



SMART METERING TECHNOLOGY OVERVIEW

Florida Public Service Commission Workshop
September 20, 2012



ITRON BACKGROUND AND PERSPECTIVE

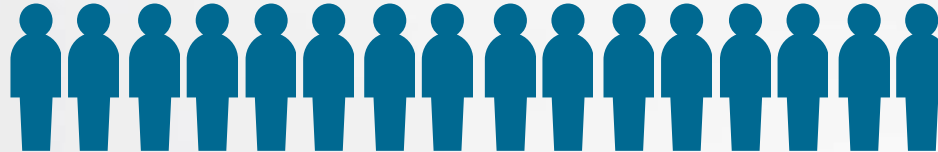
105m

Smart meters & endpoints shipped



Thousands of

Utility customers in 130 countries



80%

Of Electricity delivered In U.S. Touches Itron Systems



35 yrs

Itron Utility Metering Solutions

1977

Itron was Founded

2004

Itron Acquires Schlumberger Electricity Metering (100+ years of exp.)

2012

Global Leader in Advanced Metering Technology

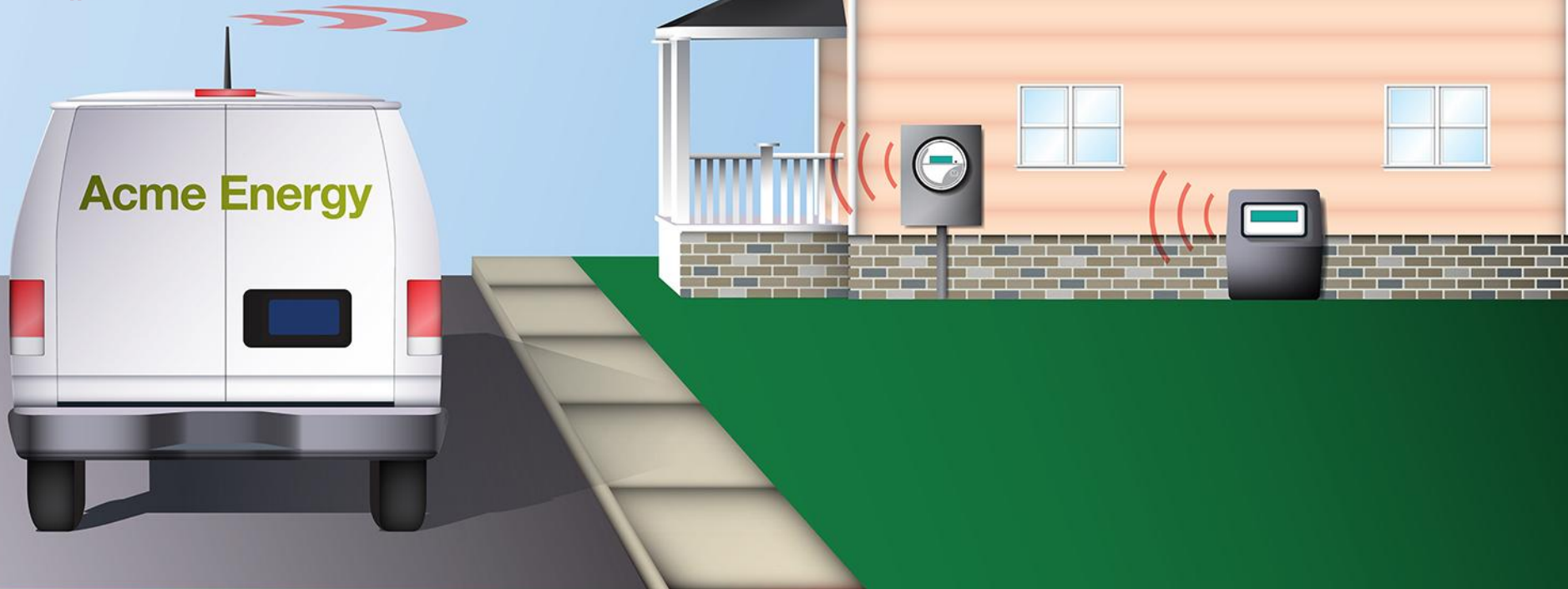
TECHNOLOGY REVIEW: AMR, AMI AND SMART GRID

