



Advanced Metering System (AMS) Update

November 2009 REP
Presentation

Oncor Electric Delivery

Today's Presentation Will Cover Several Areas:



- **Review of AMS Functionality**
- **Compare Last Year's Commitment to the Deliverable**
- **Meter Deployment Plan and Schedule**
- **AMS IT System Overview**
 - **Oncor's System**
 - **Home Area Network (HAN) Interface**
 - **Smart Meter Texas Portal and its Interface**
- **Remaining Challenges**

Review: What an Advanced Metering System is



- **Provides 15 minute interval data available on a historic “day after” basis**
 - **Approximately 3000 reads per month vs. a historic 1 read per month**
- **Demand side management opportunities**
 - **Ability to provide pricing signals to customers**
 - **Control of selected appliances and equipment via a home area network (HAN) using ZigBee SmartEnergy profile**
 - **Provide energy consumption information to consumers via in-home monitors**

Review: What an AMS is (con't)



- **Ability to remotely disconnect/reconnect customers**
 - **Enables pre-paid retail pricing**
 - **Eliminates safety issues of employees**
- **Ability to get “on demand” readings of customer meters**
- **Ability to provide a loss of voltage signal to the distribution system**
 - **Provides data to outage monitoring system**
 - **Coordinates with distribution automation**
- **Provides a common AMS web portal for customer, REP, or authorized third party, with access to customer data**

Results (to date), Plans, and Schedule

Oncor has Several Milestones to Meet During Deployment



- Support HAN functionality between one device and the meter - (March 31, 2009) ✓
- Support TOU functionality for existing rates - (May 1, 2009) ✓
- Support prepaid electric service - (June 1, 2009) ✓
- Support 15 minute VEE data to ERCOT and REPs - (July 1, 2009) ✓
- Support common AMS web portal functionality – (Jan. 31, 2010) On target

Oncor's AMS Project has followed an aggressive time-line



Significant Milestones

May 10, 2007
PUCT AMS Rule

May 27, 2008
Landis +Gyr
contract signed

July 11, 2008
IBM engaged

Dec. 23, 2008
Ecologic Analytic
Contract signed

What was done

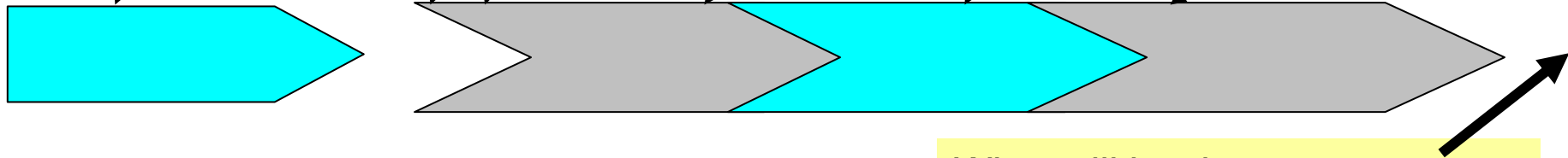
Ap. 1, 2009
HAN
Connection
to meter

July 1, 2009
VEE data to
market

What will be done

January 31, 2010
Enable
functionality
to market via
Smart Meter
Texas portal

Oncor Electric Delivery



AMS Deployment Plan Timeline



Number of advanced meters to be deployed (in thousands)

Deployment Area	2008-2009	2010	2011	2012
Metro	472	552	552	555
Non- Metro	219	350	350	347
Period Total	691	902	902	902
Cumulative Total	691	1,593	2,495	3,397

