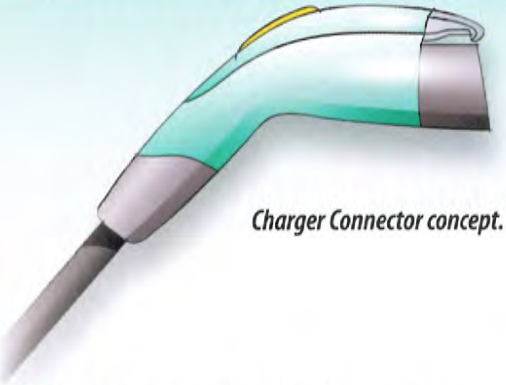
- eTec is a Tier I supplier, installer and service provider of advanced charging solutions for electric transportation applications.
- eTec is a provider of the Minit-Charger technology—advanced fast-charge systems that reduce EV charge times from hours to minutes.
- eTec has expertise with all automotive battery types.
- eTec has been involved in every major North American EV initiative since 1989.

From battery and EV testing to the development and installation of public and residential fast charge stations, eTec provides infrastructure solutions for our electric transportation future.

THE EV Project

- **10,950 Level 2 (220V) Chargers**
- **260 Level 3 Fast-Chargers**
- **4,700 Nissan LEAF Cars**
- **40+ Project Partners**
- **750 New Jobs by 2012**
- **5,500 New Jobs by 2017**
- **11 Major Cities**
- **5 States**

The Electric Movement



Charger Connector concept.

General Motors' original EV-1.
We've been into EVs since the 1990s.

With concerns over global warming, oil shortages, and increasing gas prices, the rapid rise of more fuel efficient vehicles is a clear indicator of changing consumer preferences and industry direction. As major automotive manufacturers plan to launch plug-in electric vehicles (EV) in 2010, the future of transportation is propelled by a fundamental shift to cleaner and more efficient electric drive systems.

The success of EVs is dependent on charge infrastructure that makes recharging convenient, practical, and cost-efficient. eTec is a Tier I supplier of Level 2 (240V) and Level 3 (480V) battery chargers for electric vehicles in residential and commercial applications. eTec holds patented rights to the industry leading fast-charge technology, Minit-Charger™, which can provide a safe and meaningful charge for an EV in approximately 15 minutes. eTec's Minit-Charger technology will play a major role in the commercial acceptance of electric transportation technologies as it reduces range anxiety and provides a convenient solution for extended driving range.

eTec has been involved in every North American EV initiative since 1989. With over two decades of experience in electric transportation, eTec is the most experienced and qualified solution provider for EVs and supporting infrastructure. That is why eTec is trusted by automotive manufacturers, utilities, research institutes, and government agencies. eTec's unparalleled EV infrastructure experience, combined with its expertise in batteries, battery charging, utility activities and electric drive systems makes eTec the leader in electric transportation.

August 5, 2009
The U.S. Department of Energy selects eTec to implement the largest transportation electrification project in history.

THE EV Project

Through a $99.8 million grant from U.S. DOE, eTec will install 10,950 Level 2 charge systems and 260 fast charge systems in select markets of five states: Arizona, California, Oregon, Tennessee, and Washington. Installation will accompany the deployment of 4,700 Nissan LEAFs, a zero-emission EV. The Project will collect and analyze data to characterize vehicle use in diverse topographic and climatic conditions, evaluate the effectiveness of charge infrastructure, and conduct trials of various revenue systems for commercial and public charge infrastructure. The ultimate goal of the Project is to develop mature charging environments to support the widespread use of EVs.

What is an EV?
The term "EV" is used to denote all grid-connected electric vehicles, including plug-in hybrid (PHEV), range-extended (REEV) and battery electric vehicles (BEV).

Level 3 Fast Charge concept

eTec EV Capabilities

eTec supports the development and commercial application of EV technologies in the following areas:

Level 2 Charge Infrastructure (240 VAC single phase)

For a successful consumer experience, EVs require more power for charging than can be derived from a 120V convenience outlet. Therefore, Level 2 charge infrastructure will be required to support these vehicles. eTec's charging hardware is compliant with all applicable national regulations and standards. eTec is dedicated to providing complete Level 2 hardware solutions and can provide chargers with smart-grid interface, demand and energy control, and a simplified user interface.