AUTOMATIC METER READING (AMR)

One-way RF Communication

Key Benefits

- » Customer privacy
- » Customer service
- » Employee safety
- » Accurate billing
- » Efficient operations
- » Fewer utility vehicles on road

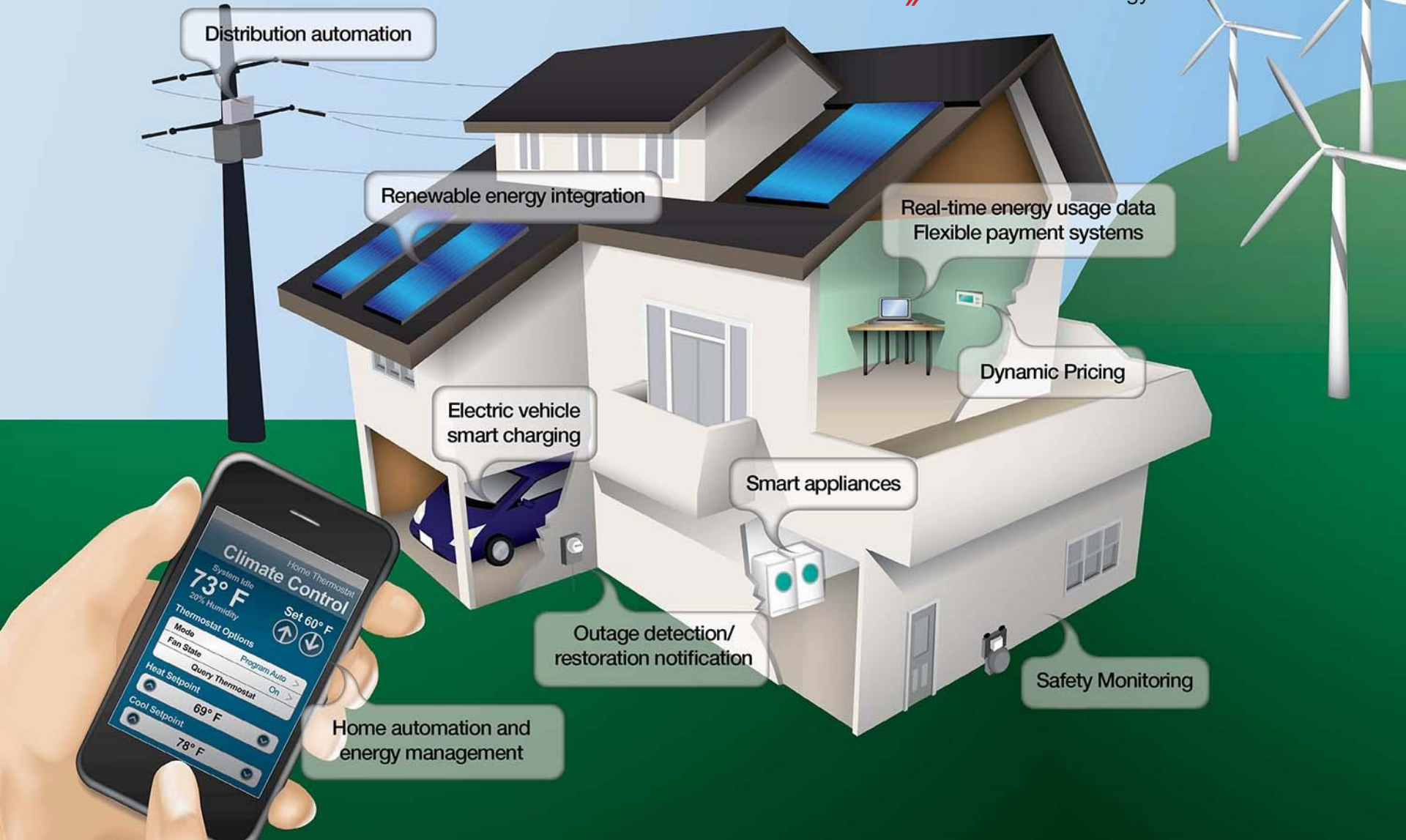


AMI AND SMART GRID

Two-way Communication

Key Benefits

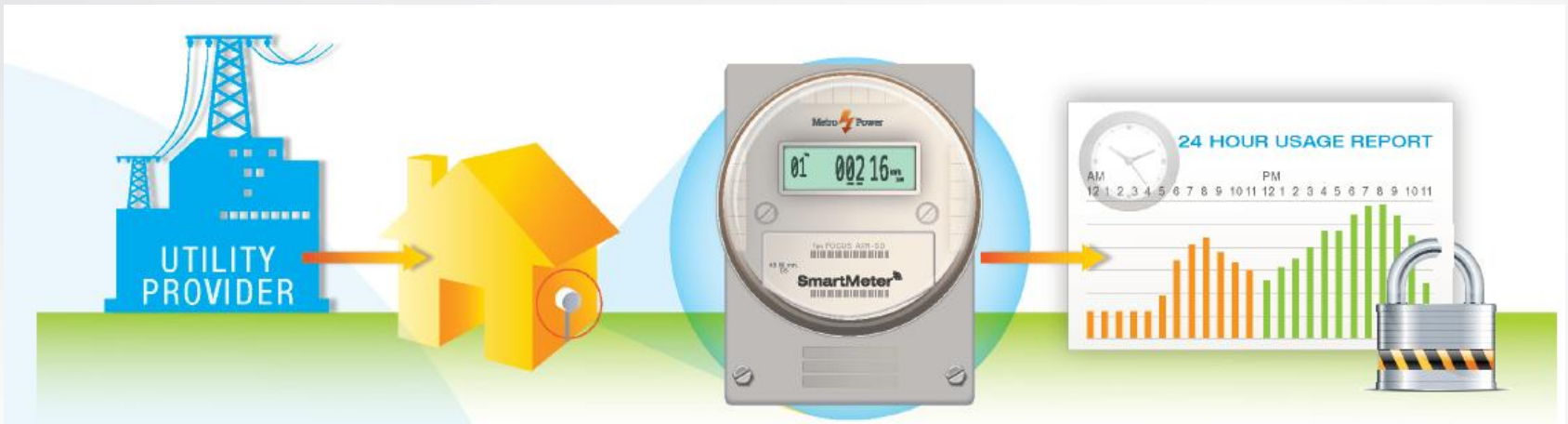
- » Consumer Empowerment
- » Grid Awareness
- » Renewable Energy