On target for 2009 yr-end deployment

243,349 meters installed by June 30, 2009

At least 180,000 installed by June 2009

Over 400,000 installed thru Oct. 2009

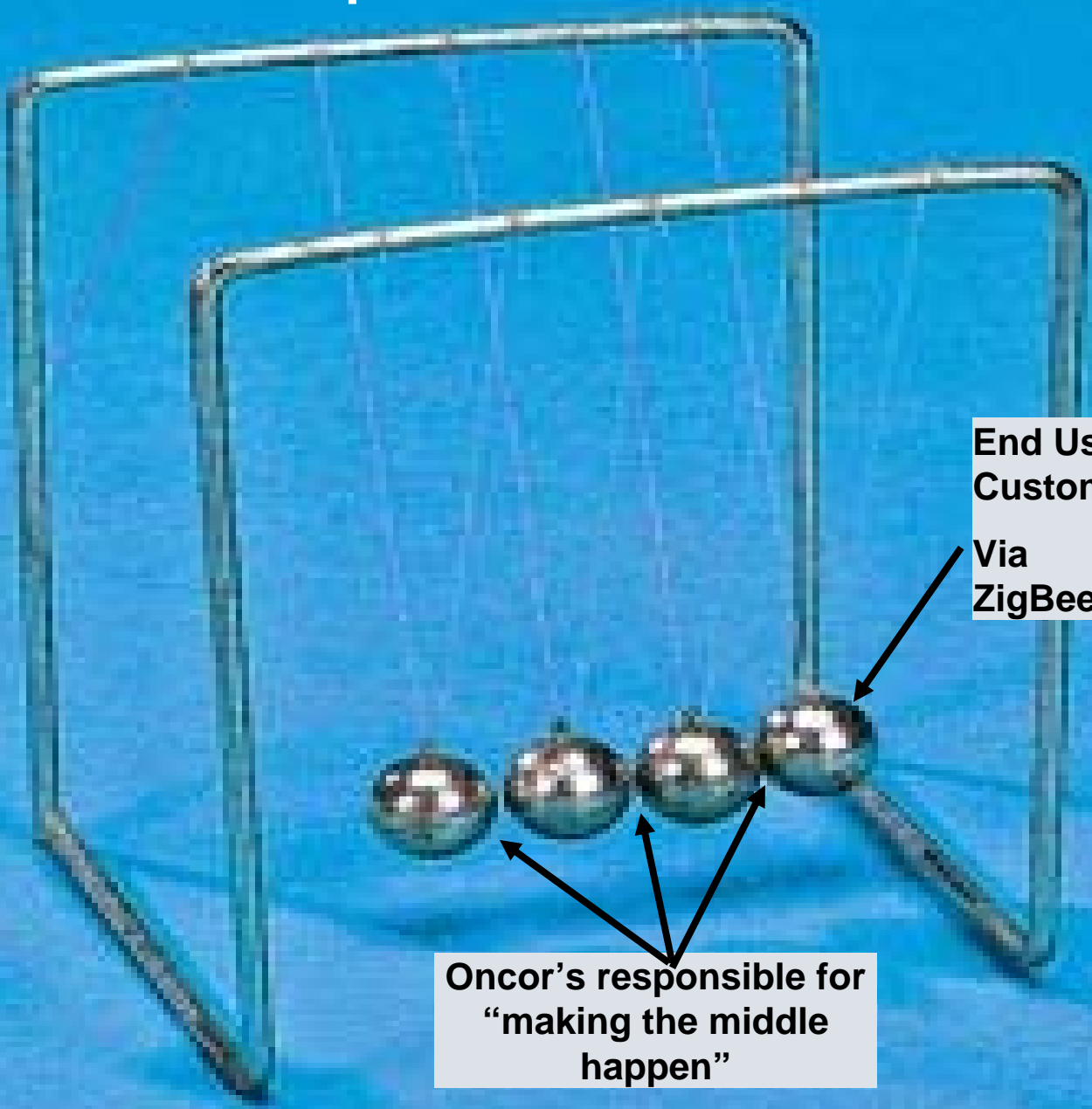
AMS System Overview

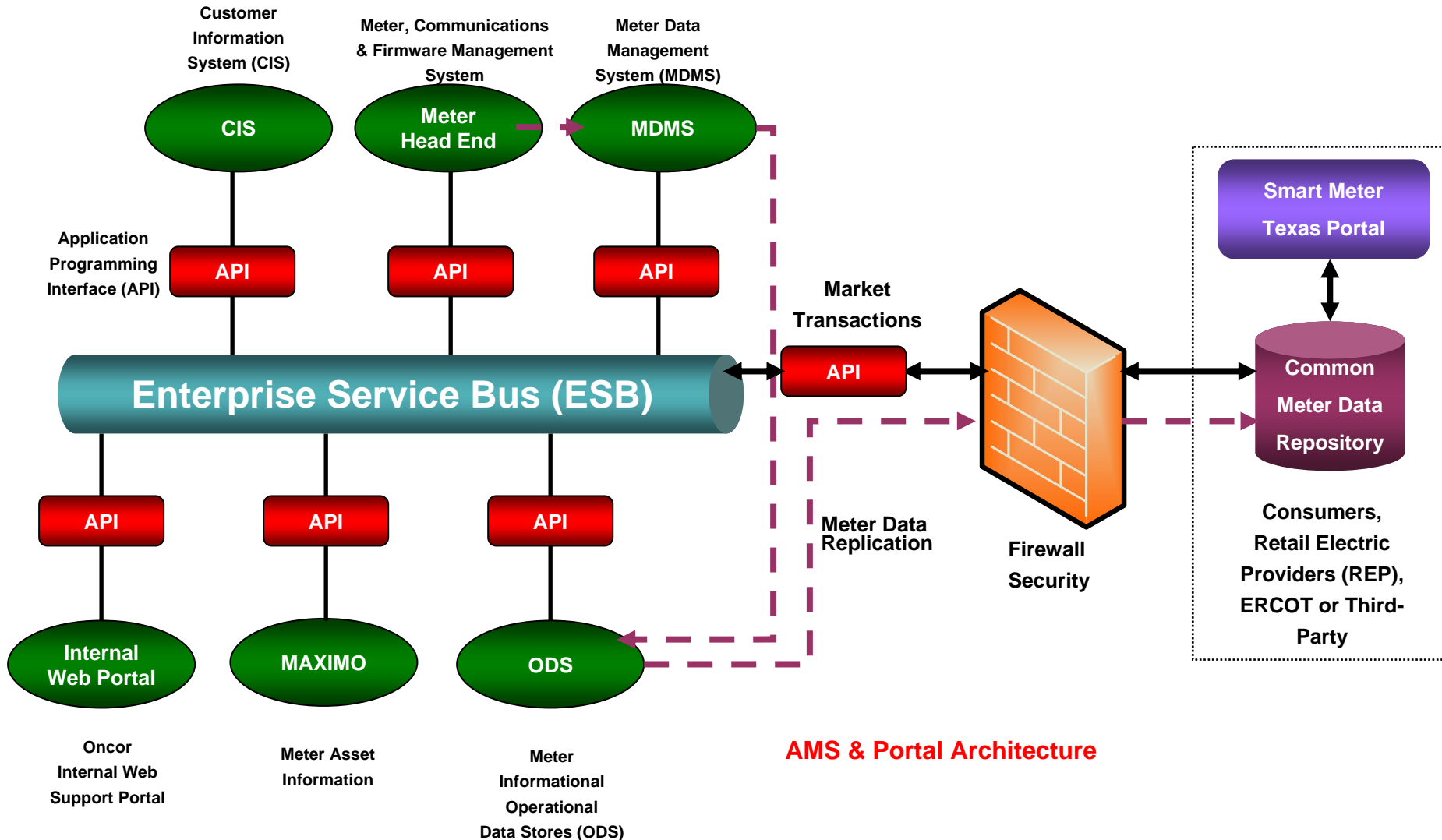
Simplified AMS Overview

**REPS
through the
