



eTec EV Project
EV Charging Infrastructure
Deployment Guidelines
MARCH 17, 2010

Electric Transportation
Engineering Corporation (eTec)



EV Charging Infrastructure Deployment Guidelines

- Intended to create a common knowledge base of EV requirements for stakeholders involved in the implementation of EV charging infrastructure.
- Provides the necessary background information for understanding EV requirements and the related codes, laws and standards for this effort.
- Provides the foundation upon which the EV Micro-Climate© program is implemented to provide the optimum infrastructure to support and encourage the adoption of electric vehicles in the MAG region.

EV Charging Infrastructure Deployment Guidelines

CONTENTS

1. Electric Vehicle Technology
2. Charging Requirements
3. Charging Scenarios
4. Additional Charging Considerations
5. Codes and Standards
6. Utility Integration
7. Cost Estimating

Survey of Code Adoption

ATTACHMENT TWO

Jurisdiction	Building	Electric	Residential	Fire	Energy	Existing Building Code	Fuel	Notes	URL
Avondale	2006 IBC	2005 NEC	2006 IRC	2003 IFC	2006 IECC	2006 IEBC	2006 IFGC	2006 Fuel Gas Code. Codes adopted 2/20/07, effective 7/1/07	Avondale
Apache Junction	2006 IBC	2005 NEC	2006 IRC	2003 IFC	2006 IECC	2006 IEBC	2006 IFGC	2006 Fuel Gas Code. Codes adopted 2/20/07, effective 7/1/07	
Buckeye	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC		2006 Fuel Gas Code. Codes adopted 2/20/07, effective 7/1/07	Buckeye
Carefree	2003 IBC	2002 NEC	2003 IRC	2003 IFC		2006 IEBC		Codes became effective July 1, 2006	Carefree
Cave Creek	2003 IBC	2002 NEC	2003 IRC	2003 IFC	2003 IECC	2006 IEBC			Cave Creek
Chandler	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	Effective September 28, 2008	Chandler
El Mirage	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	1997 ICC/ANSI Accessibility Code with Arizonans with Disabilities Act. New codes will go into effect Jan. 1, 2008 with city amendments.	El Mirage
Fountain Hills	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC		Codes adopted April 17, 2008 with town amendments available on Web site.	Fountain Hills
Gila Bend	1997 UBC	1999 NEC	1997 UBC	1997 UFC		2006 IEBC			
Gila River	2006 IBC	2005 NEC	2006 IRC	2003 IFC	None	2006 IEBC			
Gilbert	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	ADAAG per state requirements	Gilbert
Glendale	2006 IBC	2005 NEC	2006 IRC	2003 IFC		2006 IEBC		With city amendments. Effective Sept. 1, 2007	Glendale
Goodyear	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 Residential	2006 IEBC		Adopted 5-14-2007.	Goodyear
Guadalupe	1997 UBC	1999 NEC	1997 UBC	1997 UFC		2006 IEBC			
Litchfield Park	2006 IBC	2005 NEC	2006 IRC	2003 IFC (waiting on Avondale)	2006 IECC	2006 IEBC	2006 IFGC	Codes effective July 1, 2008	Litchfield Park
Maricopa County	2006 IBC	2005 NEC	2006 IRC			2006 IEBC		WITH MAG/AZBO AMENDMENTS adopted September 5, 2007.	Maricopa County
Mesa	2006 IBC	2005 NEC	2006 IRC	2006 IFC		2006 IEBC	2006 IFGC	2006 IBC, IMC, IPC, IRC and 2005 NEC will be effective 2/4/07. Did not adopt the energy code.	Mesa
Paradise Valley	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	Effective July 1, 2007	Paradise Valley
Peoria	2006 IBC	2005 NEC	2006 IRC	2006 IFC		2006 IEBC	2006 IFGC		Peoria
Phoenix	2006 IBC	2008 NEC	2006 IRC	2006 IFC w/ Amendments	2006 IECC	2006 IEBC	2006 IFGC	Effective July 2, 2008	Phoenix

Last updated February 2010

Source: MAG Building Codes Committee Members

This is intended to be used as a guide, for the selected codes, as to what other agencies have adopted or intend to adopt.

Survey of Code Adoption

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Jurisdiction	Building	Electric	Residential	Fire	Energy	Existing Building Code	Fuel	Notes	URL
Queen Creek	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC		Effective Aug. 7, 2008	Queen Creek
Salt River	2003 IBC	2002 NEC	2003 IRC	2003 IFC	None	2006 IEBC			
Scottsdale	2006 IBC	2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC		Effective Sep. 1, 2007, except IPC June 30, 2008	Scottsdale
Surprise	2006 IBC	2006 IEC w/ 2005 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	Adopted June 28, 2007	Surprise
Tempe	2006 IBC	2008 NEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC	2006 IFGC	Effective 1/12/2009	Tempe
Tolleson	2006 IBC	2005 NEC w/ 2006 IEC	2006 IRC	2006 IFC	2006 IECC	2006 IEBC		2006 Fuel Gas Code, 2006 IPMC, 2006 NEAC. Codes adopted 2/20/07, effective 7/1/07.	Tolleson
						2006 IEBC			2006 IFC Amend.
Wickenburg	2006 IBC	2005 NEC	2006 IRC	2003 IFC	2006 IECC	2006 IEBC	2006 IFGC		Wickenburg
Youngtown	2006 IBC	2005 NEC	2006 IRC	2006 IFC		2006 IEBC	2006 IFGC		Youngtown

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NEXT STEP

EV Micro-Climate Plan & Roadmap

July 2010

- **Develop EV Micro-Climates© Plan**
 - Project Boundaries
 - Incorporates Local Demographic and Transportation Studies
 - Survey of existing EVSE
 - 10-Year EV Infrastructure Feedback
 - Incorporates Stakeholder Feedback
- **Develop EV Micro-Climate© Roadmap (Locations)**
 - Publicly Available Charging Station Installation Detailed Plan
 - Commercial & Public
 - Fast Charger Installation Detailed Plan
 - Home Base Charging Station Installation Detailed Plan
 - Residential/Fleet

THANK YOU MAG!!!

1. *Heidi Bickart*
2. *Steve Hether*
3. *Jami Garrison*
4. *Ken Sowers*
5. *MAG Building Codes Committee*