

# Wise Up to SmartMeters



## An EON Briefing

By

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The Ecological Options Network

[YouTube.com/EON3](https://www.youtube.com/EON3)

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# Join the growing movement to stop PG&E's smart meter rollout!



**Smart Meter Free Zone demonstration at the  
California Public Utilities Commission (CPUC)**

July 20, 2010

# **Pioneers in the growing movement to stop PG&E's smart meter rollout:**

- **Sebastopol and Camp Meeker, CA call for moratorium on the installation of smart meters 2/17/2010**
- **Cotati and Bolinas, CA call for moratorium on the installation of smart meters 3/30/2010 & 6/2/2010**
- **EMF Safety Network files petition with CPUC for evidentiary hearings on RF radiation from smart meters**
- **Oakland, CA neighborhood declares smart Meter Free Zone**
- **Piedmont, CA votes for moratorium**
- **San Francisco City and County call for Moratorium on Smart Meters, 6/17/2010**

## **The Growing Movement! - continued**

- **Victoria, Australia, enacts a moratorium on meters**
  - **Three Texas lawmakers call for moratorium on meters**
  - **Maryland state Public Service Commission says Smart Meters, may not be charged to customers until installation complete.**
  - **AARP testifies vs. smart meters in Maryland & Washington, DC**
  - **Hawaii's Public Utilities Commission denies smart meter program, 7/26/2010**
  - **Boulder, Colorado smart meter pilot project fails**
  - **Texas Class Action Lawsuit filed against smart meter installation**
  - **Bakersfield, CA Class Action lawsuit filed against smart meters**
- 
- **Santa Cruz County joins with San Francisco City & County 6/24/2010.**
  - **Berkeley joins San Francisco City and County 7/6/2010.**
  - **Fairfax Town Council members unanimously say NO to installation of Smart Meters 7/7/2010**

## **The Growing Movement! -continued**

- **Marin Association of Realtors calls for moratorium 7/14/2010**
- **Santa Cruz city joins SC County & San Francisco moratorium 7/13/2010**
- **Scotts Valley calls for moratorium and supports EMF Safety Network petition, 7/21/2010**
- **Capitola calls for moratorium and supports EMF Safety Network petition, 7/22/2010**
- **Marin County calls for moratorium and health hearing 7/20/2010**
- **Fairfax passes ordinance protecting against smart meters for one year, 8/3/2010**
- **Watsonville calls for moratorium, supports EMF Safety Network petition and explores ordinance like Fairfax, 8/10/2010**

# **PG&E's Poorly Thought-out Plan**

- PG&E's smart meter program is one of the "largest technological rollouts in history."
- No Environmental Impact Review was done
- Would have adverse effects on our health, safety and financial well being.
- Little public consultation
- No opt-out option

# The Smart Grid

- National/international rollout plans - a gold rush mentality for all industries involved.
- The federal government has given \$ 3.4 billion dollars in stimulus funds for building out the “Smart Grid” to modernize our electrical grid.
- Smart meters are claimed to be part of the foundation for the smart grid.
- Using *wireless* smart meters was not specified in the legislation - only to upgrade the grid.
- PG&E is taking a national lead in pushing installation of wireless smart meters.

# PG&E

- Founded in 1905 - **Robber Barron Era**
- Worked with corporate coalition in 1920's to fight public ownership of banks, insurance, railroads, telephone companies, the media, and other energy corporations. (source: Women's Energy Matters)
- Erin Brockovich - sued PG&E for hexavalent chlorine contamination
- PG&E Co. - CA subsidiary of...
- PG&E Corp. - holding company - suspected of **hiding \$4 B so it could file for bankruptcy and bill California**
- **Empire of over 200** subsidiaries in 12 levels, over 16 states, Cayman Islands, Malaysia, Canada and Australia
- Views competition as 'destructive'
- **Repeatedly tried to kill public power - Prop 16 latest try**
- CEO Peter Darbee - **\$10.6 million a year**
- **Diablo Canyon - multiple fiascos - now rushing re-licensing**
- Leading spender on lobbying for nuclear power in Wash.DC
- Leading pusher of wireless SmartMeters, SmartGrid and centralized power generation