Smart Meter
Texas Portal**

**End Use
Customer
Via
ZigBee**

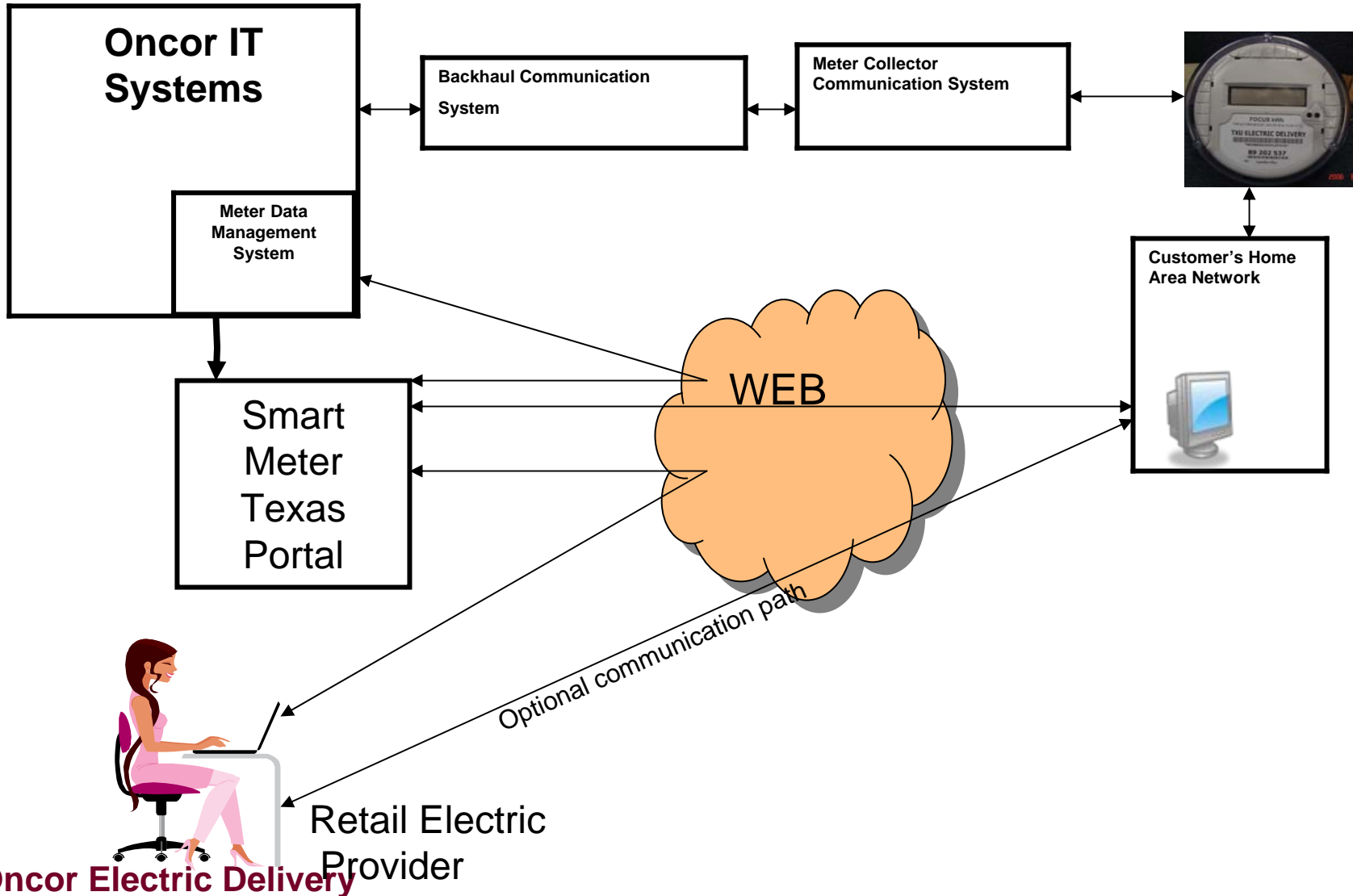
**Oncor's responsible for
"making the middle
happen"**





