



Advanced Metering Program

Utility Select Committee
Sept. 15, 2014



INTRODUCTION



Agenda

- About Advanced Meters
- Technology
- Privacy
- Meter Safety
- Savings
- Opt-Out Policy
- Workforce Impacts
- Health

WHAT ARE ADVANCED METERS?

Provides two-way communication between the meter and the utility

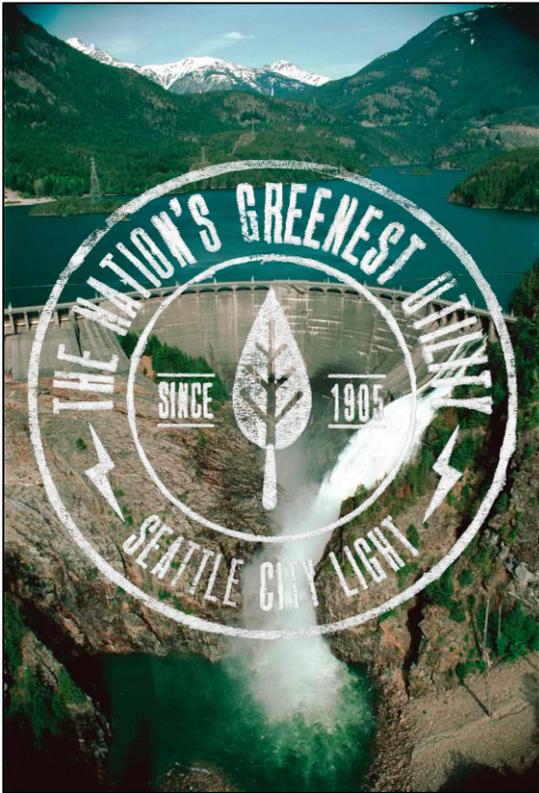


Advanced Meters

- Collect customer kilowatt-hour usage information
- Transmit consumption data through wireless and automated communication

WHY ADVANCED METERS?

Advanced meters offer many benefits to both the customer and the utility

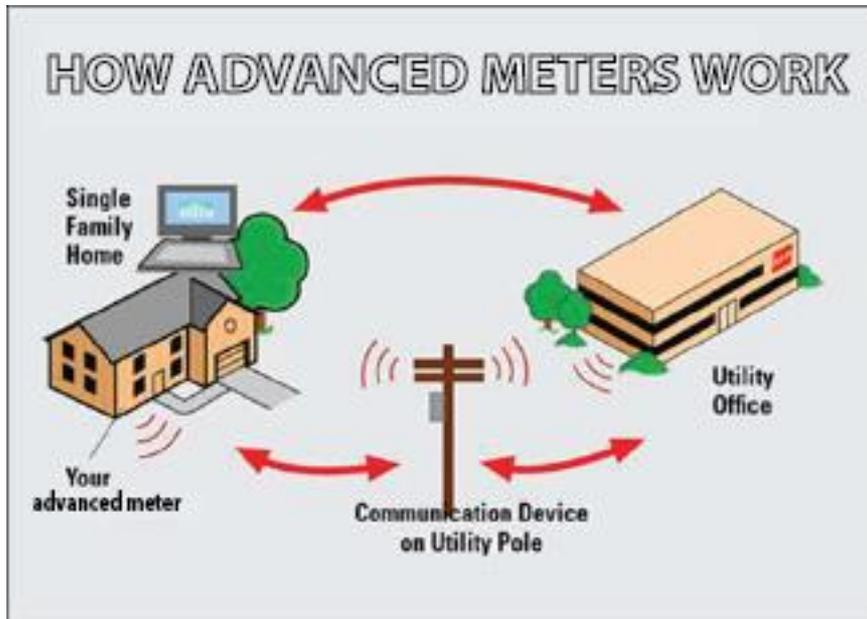


Benefits

- Increase Customer Service
- Improved Safety
- Environmental Impact & Conservation
- Improved Load Forecasting
- Operational Efficiencies

HOW DO ADVANCED METERS WORK?