Level 3 Charge Infrastructure (Fast Charge)

Level 3 chargers (fast charge) allow vehicles to be recharged in minutes rather than hours. With reduced charge times, public charging at retail locations becomes feasible. Utilizing eTec's patented Minit-Charger algorithm, eTec can charge batteries faster and safer than competitor's chargers. eTec's extensive fast charge experience and wide range of fast charge equipment positions us to provide universal fast chargers capable of charging any EV conforming to standard charging communication protocols.

Vehicle-To-Grid (V2G) Facility Demand Reduction

eTec's bidirectional (charge and discharge) battery chargers can utilize EVs as a source of electrical energy to reduce electrical demand or shift energy consumption patterns for an EV charging facility. Reducing electrical demand and shifting the time of energy use can significantly reduce the electric costs. Enhancing bidirectional capability with eTec fast chargers, provides the ultimate flexibility in controlling facility demand and time of energy use.

Adaptive Intelligent Charging

Utilizing the communication capabilities of eTec's fast-charge systems to interface with facility electric meters allows for utility regulation of charger demand and energy use through "smart" metering. Additionally, the eTec Power Manager can control local chargers to minimize facility demand and energy costs and maximize the use of energy from renewable resources.

eTec Minit-Charger SC

Public EV Charge Infrastructure

eTec's experience with developing and installing public charge stations includes features such as access control, remote emergency phone lines, advertising space, vehicle and battery data collection, and real time messaging. eTec charge stations currently include overnight charging, fast charging and solar assisted charging.

Residential Time of Day Charging

eTec EV chargers are capable of timed charging to allow residential EV users to delay the start of charging until off-peak rates are available or until renewable energy resources are online.

Multi-Station Demand Controlled Charge Station

For industrial users, the eTec Power Manager offers the opportunity to minimize charge facility power demand costs by intelligently limiting the power chargers draw below a specified level while maximizing EV fleet utilization.

eTec provided infrastructure and testing solutions for the following vehicles:

HYBRID ELECTRIC VEHICLES (HEV)

- Toyota Prius (Gen I, II & III)
- Toyota Highlander
- Toyota Lexus RX400H
- Toyota Camry Hybrid
- Ford Escape
- Ford Fusion
- Honda Insight
- Honda Civic Hybrid
- Honda Accord Hybrid
- Saturn Vue Hybrid
- Chevrolet Silverado Hybrid
- Nissan Altima Hybrid
- Chevrolet Tahoe Hybrid

BATTERY ELECTRIC VEHICLES (BEV)

- General Motors EV1
- Ford Ranger
- Chrysler EPIC Electric Mini-van
- Toyota RAV-4 Electric

PLUG-IN HYBRID ELECTRIC VEHICLES (PHEV)

- EnergyCS Prius PHEV
- Hymotion Prius PHEV
- Hymotion Escape PHEV
- Electrovaya Escape PHEV
- Hybrids-Plus Escape PHEV
- Renault Kangoo Elect'Road

Neighborhood Electric Vehicles (NEV)

- Global Electric Motorcar (GEM)
- Club Car
- Miles Automotive
- ZENN Motor Company
- Roush EV
- ParCar

Hymotion Prius PHEV

SELECT eTec CLIENTS

- Nissan North America
- Chrysler, LLC
- Ford Motor Company
- General Motors Corporation
- Toyota Motor Corporation
- United States Department of Energy
- Advanced Lead Acid Battery Consortium
- Electric Power Research Institute (EPRI)
- National Park Service
- United States Air Force
- California Air Resources Board
- US Airways
- Southwest Airlines
- Jet Blue Airways Corporation
- Air Canada
- Global Electric Motorcars (GEM)
- Miles Automotive Group, Ltd
- Zenn Motor Company
- Club Car, Inc.
- E-Ride Industries
- Specialty Vehicles
- Tiger Truck
- Boshart Engineering
- Proterra
- New York State Energy Research & Development Agency
- Arizona Public Service Company (APS)
- BC Hydro
- Salt River Project (SRP)
- Sacramento Municipal Utility District
- San Diego Gas & Electric (Sempra Utilities)
- Southern California Edison
- New York Power Authority
- KeySpan Energy