# Smart Meter



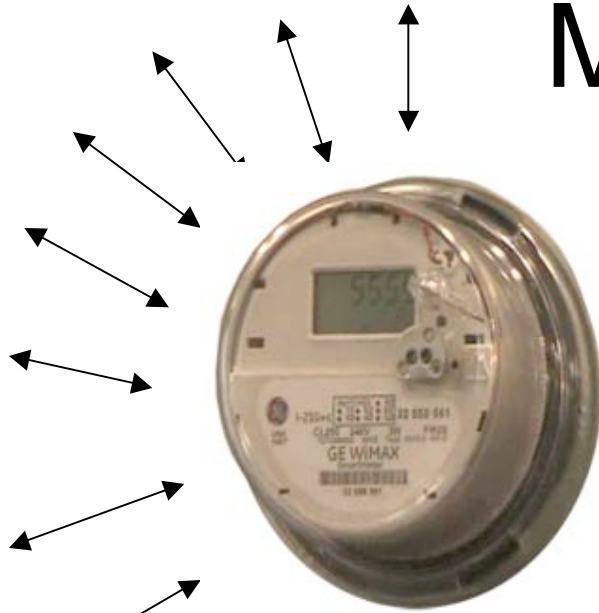
76,000,000 installed worldwide

10,000,000 installed nationwide

6,363,990 PG&E installed gas & electric (7-29-2010)