RF AND DATA PRIVACY CONCERNS

AMR/AMI RADIO TRANSMISSIONS ARE SHORT

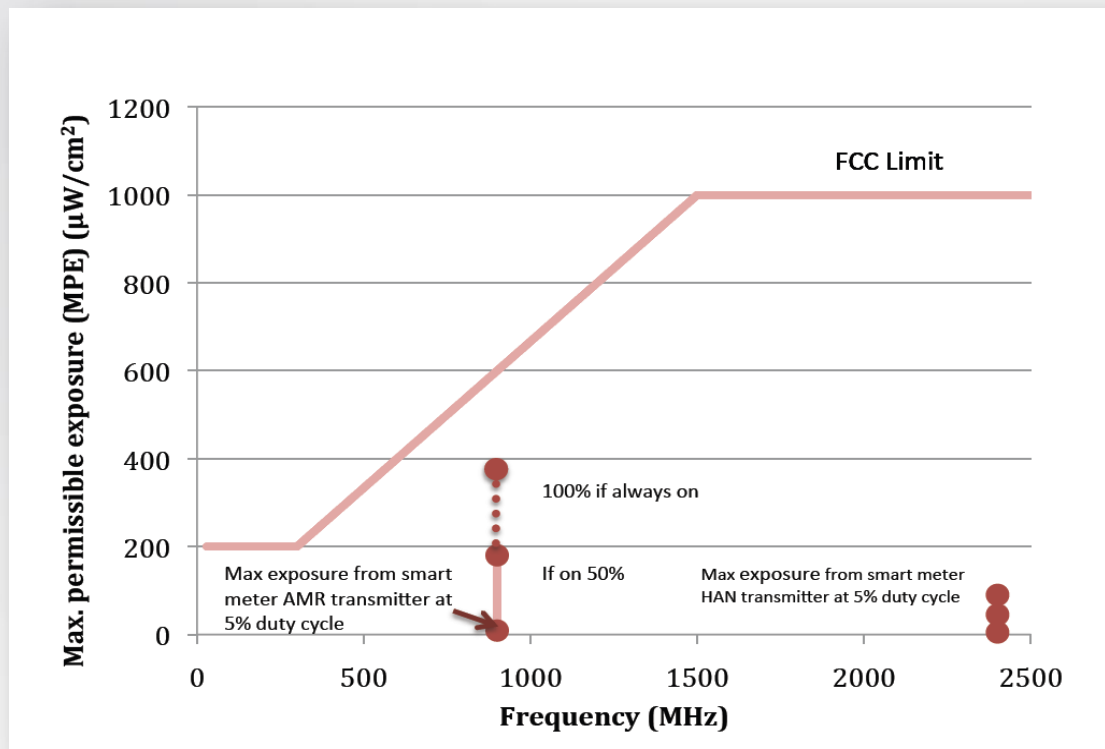
- » Smart Meters radios transmit data in small time slots that last less than two tenths of a second
- » The total amount of transmit time in a day adds up to less than one minute (less than one tenth of one percent duty cycle)