AMS & Portal Architecture

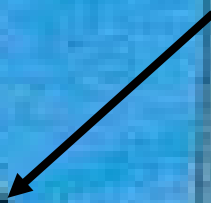
AMS Architecture



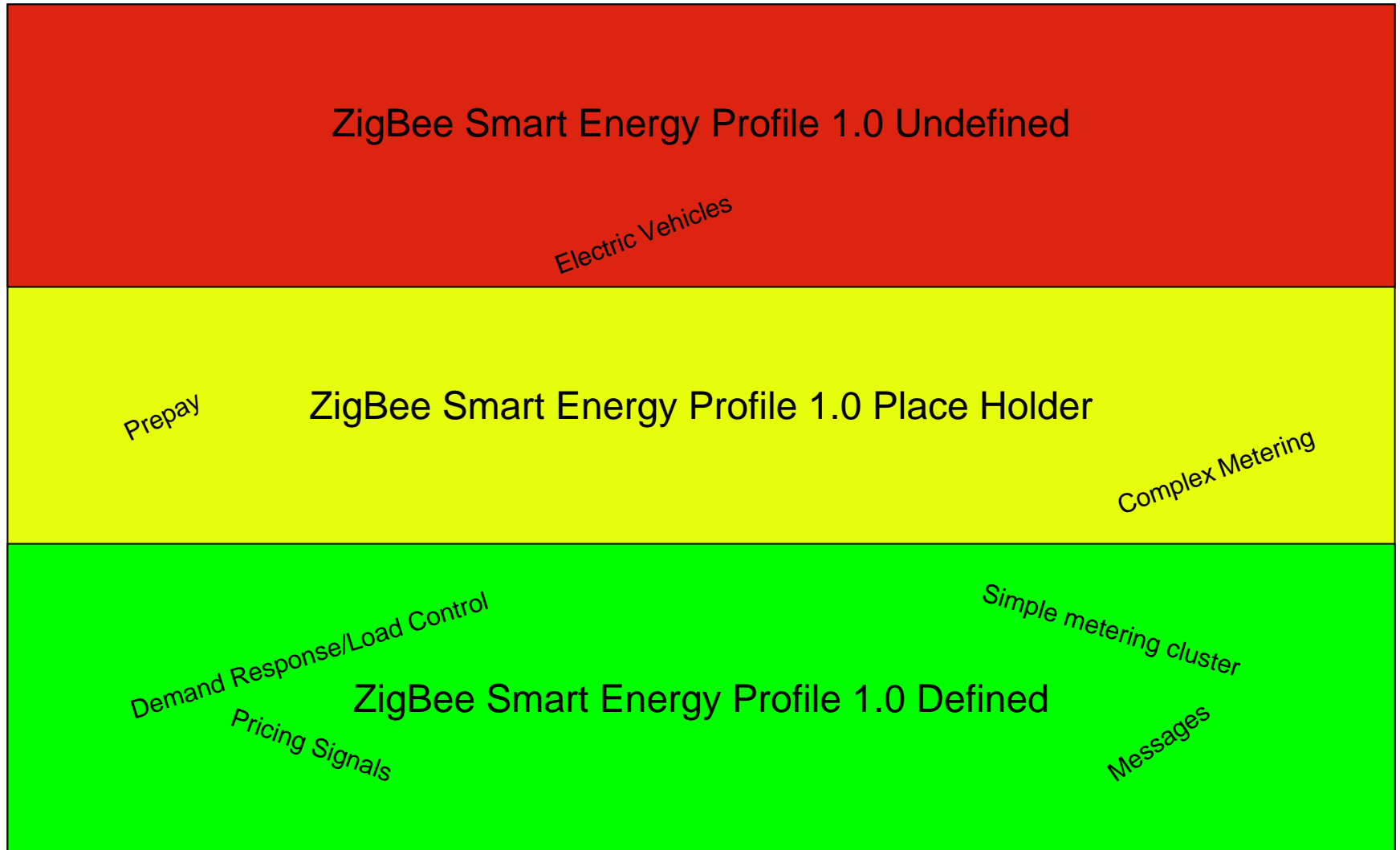
Simplified AMS Overview



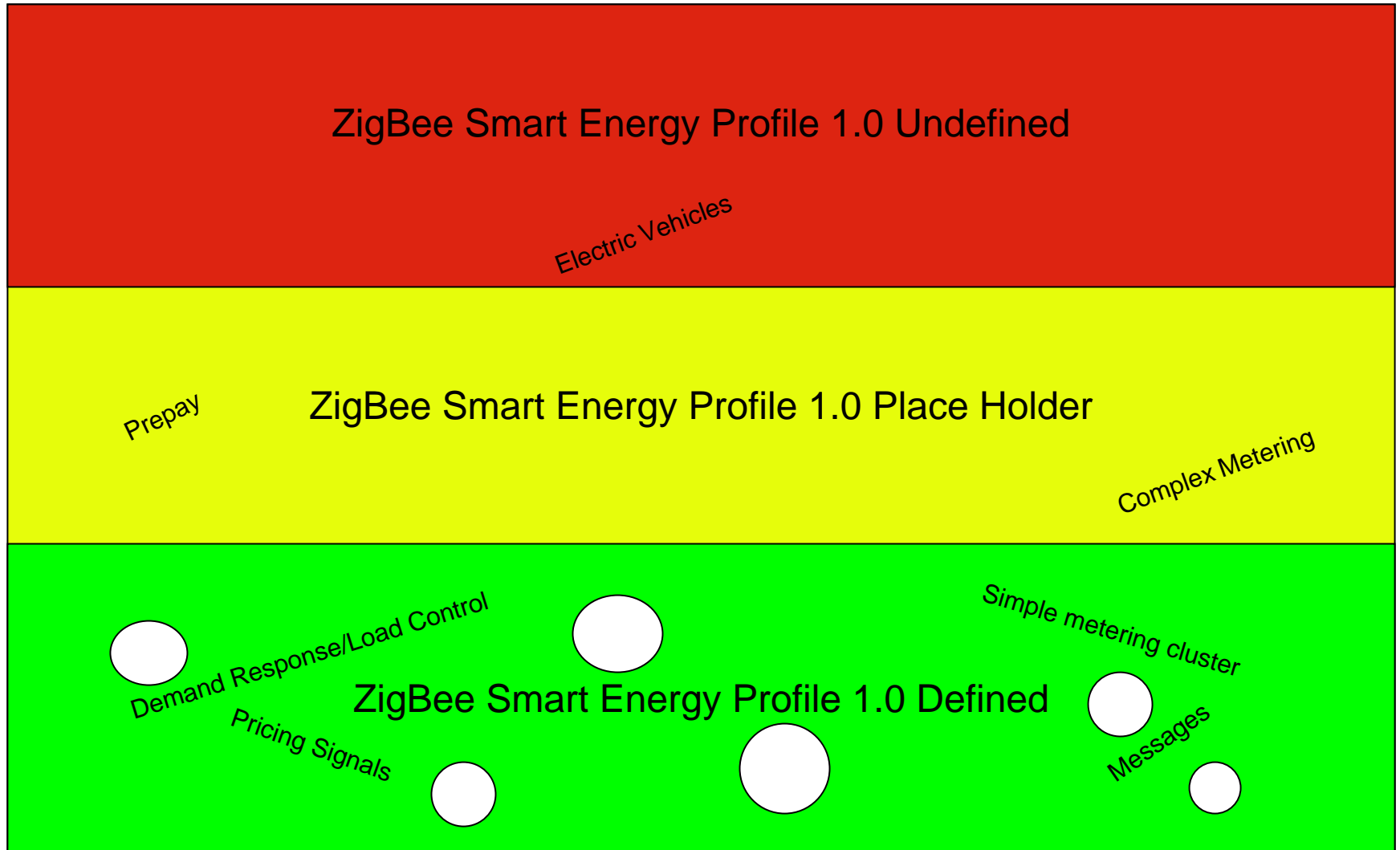
**End Use
Customer
Home Area
Network via
ZigBee**



HAN Functionality Compared to Market Desires



Unfortunately Gap Exists in the Defined Areas





The correct meter must talk to the unique in home device

w/o talking to the wrong device



Keys to Connection between meter and in-home devices

- **Connection must be secure and one-to-one**
- **Connection must be complete**
- **Connection uses ZigBee Smart Energy Profile (SEP) 1.0**
- **In home devices must be ZigBee SEP 1.0 to interoperate with the Oncor meter**
- **Strongly recommended that the device manufacturer take advantage of Landis and Gyr's testing process to ensure satisfactory customer experience**

Steps to an optimum customer experience



- Device must be production ready ZigBee SEP 1.0 certified



- Landis and Gyr will test it for functional interoperability



- Oncor will validate interoperability of the device in Oncor's test lab

Simplified AMS Overview

**REPS
through the
Smart Meter
Texas Portal**





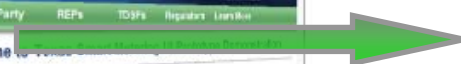
Meter Interval Usage

HAN Messages

Meter Attributes

Customer Premise

Meter Provisioning



Demand Response

Settlement

Pricing

Text Messaging

Presentment

Texas Smart Metering - Daily Usage - Microsoft Internet Explorer

Address: Texas AMS\Prototype TCWP Demo 15 July 2009\meters\report_daily_usage_15min.html

SMART METER TEXAS Welcome, iam A. User
[Log Out](#)
[Español](#)

Home My Account Usage Notices Help

My Smart Meter - Usage Reports

Description: Home Address: 123 Main St. Apt. 7 Dallas, TX 75201 ESI ID: 04443684724670782 Meter Number: 550940404581

Report Option
 Report Type: **Daily Usage (15 min intervals)**
 Start Date: 05/01/2009 End Date: 05/01/2009 [Update Report](#)