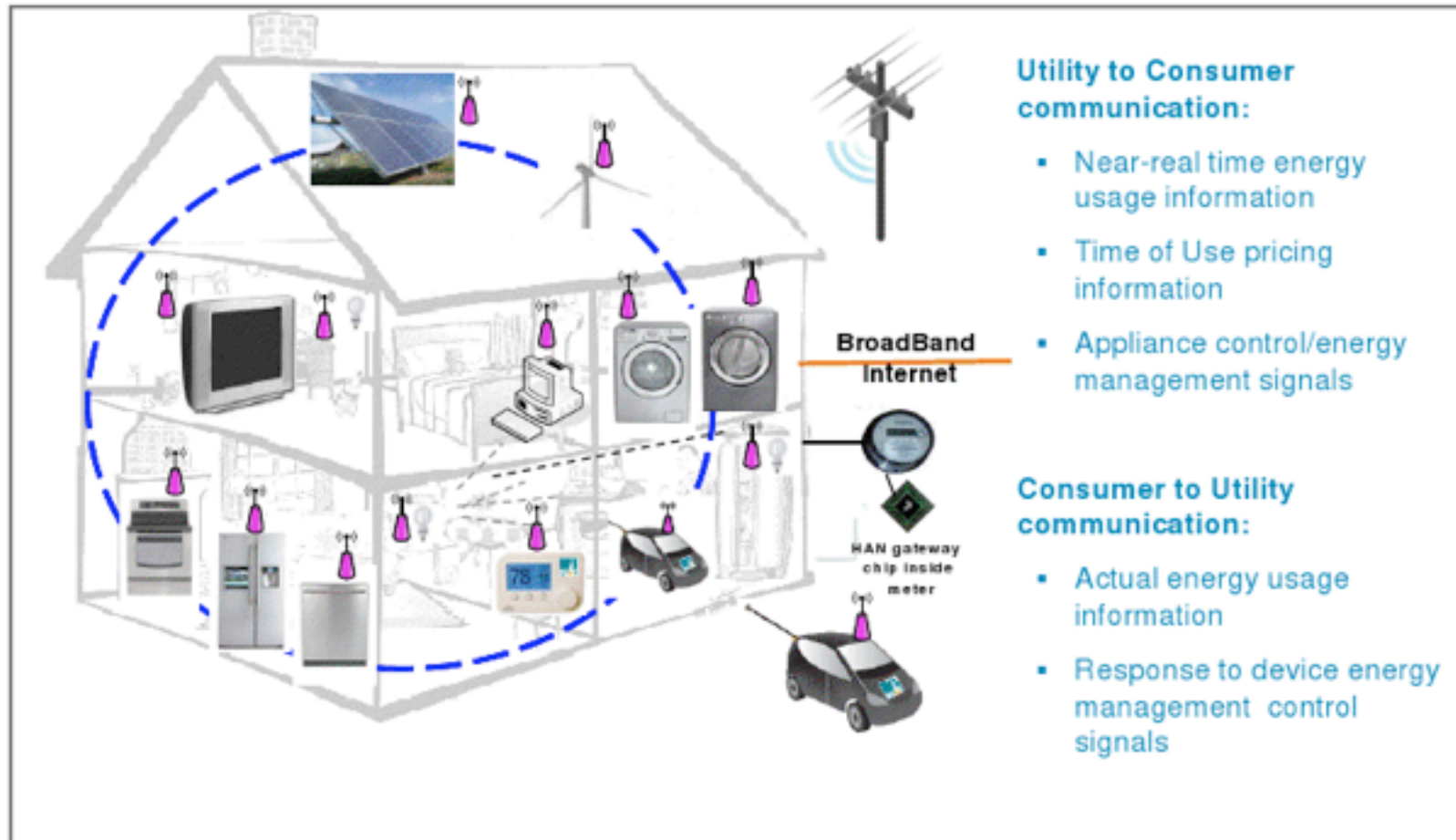
15,000 installed daily

# Mesh Network



- Every electric meter - 2 antennas
- Every meter a repeater for neighboring meters
- Data gathered every 15 min. for businesses and every hour for homes
- Access points on homes - /receive/transmit for 500-1,000 meters
- Relay antennas on poles

## The Home Area Network (HAN)



# Radiofrequency (RF) emitting 'Smart' Meters

- The entire concept of wireless Smart Meters **requires the unlimited use of RF radiation** throughout our homes, schools, health clinics and businesses as well as in our neighborhoods and throughout all our outside living, working and common spaces.
- **RF health and environmental effects are cumulative -**  
We're already surrounded by ever increasing amounts of RF radiation:  
**Cell phones and cell towers**  
**I-Phones & I-Pads; 4G gadgets** use much more bandwidth & antennas  
**Wireless routers**  
**Wi-Fi**  
**Wi-Max**  
**Baby monitors**  
**Pagers**  
**Security Systems**  
**Garage door openers**  
**Other wireless gadgets, etc., etc.**

# How it works



# Multiplying & Complexification of RF Radiation from mesh-network

- **RF radiation** from the smart meter mesh-network in neighborhoods and cities **complexifies and multiplies** the radiation exponentially and unpredictably
- **Banks of dozens of meters** on apartments further multiply effects
- **RF radiation pulses** are strong enough to go through walls, and travel long distances through countryside
- **Reflective surfaces re-radiate RF emissions**
- **Hot spots occur**

# Key Issues of Wireless Smart Meters

- **Serious Health & Environmental Effects** - Radiofrequency radiation (RF) 24/7 both inside and outside of homes and businesses
- **Over-exposure to EMF and RF radiation can cause hypersensitivity.** Like chemical sensitivity, people can no longer tolerate EMF and RF radiation; 3 - 10% of population and increasing
- **May actually increase energy usage** - massive build-out, phantom electricity use, processing the tsunami of personal data
- **Skyrocketing utility bills** - hard on poor, fixed income, seniors
- **Privacy violated** - government and corps want your personal data
- **Security risk** - easily hacked/monitored by burglars, remote shut off
- **Safety hazard** - have caused fires and destruction of electronic equipment - interference with other devices, including medical
- **Waste of money and resources** - \$2.2 Billion plus 30% rate increase
- **Undemocratic process** - PG&E says no opt-out
- **Wiser methods exist to save energy, save money, reduce peak loads and maximize renewable energy sources**

# FCC Standards are inadequate

- PG&E claims smart meters are safe because they comply with FCC standards **based only on what heats tissue (thermal effects)**
- PG&E quotes the World Health Organization saying that **RF isn't a problem unless it heats tissue**, so smart meters are safe.
- Standards **only protect a 185 lb. 6 ft. male from being cooked like a hot dog in a microwave from a single short exposure.**
- **No standards exist for multiple, chronic, long-term, low-level radiofrequency radiation exposures - like what we have now.**
- **There are over 6,000 studies**, many dating back to the 1950's that show biological effects **thousands** of times below heating levels. **All biological life is affected: trees, bees, bacteria, etc.**



# EPA Official on FCC Standard

- “The FCC’s current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, nonthermal exposure situations.

.....Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.

