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Edison SmartConnect™

CEC AMI Workshop
May 27, 2008

| **DOCKET** |
| --- |
| **08-DR-1** |
| DATE   MAY 27 2008 |
| RECD. JUL 25 2008 |

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EIX Vision for Clean Energy Future

Integration of Information Technology with Energy Technology Delivers Environmental Benefits

Renewable & Clean Generation — Smart Grid — Edison SmartConnect™ — Connected Home — Connected Plug-in Electric Vehicles

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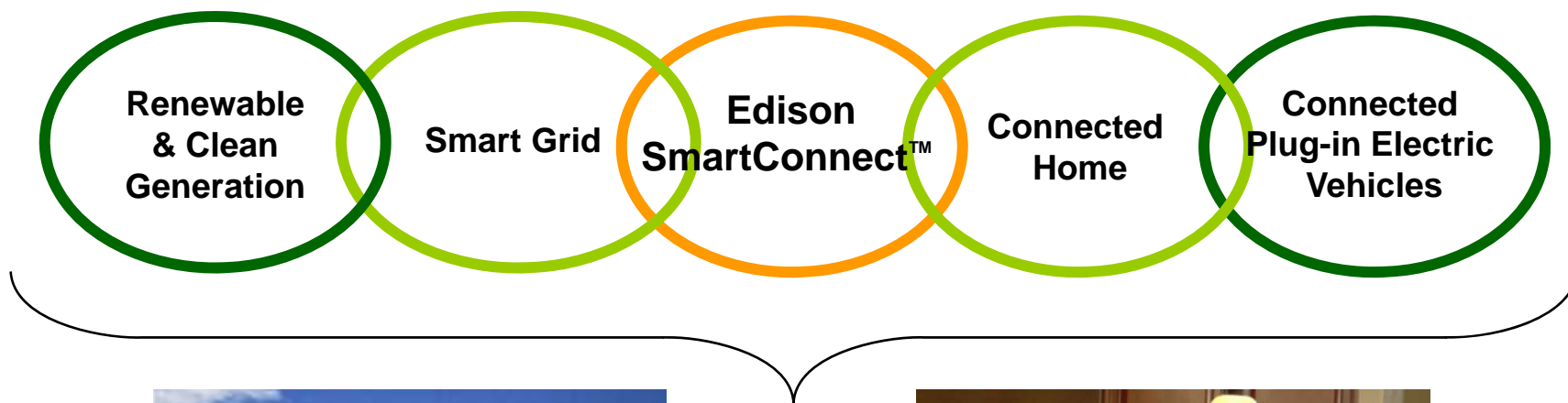
Smart Meter Vision to Reality

SCE's Smart Meter Functionality

- 200A service switch w/load limiting capability
- Remote upgradeability (never visit the meter)
- Flexible tariffs & programs (TOU, CPP, etc)
- Improved computing capability
- Integrated HAN interface (ZigBee)
- Integrated 2-way LAN communication
- Power quality metrics
- Robust Security

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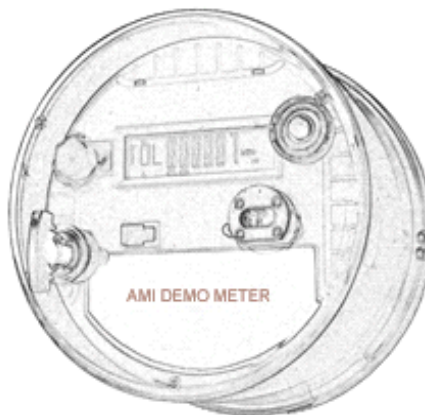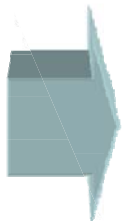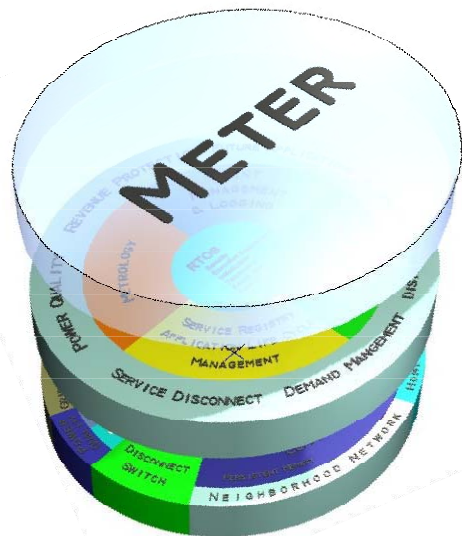
AMI Technology Overview