Sends energy consumption data through automated wireless communication

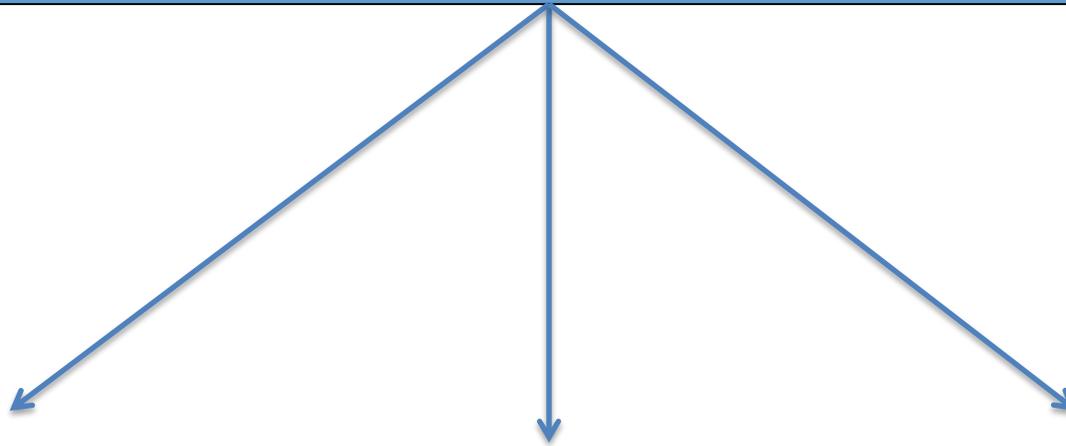


Advanced Meters

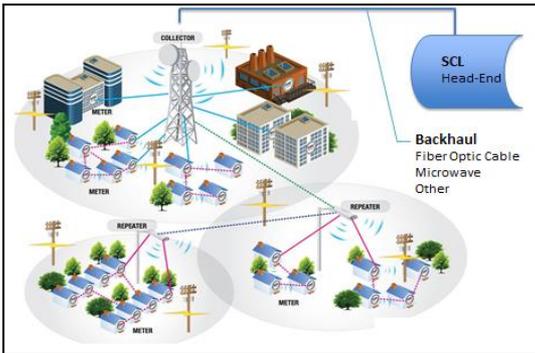
- Continuously record the amount of electricity consumed
- Programmed to transmit recorded data as often as needed
 - Industry Std. – Every 4 hours
- Sends information via a secure wireless communication system using radio frequency (RF), much like cellphones

TECHNOLOGY

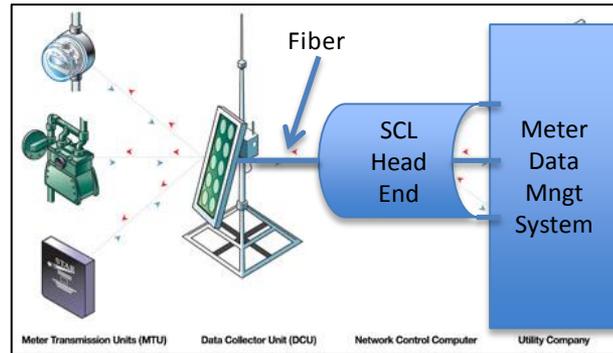
Seattle City Light is considering 3 secure wireless communication networks



