

**ecotality**<sup>TM</sup>

*clean electric transportation technologies*

**EV** ***Micro-Climates***<sup>©</sup>

In coordination with **NISSAN**

## *A leader in clean electric transportation technologies*

- **Leading EV infrastructure Experience**
  - Involved in every North American EV initiative to-date.
  - Over 5,100 Charging Stations Installed
- **Premier Battery Fast-Charge Systems**
  - Fortune 500 customer base, utilities, and Government OEMs
- **Advanced Transportation R & D, Engineering & Testing**
- **Primary Contractor to Department of Energy in EV sector**
  - 6+ million miles of vehicle testing on over 200 advanced fuel vehicles

### **Current Markets**

Material Handling  
Airport Ground Service Equipment  
Neighborhood Electric Vehicles

### **Emerging Markets**

Electric Vehicles (EV)  
Plug-in Hybrid Electric Vehicles (PHEV)  
Public and Home Charging Stations

# ECOtality's Clients



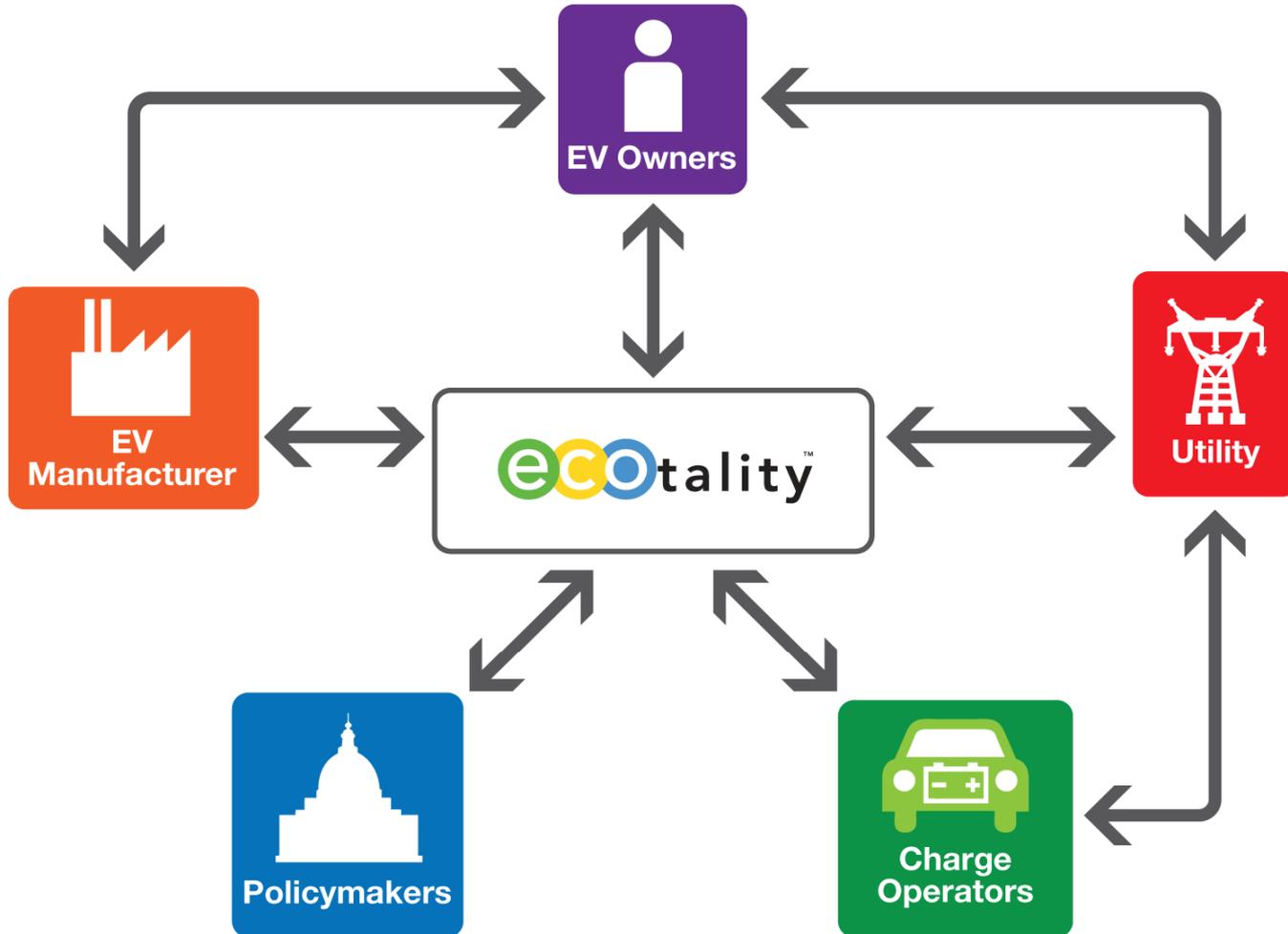
**"The drumbeat of the electrical transportation  
is accelerating like nothing I've ever seen in  
my life."**