3rd Gen Electronic meters:

- 200A integrated service switch
- Home Area Network interface
- Energy & Voltage measurement
- Outage detection & service status
- Theft/tamper detection
- Remote firmware upgradability
- Robust security

Multi-Tier Telecom Network

- Designed for flexibility & security
- 2-way narrowband 900MHz RF LAN
- Open standard ZigBee 2.4GHz HAN
- Cellular based WAN with flexibility for technology changes

Technology & Vendor Map

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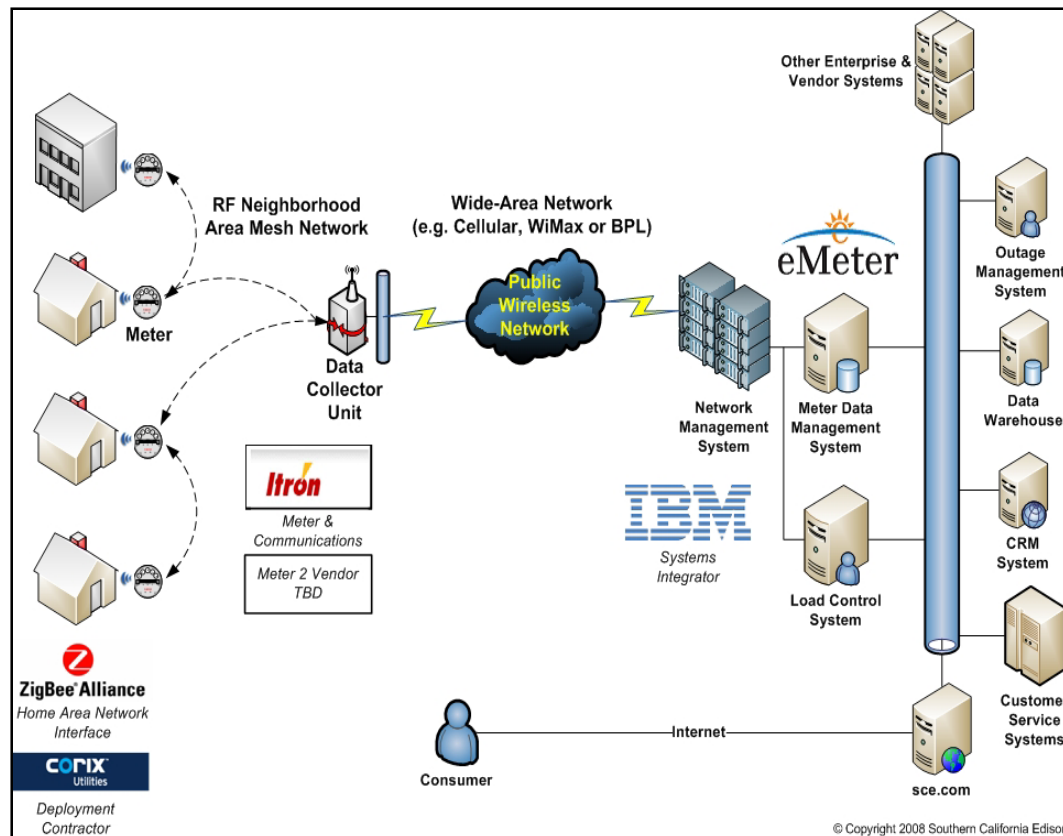
Empowering Customer Choice