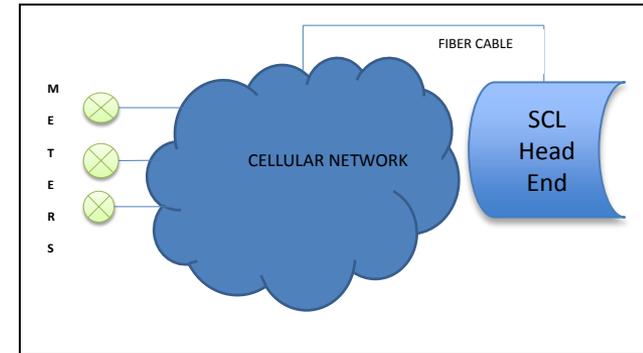
AMI MESH Network



STAR Network AMI System

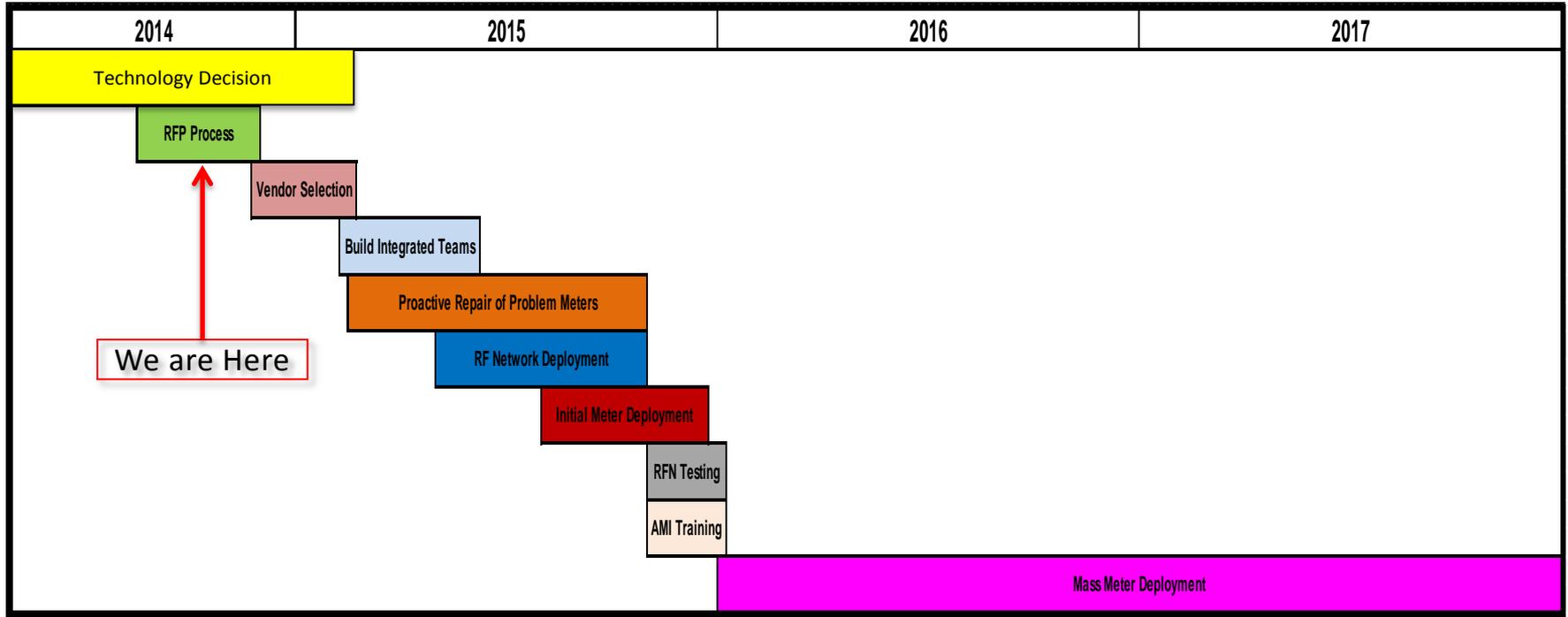


4G/LTE



TECHNOLOGY (CONTINUED)