**Andy Grove**, former chairman of Intel, July 2008  
The "Father" of computer Chip technology

The logo features the letters 'EV' in a bold, blue, sans-serif font, positioned inside a solid orange circle. To the right of the circle, the words 'Micro-Climates' are written in a blue, italicized, sans-serif font, followed by a copyright symbol (©).

# EV *Micro-Climates*©

- Establishes a rich charging infrastructure
- Feasibility & planning studies provides blueprint & action plans for successful execution and continued maintenance.
- Interface with stakeholders to ensure area is prepared for electric transportation and fosters consumer adoption.
- Implementation includes:
  - Physical installations, Sensible Policies & Strong public awareness campaign
- ECOtality assists automotive manufacturers with home installations & provides fast charging systems in strategic locations
- **Create Public and Private alliances** to minimize the cost to taxpayers



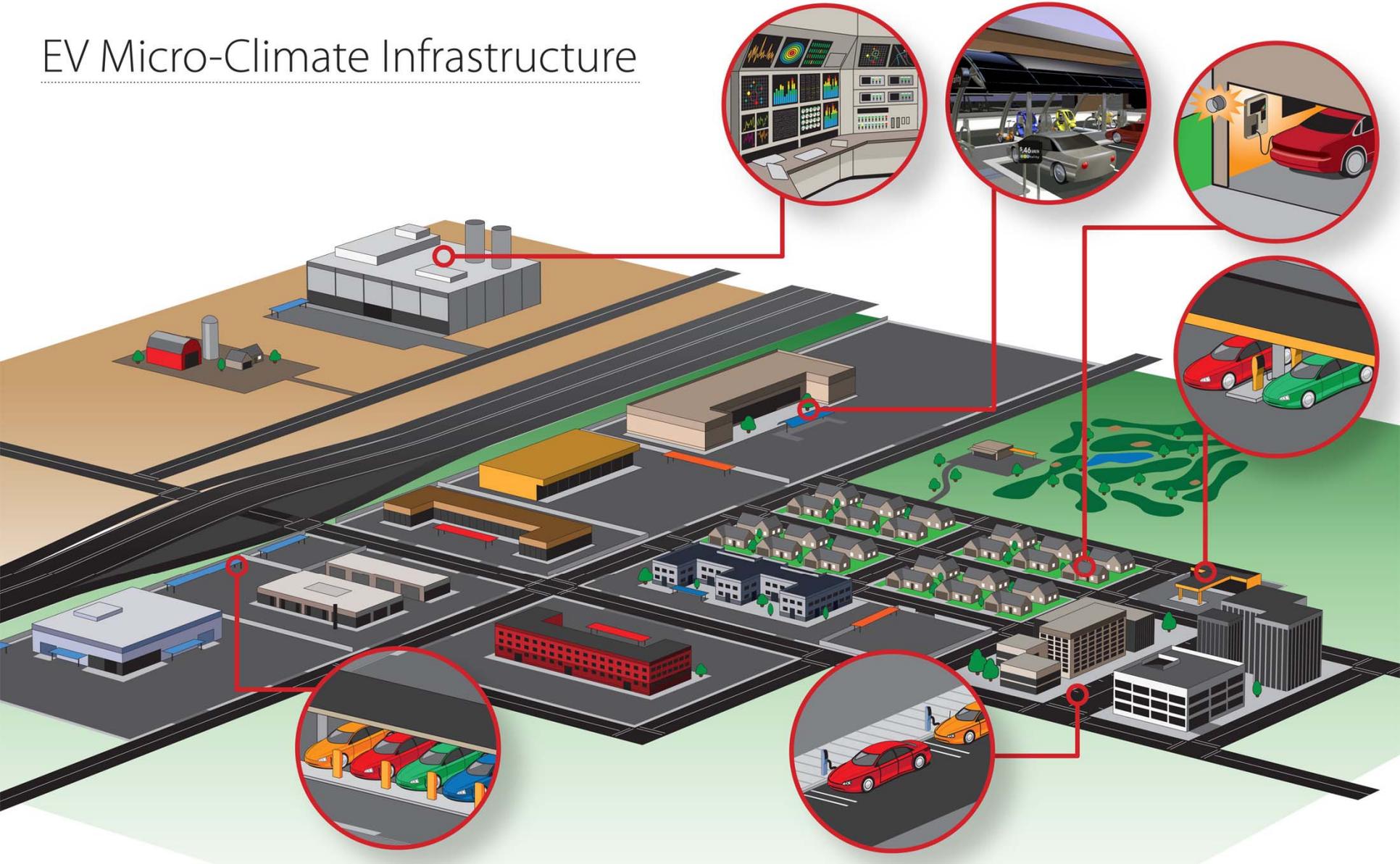
**Integrated program to advance areas for the adoption of electric transportation**