Connected Home

Customer enabled automated response thru energy smart appliances
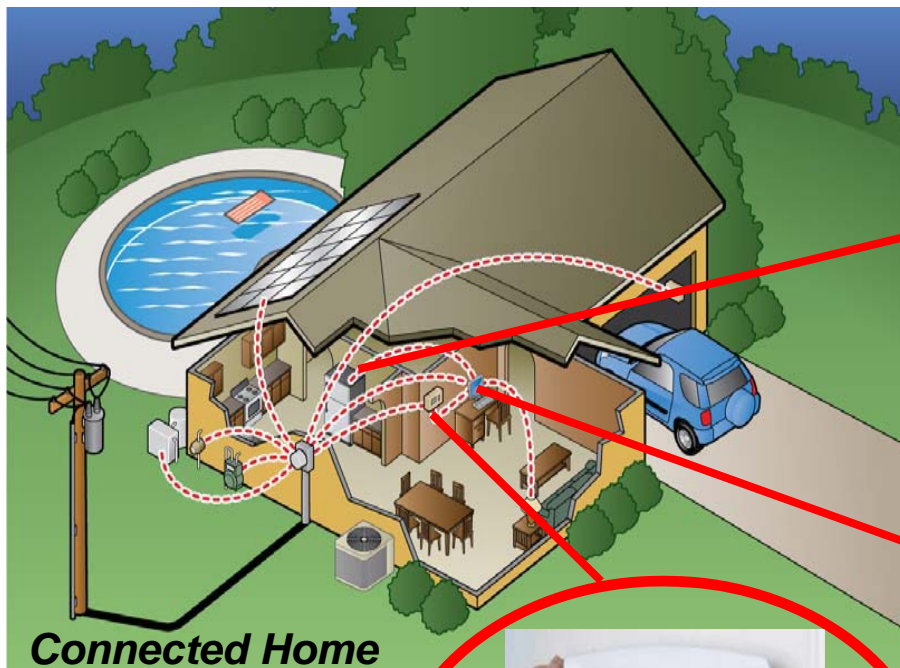
Improved Load Management through smart thermostats

Energy Information drives Energy Conservation and GHG Reductions

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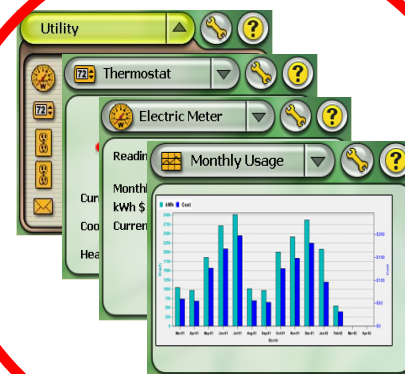
Renewables & Energy Storage
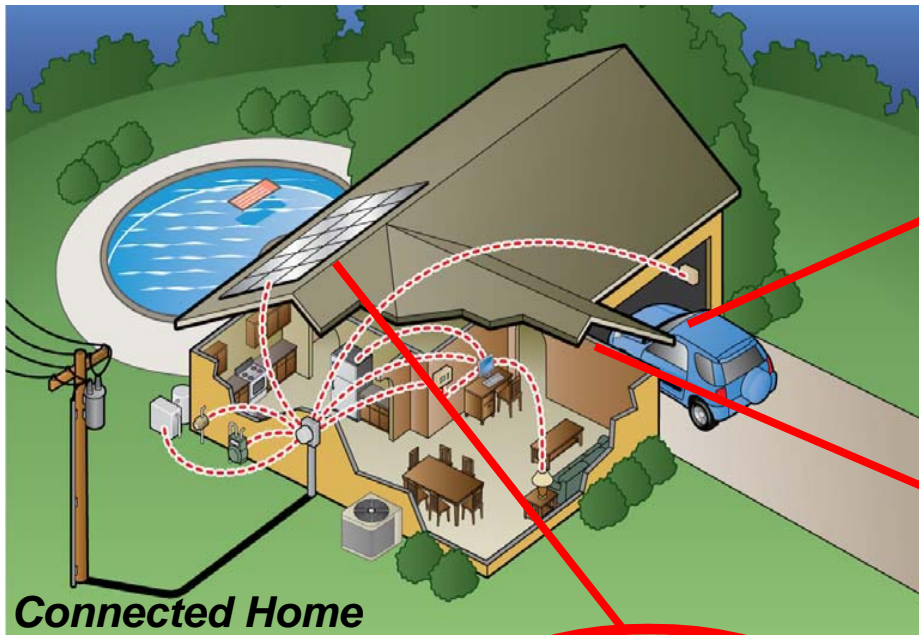
Long-Term Opportunities through Plug-in Electric Vehicles