Project Timeline



PRIVACY & SECURITY



Data Privacy

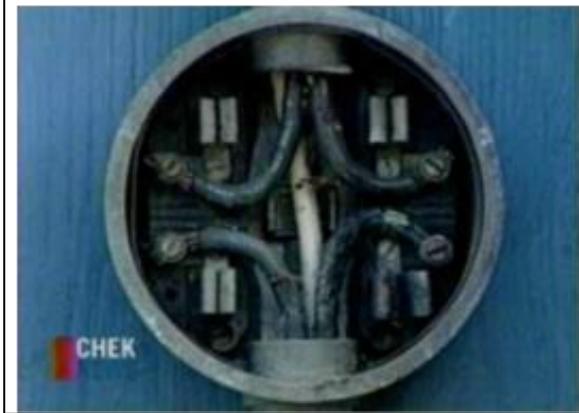
- City Light will not release personal information as defined in RCW 42.56.335

Security

- Data is encrypted and transmitted to the utility with multiple layers of security throughout the system

METER SAFETY

At Seattle City Light, everything starts with safety



Hot Meter Bases

- Hot meter bases are not a new concern and can occur in both analog and advanced meters
- There are no reports linking fires with meters directly

Safety Features

- City Light's advanced meters will include safety features such as temperature sensors and disconnect switches

SAVINGS

Advanced meters will enable customers to save on energy costs



Cost-Saving Measures

- Energy consumption data via Customer Portal will enable customers to make informed conservation decisions
- The long-term operating cost-savings expected by the utility will help to keep rates low

OPT-OUT POLICY

City Light is developing a customer opt-out policy



- There will be an Opt-Out Policy
- The policy will entail a fee, which will require City Council approval
- More information about this policy will be provided in 2015

WORKFORCE IMPACT

Meter readers will be trained on other jobs and positions

More Information

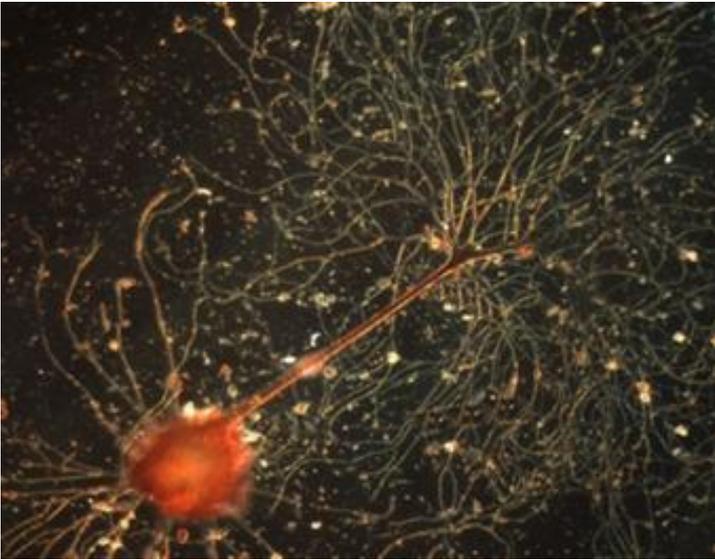


- City Light is committed to preserving its workforce and does not anticipate any layoffs as a result of advanced meter installation
- Meter readers will be trained in positions either within City Light or in other city departments

HEALTH – RADIO FREQUENCY ELECTROMAGNETIC FIELDS (RF-EMF)

Seattle City Light stays current on the science

Asher R. Sheppard, Ph.D.



- Internationally Recognized Scientist
- Expert - Biological and Health Effects of Electric and Magnetic Fields & Electromagnetic Radiation
- Author – More than 50 scientific publications & reports
- Past President – Bioelectromagnetic Society
- Scientific Advisor – Including Standards Committees and Public Agencies

HEALTH – RADIO FREQUENCY ELECTROMAGNETIC FIELDS (RF-EMF)

Seattle City Light stays current on the science

- Health hazards from RF exposure take place if energy absorbed increases body or tissue to a hazardous temperature, usually an increase of several degrees Celsius (C).
- Consensus among scientists is that a temperature increase of more than 1 degree C in living tissue is needed for potentially harmful effects