**Norbert Hankin,**

Center for Science and Risk Assessment  
Radiation Protection Division

United States **E**nvironmental **P**rotection **A**gency

(source: letter to Janet Newton, Pres.The EMR Network, 7-16-2002)

# Example of W.H.O.'s Revolving Door

- Just months after leaving his post as the head of the EMF project at the World Health Organization (WHO), Mike Repacholi is now in business as an industry consultant.
- Repacholi has been criticized for citing, and at times misrepresenting, as-yet unreleased WHO reports for the benefit of his corporate clients. Some see this as a continuation of his activities at the WHO, where Repacholi was often accused of favoring the mobile phone and electric utility industries at the expense of public health.
- Others see Repacholi's consulting work as the closing of a circle. Industry provided financial support for the EMF project (see below) and **Repacholi is now using the materials he prepared at the WHO with industry money to support their policy positions.**
- **Industry Support for WHO EMF Project -**
  - GSM Assoc. - **\$165,000/yr.**
  - Mobile Manufacturers Forum - **\$150,000/yr. (includes \$50K/yr from Motorola) (more than 40% of the EMF project's 2005-2006 budget)**
  - **Plus more contributions from the wireless industry.** The FGF, the German wireless industry group, has been giving the project about €15,000 (**\$16,500**) (this is an incomplete list; electric companies also contribute)
  - **source:** *Belgium Mag. Imagine, "Mobile Telephony: We're All Guinea Pigs!," David Leloup quoted by Microwave News, November 13, 2006*

# Kids affected most

## Are there health risks?

Scientific studies have shown numerous biological effects from cellphone radiation such as damage to DNA and changes in brain electrical activity. Biological effects don't necessarily lead to health impacts. And there are no demonstrated links between cellphone use and health effects. But some scientists are concerned that subtle changes in our bodies triggered by long-term cellphone use could be precursors to serious problems such as headaches, cancers, benign tumours, early onset Alzheimer's and reduced fertility — potential health risks that could take decades to prove or disprove.

### Blood-brain barrier

**Observation:** Cellphone frequencies break down the so-called blood-brain barrier in rats that protects the brain from outside toxins.

**Potential health risk:** If applicable to humans, the biological effect could lead to headaches, adverse drug reactions, early onset Alzheimer's, difficulty learning, reduced memory.

### Ear problems

**Observation:** Swedish study tracked people who used a cellphone for more than a decade.

**Potential health risk:** Increased chance of developing a benign tumour of the acoustic nerve called an acoustic neuroma. It can lead to deafness, headaches and, if left untreated, can be fatal.

### Eye cancer

**Observation:** Cellphone radiation absorbed into the eyeballs of lab animals over a long time.

**Potential health risk:** Eye cancer.

### Other cancers

**Observation:** Damage to lab animal DNA from a variety of exposures to cellphone frequencies.

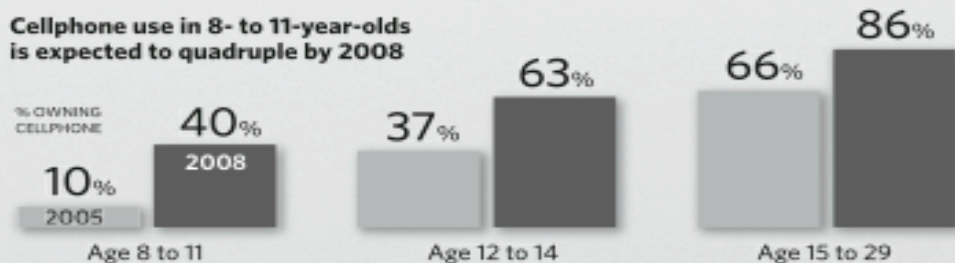
**Potential health risk:** Cancers of the brain, neck or salivary glands.

### Exercising caution

Ways to reduce a child's exposure to cellphone emissions:

- Try to limit use to essential calls.
- Keep calls short.
- Wear a headset certified by Industry Canada. If unavailable, hold phone a few centimetres away from the head.
- If there is no hands-free option, encourage children to wait for their call to connect before placing the phone close to the ear.
- Encourage use of text messaging
- Discourage use in enclosed metal spaces, such as vehicles or elevators, where devices may use more power to establish a connection.
- Discourage calls when signal strength is at one bar or less, which means the phone must work harder to establish a connection.
- Avoid using belt clips, holster and similar accessories made of metallic components.

Cellphone use in 8- to 11-year-olds is expected to quadruple by 2008



# Spun Science - (1)

- In the high-stakes world of radiofrequency research, where the \$3.6 trillion telecommunication industry's fortunes could rest on the latest findings, scientific interests often collide with corporate bottom lines. Some scientists say they have been pressured to produce the right answers.
- "There's so much money involved, that the only thing industry sees is the money," says Dr. Jerry Phillips, a well-known radiofrequency researcher in the U.S. with dozens of peer-reviewed papers published under his name.
- "They couldn't give a damn about basic science."