Source: Smart Grid Consumer Collaborate

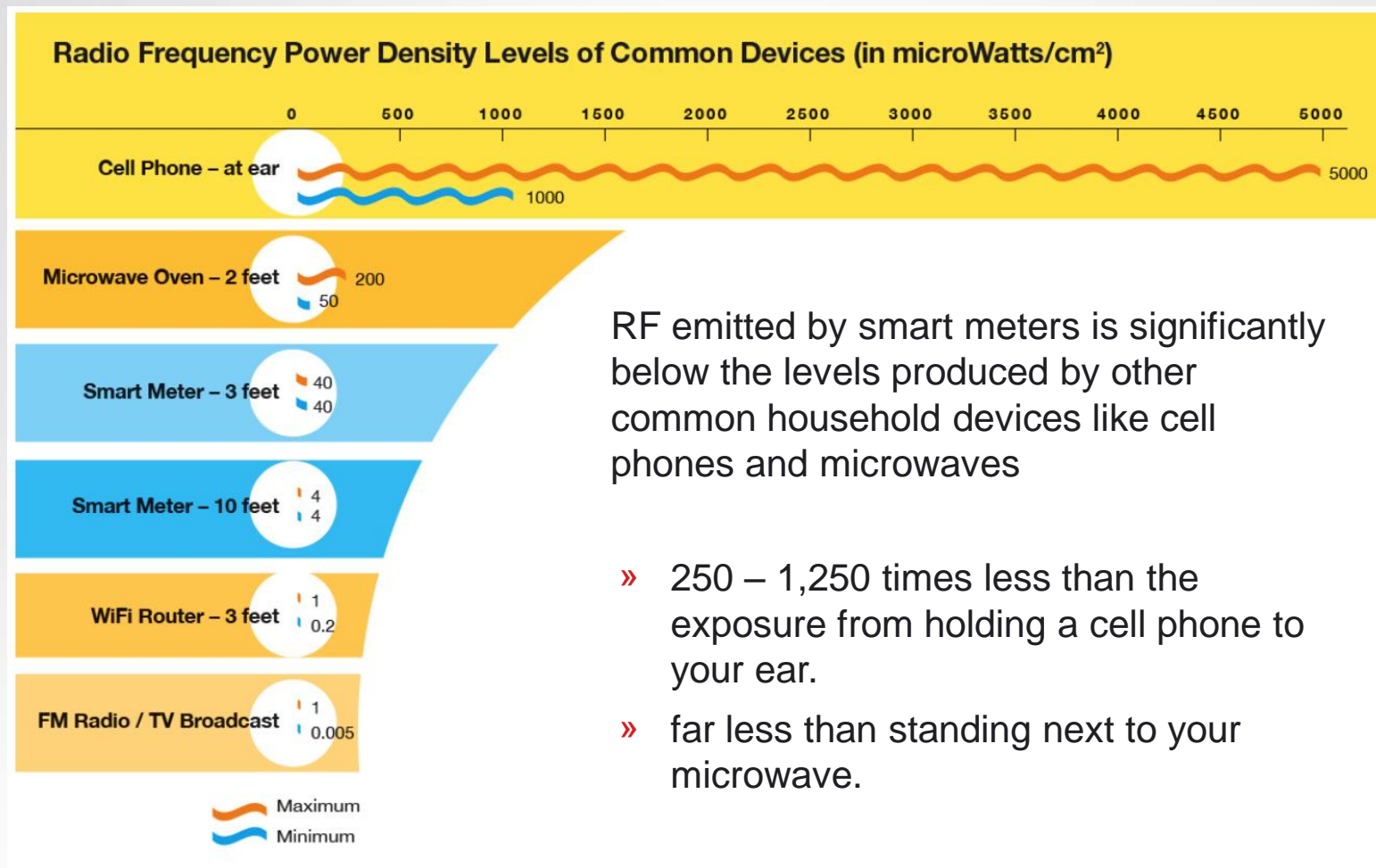
RF EMISSIONS FROM SMART METERS ARE FAR BELOW THE FCC APPROVED LIMIT

- » RF exposure is 70 times less than FCC limit even standing in front of a smart meter.