Daily Use (each 15 minutes) - Kilowatt Hours for the Day

Use of Electricity Each 15 Minutes

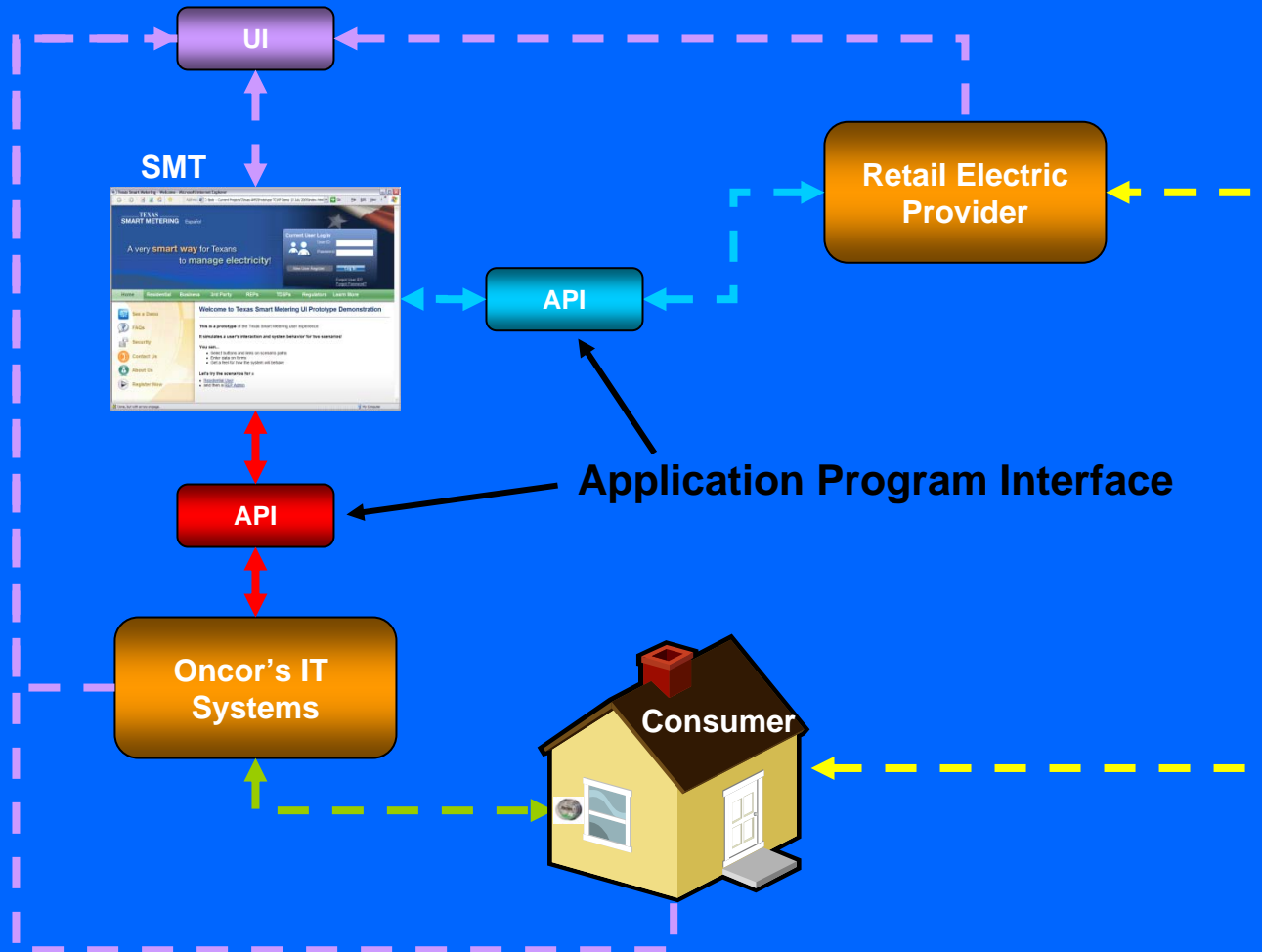
Print Export < Previous Day Next Day >

Start Time	End Time	Metered KWH
12:00pm	12:15am	XXX.XXXX
12:15am	12:30am	XXX.XXXX
12:30am	12:45am	XXX.XXXX
12:45am	1:00am	XXX.XXXX
1:00am	1:15am	XXX.XXXX
1:15am	1:30am	XXX.XXXX
1:30am	1:45am	XXX.XXXX
1:45am	2:00am	XXX.XXXX
2:00am	2:15am	XXX.XXXX