THE EV Project

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OTHER KEY PROJECTS

- eTec currently administers qualified vehicle testing for the U.S. Department of Energy's (DOE) Advanced Vehicle Testing Activity (AVTA).
- eTec developed EV infrastructure guidelines for the planning, design and installation of EV charge infrastructure in British Columbia, Canada.
- eTec developed advanced Minit-Charger algorithms that allow for 50% charge return in less than 5 minutes.
- eTec developed, installed and serviced 400+ EV charging stations throughout the U.S., including fast-charge systems for EV fleets.
- eTec designed and installed public EV infrastructure networks for major utilities.
- eTec is the supplier of Level 2 equipment for Ford Th!nk City Clean Commute Program.
- eTec is the Tier I supplier, installer and service provider of Level 2 charge equipment for the Ford Ranger Electric Truck program.
- eTec designed, supplied and installed over 250 Level 2 charge stations at United States Postal Service (USPS) fleet locations throughout California.
- eTec designed and installed Level 2 & 3 charge infrastructure for the Chrysler EPIC EV.

NISSAN TOYOTA GEM GM Ford CHRYSLER

eTec electric transportation engineering corporation

With a history in electric transportation that dates back to 1989, Electric Transportation Engineering Corporation (eTec), a wholly-owned subsidiary of ECOtality (OTCBB: ETLY), is a recognized leader in the research, development and testing of advanced transportation and energy systems. Specializing in alternative-fuel, hybrid and electric vehicles and infrastructures, eTec is committed to developing and commercially advancing clean electric technologies with clear market advantages.

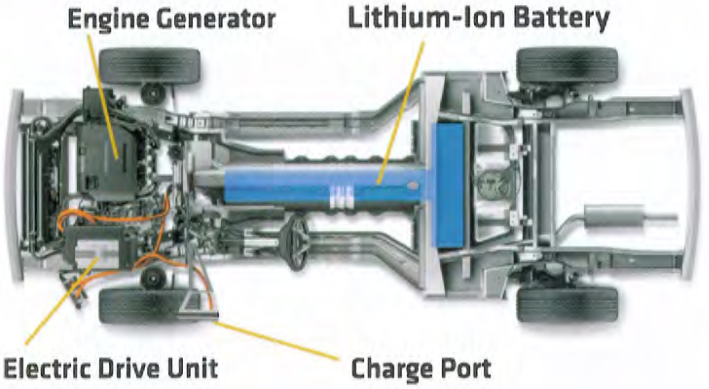
eTec Minit Charger

eTec's flagship product line, Minit-Charger™—fast battery charging systems designed for electric vehicles, airport ground support equipment and material handling applications—allows for faster charging with less heat generation and longer battery life than conventional chargers.

Retail charge station rendering by Johnston Marklee for ECOtality.

eTec also provides the following products and services:

- Testing and consulting of electric vehicles (EV), hybrid electric vehicles (HEV), plug-in hybrid electric vehicles (PHEV), and hydrogen powered vehicles and fleets
- Project management, including testing, research and development of advanced technologies
- Battery performance testing and analysis
- Design and installation of standard EV charging and fast charge systems for public, commercial and residential applications
- Design and construction of alternative-fuel infrastructure (including electric, CNG, CNG/H2-blended fuels and pure H2)
- Development of H2 internal combustion engine (HICE) Silverado trucks
- Advanced vehicle testing and failure analysis for automotive companies and U.S. Department of Energy
- Development and testing of advanced lithium and nickel-metal hydride batteries
- Consulting and technical support for major utility projects



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ECOtality

ECOtality, Inc. (OTCBB: ETLY), headquartered in Scottsdale, Arizona, is a leader in clean electric transportation and storage technologies. Through innovation, acquisitions, and strategic partnerships, ECOtality accelerates the market applicability of advanced electric technologies to replace carbon-based fuels. For more information about ECOtality, Inc., please visit www.ecotality.com.

2011 Chevrolet Volt

Printed on recycled paper using soy based inks