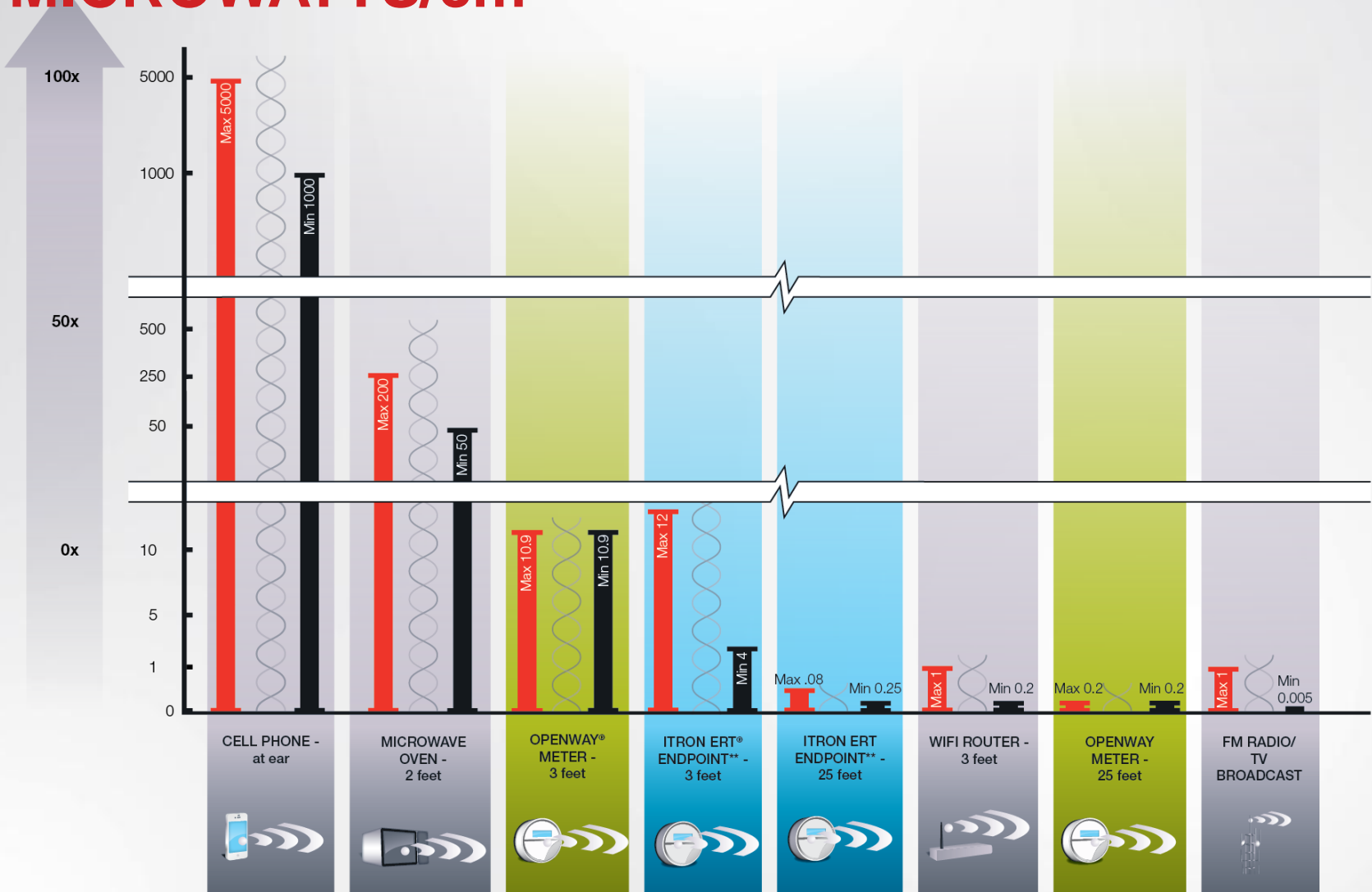
Source: Electric Power Research Institute (EPRI) Field Measurement Study "Radio Frequency Exposure Levels for Smart Meters: A Case Study of One Model, February 2011.