## Spun Science - (2)

- An analysis of **252 published studies** worldwide on cellular radio frequencies out of the University of Washington, obtained by the *Toronto Star*, shows a clear difference in results between independent research and studies directly funded by industry.
- According to the analysis, research is considered independent when funded by governments, government agencies or academic institutions.
- Among the peer-reviewed, published **studies with *no* direct industry\_funding, biological effects from cellphone frequencies were noted 81 per cent of the time**, according to researcher Dr. Henry Lai.
- **When corporate money *is* directly funding the science, effects are noted only 19 per cent of the time.**

# Serious Human Health Effects - (1)

- Studies have shown that even at low levels of RF radiation, there is evidence of damage to cell tissue and DNA, and it has been linked to brain tumors, cancer, suppressed immune function, depression, miscarriage, Alzheimer's disease, and numerous other serious illnesses.
- **The longer the exposure, the greater the risk.**
- Children are at the greatest risk, due to their thinner skulls, and rapid rate of growth. Also at greater risk are the elderly, the frail, and pregnant women. Doctors from many countries have issued warnings urging children under 16 not to use cell phones and to reduce their exposure to radio frequency (RF) radiation.

## Serious Human Health Effects - (2)

- In 1998 the Vienna Resolution, signed by 16 of the world's leading bioelectromagnetic researchers, provided a **consensus statement that there is scientific agreement that biological effects from low intensity RF exposure are established**. It says existing scientific knowledge is inadequate to set reliable exposure standards. No safe exposure level can be established at this time.
- The Salzburg Resolution, adopted in 2000 at the International Conference on Cell Tower Siting, would prohibit any cell site from emanating more than .1 mW/cm<sup>2</sup>— 10,000 times more strict than the current U.S. standard. This limit takes into account the growing evidence for non-thermal RF bio-effects.

## **Independently funded Science shows serious adverse health effects**

- **Dr. Zory Glaser's archives** - 1950's to 1972 - **2300** studies, many from the military, show adverse health effects from low-level radiofrequency radiation (RF).
- Dr. Glaser served as Senior Scientist in the Navy, NIOSH, and Bureau of Radiological Health, among other posts
- [Zoryglaser.com](http://Zoryglaser.com), [Magdahavas.com](http://Magdahavas.com)
- **The BioInitiative Report** - 2007 - a review of over **2000** studies by **14 world-renown scientists** that show adverse health effects from low-level radiofrequency radiation (RF).
- [Bioinitiative.org](http://Bioinitiative.org)



## Serious Human Health Effects - (3)

- Cell phone towers, multiple wireless RF exposures and SmartMeter mesh networks expose the public to involuntary, *cumulative*, chronic, Radio Frequency Radiation (RFR).
- Low levels of RFR have been shown to be associated with changes in **cell proliferation** and **irreparable DNA damage**.
- Some scientific studies show adverse health effects reported in the .01 to 100 mW/cm<sup>2</sup> range\_ **at levels hundreds, indeed, thousands, of times lower than the U.S. standards.**
- These harmful low levels of radiation can reach as far as a mile away from a cell tower location.
- Reported health problems include **headache, sleep disorders, memory impairment, nosebleeds, an increase in seizures, blood brain barrier leakage problems, increased heart rates, lower sperm counts, and impaired nervous systems.**