Connected Home

Enable Net Metering, Discrete metering and Integrated energy management w/Solar Panel

Customer Home Energy Storage Creates Opportunities for Increased Renewables

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SmartGrid/SmartConnect Framework

Generate | Trade | Deliver (Transmission / Distribution) | Retail | Customer

End-to-End View

Predictive Analytics

Cust. & Oper. Data Warehouse

Operational Systems

Communication Networks

'Smart' Sensors & Controls

Energy Technologies

Customer Choice	Enable customer energy conservation & peak reduction; Deliver real-time use information direct from meter
Improve Performance	Optimize asset and resource planning; Dynamic distribution system management
Operational Efficiency	Remote service monitoring and activation; Improve grid utilization; Faster detection and localization of outages
Clean Energy	Integration of PHEVs and storage to increase grid resilience for renewables and efficiency of premise solar

Framework adapted from FP&L

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20yr Cost-Benefit Analysis
Based on DRA Settlement*

'07 PVRR ($Ms)

Total Costs
$1,981M

Total Benefits
$2,285M

Net Societal $295M

Price Response $310M

Load Control $342M

Conservation $164M

Total Costs

Operations $1,174M

($ Millions)		
	Nominal	'07 PVRR
Costs		
Phase II Pre-Deployment	$ (45)	
Acquisition of Meters & Comm Network	(726)	
Installation of Meters & Comm Network	(285)	
Back Office Systems	(251)	
Customer Tariffs, Programs & Services	(117)	
Customer Service Operations	(82)	
Overall Program Management	(45)	
Contingency	(130)	
Post-Deployment	(1,582)	
Total Costs	$ (3,263)	$ (1,981)
Benefits		
Meter Services	$ 3,909	
Billing Operations	187	
Call Center	96	
Transmission & Distribution Operations	92	
Demand Response - Price Response	1,044	
Demand Response - Load Control	1,242	
Conservation Effect	828	
Other	39	
Total Benefits	$ 7,437	$ 1,990
Net Benefits Excluding Societal	$ 4,174	$ 9
Societal Benefits		295
Net PVRR		$ 304

*Settlement is pending CPUC approval

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Deployment Plan

| 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |

Field Test 2

Release 1 — Q4
Planning through Implementation

Release 2a — Q2
Planning through Implementation

Release 2b — Q2
Planning through Implementation

Release 3 — Q2
Planning through Implementation

5.3mm Meters Installed

Field Test 2
- Install 6,550 meters (ITRON version 1.5) for Field Test 2
- Complete additional Meter Communications testing
- Test deployment processes

Release 1
- Implement and validate deployment processes (Release 1a)
- Implement Meter to Cash functionality (Release 1b)

Release 2a
- Enhance the architecture to support deployment volumes
- Provide customer access to usage information via the web
- Remote connect/disconnect functionality for moves
- Implement basic load control functionality

Release 2b (Scope Subject to Chg)
- Advanced Load Control
- GRC Ph II rates
- Interval Data Warehouse
- CRM functionality
- Additional SmartConnect™ programs and services

Release 3 (Scope Subject to Chg)
- Customer Experience 2012
- Grid management integration
- Power Procurement Integration

Full Scale Deployment Begins

| 1/07 | 1/08 | 7/08 | 1/09 | 7/09 | 1/10 | 1/11 | 1/12 |

* Current plan subject to change

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