Advanced meter RF emissions do not cause temperature increases

RADIO FREQUENCY EXPOSURE STANDARDS & GUIDELINES

Seattle City Light stays current on the science

- **Who sets the standards?**
 - International standards and guidelines bodies: IEEE/ICES and ICNIRP
 - Federal telecommunications rules in the US: FCC
- **Why set the standards?**
 - To protect workers and the public from injury or disease from RF energy
- **What is the scientific basis?**
 - Underlying science conducted over 60 years
 - Animal behavior (sensitive, reliable) set benchmark SAR = 4 W/kg
 - Same SAR basis for IEEE standards, ICNIRP guidelines and FCC rules
 - Epidemiologic studies of human beings
 - Laboratory studies of animals, tissues, cells, biophysical theory

ADVANCED METERS “ALIKE” AND “UNALIKE”

Seattle City Light stays current on the science



- Compared to *cell phones*
 - **alike** in frequency and signal waveform (modulation); often off
 - **unlike** in RF-EMF; advanced meters are usually further away and RF-EMF strength is lower
 - **unlike:** advanced meters are more brief and infrequent



- Compared to *broadcasting & local communications*
 - **alike** in very low level of RF-EMF exposure; radio & TV broadcasting, and cell base stations, although strong sources, usually are far away
 - **unlike** in transmission time; advanced meters transmits less frequently

DO STUDIES OF CANCER IN MOBILE PHONE USERS INDICATE RISK?

Seattle City Light stays current on the science

- “Interphone” study of mobile phone users largest ever epidemiological case-control study. Data from people in 13 countries:
 - 2708 cancer (glioma) cases and 2972 matched controls
 - 2409 tumor (meningioma) cases and 2662 matched controls
- Interphone Study Group Finding (2010):
 - “Overall, no increase in risk of glioma or meningioma was observed. There were suggestions of increased risk of glioma at highest exposure levels, but biases and errors limit strength of the conclusions that can be drawn from these analyses and prevent a causal interpretation.”

Seattle City Light stays current on the science

- **Int. Agency for Research on Cancer (IARC) majority (2013)**
 - RF-EMF placed in Group 2B, “possibly carcinogenic in humans” based on “limited evidence,” particularly Interphone study, some Swedish epidemiology
 - Aloe extract, coffee, toothpaste whitener, shift work also Group 2B
 - Group 1 known to be “carcinogenic to humans.” Also incl. alcohol, 2nd hand tobacco smoke, sunlight, certain viruses, chemicals, ionizing radiation
- **ICNIRP consensus (2009)**
 - Non-thermal mechanisms of RF effects have “very low” plausibility
 - Laboratory cancer studies consistent overall, indicting unlikely genotoxicity and carcinogenicity at low levels of exposure
 - Epidemiology studies with adequate exposure assessment did not reveal any health effects

Seattle City Light stays current on the science

- **IEEE-ICES (2005) consensus**
 - All adverse health effects are thermal (excepting electro-stimulation)
 - Also concluded by 17 other expert groups
- **U.S. Food & Drug Administration (FDA) on cell phone RF-EMF (2010; 2013)**
 - “...no increased health risk”
 - Notably, no overall brain cancer increase as cell phone use grew 1987 – 2005

HEALTH GROUPS ON RADIO FREQUENCY ELECTROMAGNETIC FIELDS (RF-EMF)

Seattle City Light stays current on the science

- **U.S. Government health agencies**
 - **National Cancer Institute (NCI) (2014)**, “[no] consistent link between cell phone use and cancers of the brain, nerves, or other tissues of the head or neck. More research is needed...”
 - **National Institute of Environmental Health Sciences (NIEHS) (2014)** “[...]no conclusive] link [of] cell phones with any adverse health problems, but more research is needed.”
 - **Centers for Disease Control (CDC) (2014)**, There is no scientific evidence that provides a definite answer...” “At this time we do not have the science to link health problems to cell phone use.” “More research is needed.”
- **American Cancer Society (2012)**
 - “no clear evidence at this time that RF waves from cell phones cause any harmful health effects”



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