SMART METER RF EMISSIONS VS. OTHER COMMON DEVICES



Source: Electric Power Research Institute (EPRI) Field Measurement Study "Radio Frequency Exposure Levels for Smart Meters: A Case Study of One Model, February 2011.

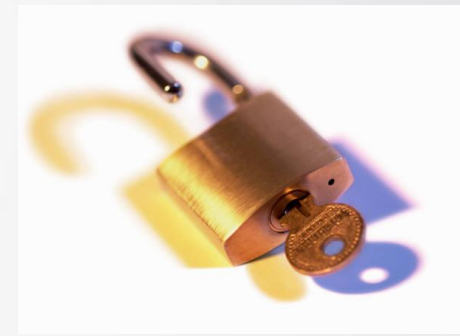
COMPARISON OF ITRON RF LEVELS IN MICROWATTS/cm²



* Source: CCST and Itron calculations

** Itron 100 Series endpoints communication module when in mobile (min) or fixed network (max) mode

SECURITY AND DATA PRIVACY



- » AMR: same data one would see on meter itself
- » AMI: System provides in-depth security: encryption of data, authentication of messages, key management; can extend to protect meter's optical port
- » AMI: No “personally identifiable” info transits the network
 - Consumption data (measured more frequently)
 - Event data (e.g. outage alert, meter tamper, voltage alarm)
 - Meter number
- » AMI “threat profile” extremely low relative to other consumer activities (e.g. on-line banking, e-commerce, social media)
- » AMI meets all applicable NIST and NERC CIP requirements
- » AMI meters do not measure usage by individual devices in home
- » Data privacy for consumers is about policy more than technology

WHY SMART METERS?

Smart Metering Technology

Consumer Empowerment

Access to real-time usage data and costs

Platform for home energy management/demand response

New services and payment options

Consumers can become generators/suppliers

Grid Awareness

Outage and restoration notification

Voltage/power quality monitoring

Meter tamper and energy theft detection

Distribution automation platform

Condition-based maintenance/Capex optimization

Clean Energy Integration

Net metering/submetering for customer-owned PV

Voltage data to support grid stabilization

Integrated EV smart charging

Demand response platform to mitigate intermittency



A more efficient, reliable and flexible grid to control costs, support economic growth, and reduce our environmental footprint

THANK YOU



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