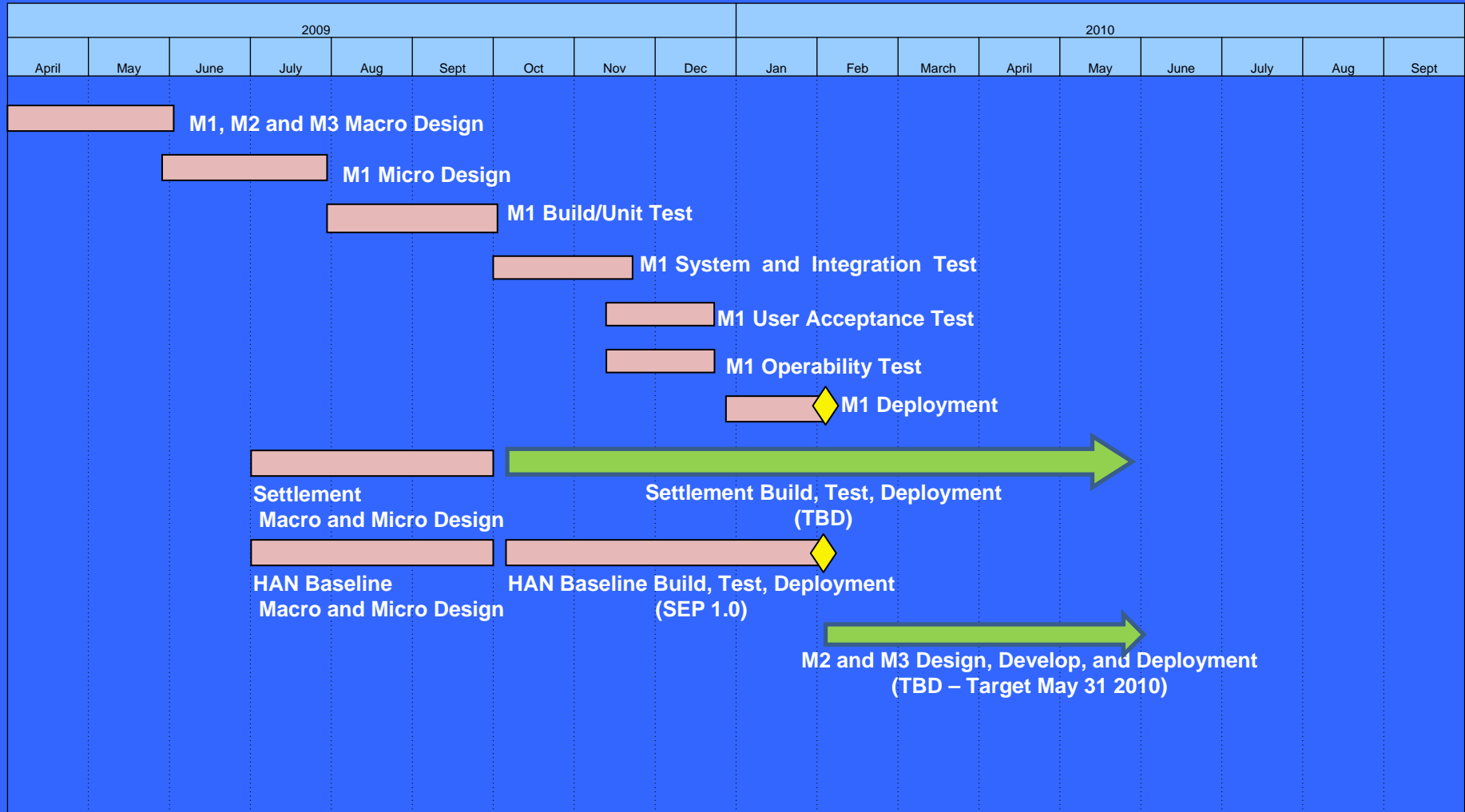
Error on page. My Computer

HAN Device Management – SMT – Baseline 1/31/2010

User interface



Release Schedule



Additional AMS challenges remaining include:



- **Providing future home-area-network (HAN) requirements**
- **Developing a migration plan from ZigBee Smart Energy Profile 1.0 to 2.0**
- **Continuing to enhancing the security of the entire system**
- **Delivering on market's expectations around functionality and performance**
- **Managing bandwidth/system usage**
- **Ensuring standards/legislation helps and not hurts**



Oncor is Committed to the Success of AMS and Needs to Maintain:

- **Good Plans**
- **Good Industry Participation**
- **Good Communications**
- **Good Market and Industry Partnering**

Questions ?