# Different Charging Levels

	Specifications	Time to charge batteries (10-30kWh)	Applications
<b>Level 1 Charger</b>	120VAC, 12Amps	8-24 hours	Emergency Use
<b>Level 2 Charger</b>	240VAC, 40Amp	2-8 hours	Residential, Commercial, Public Areas
<b>Level 3 Charger</b>	480VAC/ 3Phase 30kW to 250kW.	10-30 minutes	Commercial, Fleet use

- EV Micro-Climate primarily uses Level 2 & 3.
- Level 2 applications: residential/garage, commercial & public charging stations
  - i.e. Shopping malls, corporate offices, fleet facilities, parking lots, street charging...
- Level 3 fast-charge stations primarily for commercial locations & fleets
  - i.e. Wal-mart, Starbucks, BP/AMPM, USPS...

# EV Micro-Climate Infrastructure



# Conceptual Fast Charge Stations



- ECOtality is working with major auto OEMs to establish new regions as launch markets for new electric vehicles.
- Goal: solidify OEM EVs successfully launch in region:
  - Work w/ stakeholders to create sustainable business models
  - Launch markets equipped with proper infrastructure & sensible policies to support EVs
  - Establish a universal charge infrastructure
  - Vehicle & battery “agnostic.”
  - Efficiently establish infrastructure.



# Arizona's EV Initiative

- March 6, 2009
  - Announced partnership in Pima County/ Tucson
- April 16, 2009
  - Announced Partnership in Maricopa County/ Phoenix
- I-10 “EV Corridor” to utilize fast-charging.
- Establish infrastructure in Summer 2010
- Nissan vehicle launch in Fall 2010



- Reduced auto emissions to meet & exceed local, state & federal air quality standards
  - 1,000 BEVs over 7 years = Reduction of 6.6 Million LBS of CO<sub>2</sub>
- Allows Utilities to create Clean Mobility Model - from solar generation to EV's on the road – near zero emissions.
  - Over 50% reduction in CO<sub>2</sub> Emissions (well-to-wheels)
- Continues and enhances leadership position for clean transportation technologies – and renewable energy
- Make a launch site for all EVs, and positions region for immediate stimulus infrastructure funding.
- Establishes a new market with ample “green collar” job opportunities

- ECOtality/eTec responded to DOE-FOA 0000028
- 1,000 Nissan BEVs in 5 markets
  - Phoenix / Tucson
  - San Diego (CA)
  - Seattle / Washington
  - Portland / Oregon
  - Tennessee
- ~\$20 Million of charge infrastructure in each market
- Options for interstate corridors & solar charge stations
- Project partners include:
  - Nissan North America, BP America, Bovis Lend Lease, CBRE, ZipCar, GridPoint, Idaho National Lab, Oak Ridge National Lab

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**[www.ECOTality.com](http://www.ECOTality.com)**

**[www.etecEVs.com](http://www.etecEVs.com)**

**[www.minit-charger.com](http://www.minit-charger.com)**

# APPENDIX SLIDES

- Expedite permitting process for home and commercial charging system installations
- Provide incentives to purchase an EV and install EV charging stations
- Establish regulatory consistency amongst state and local regulations
- Link EV programs and infrastructure to regional transit and air quality programs
- Expedite permitting and approval for facilities to provide fast charging locations
- Establish roll out plan for 220V EV charging equipment at public locations

- Determine installation process for customers
- Tiered rates to encourage consumer charging activities
- Reduced rate charging? No-charge periods?  
Utility override protocol?
- Sponsored charging spots in high traffic areas
- Participate in customer education
- Help screen customers with smart meters
- Provide payment options

- Contribute to public education plan
- Sponsor public charging spots in high traffic areas
- Marketing campaign to raise awareness
- Develop educational materials

- Providing charging spots in parking lots
- Sponsor charging spots in high-traffic zones
- Contribute to education plan
- Create plug-in only spots
- Provide employees incentives to buy an EV
- Provide incentives to employees to contribute to larger educational plan
- Invest in technical education assistance needed for EV support workers