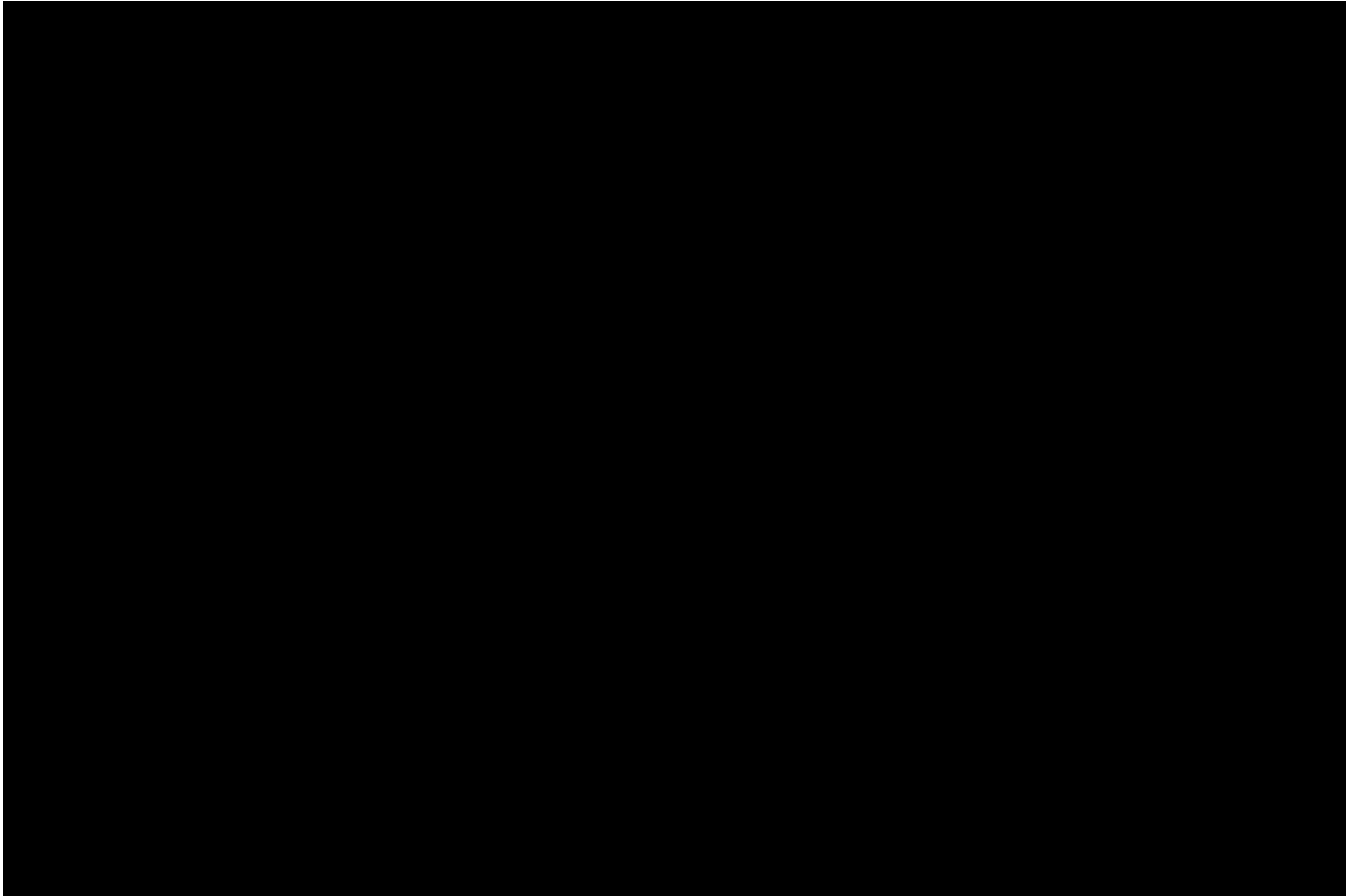
## **Free Speech & Science Squelched by Industry**

- Existing sound science was used by citizen groups to block sitings of cell towers until 1996. (source: *Robert Kane: Cellular Telephone Russian Roulette: A Historical & Scientific Perspective, 2001*)
- The 1996 Telecommunications Act was written by the telecom industry.
- Section 704 in the Act actually forbids local authorities charged with protecting their constituents, from blocking cell towers on the basis of health and environmental concerns.
- Funding and support for further research into radiological health issues and standard setting has been suspended in the U.S.

# Adverse health effects include:

- **Changes in cell membrane function, cell communication, metabolism and activation of proto-oncogenes.**
- **Production of stress proteins is triggered at exposure levels far below current regulatory limits.**
- **Resulting effects can include DNA breaks, chromosome aberrations, cell death including death of brain neurons;**
- **increased free-radical production, activation of the endogenous opioid system, cell stress, premature aging, fatigue;**
- **reduction in melatonin secretion, sleep disturbances;**
- **extreme fluctuations in blood pressure, chest pain, heart rhythm disorders, heart attacks, strokes;**
- **nausea, vomiting, constant thirst, migraine headaches;**
- **retarded learning, performance impairment in children, concentration and behavioral disorders, ADD;**
- **memory loss, anxiety, severe depression;**
- **collapse (burnout) of endocrine and nervous systems;**
- **serious leakage of the blood-brain barrier, brain-degenerative diseases (e.g. Alzheimers, dementia, Parkinsons), epilepsy,**
- **acoustic neuromas (hearing nerve tumors), leukemia, brain tumors, brain cancers.**
- **For more info: [www.emfsafetynetwork.org](http://www.emfsafetynetwork.org), bioinitiative.org, magdahavas.org, thepeoplesinitiative.org**

# What the People Say

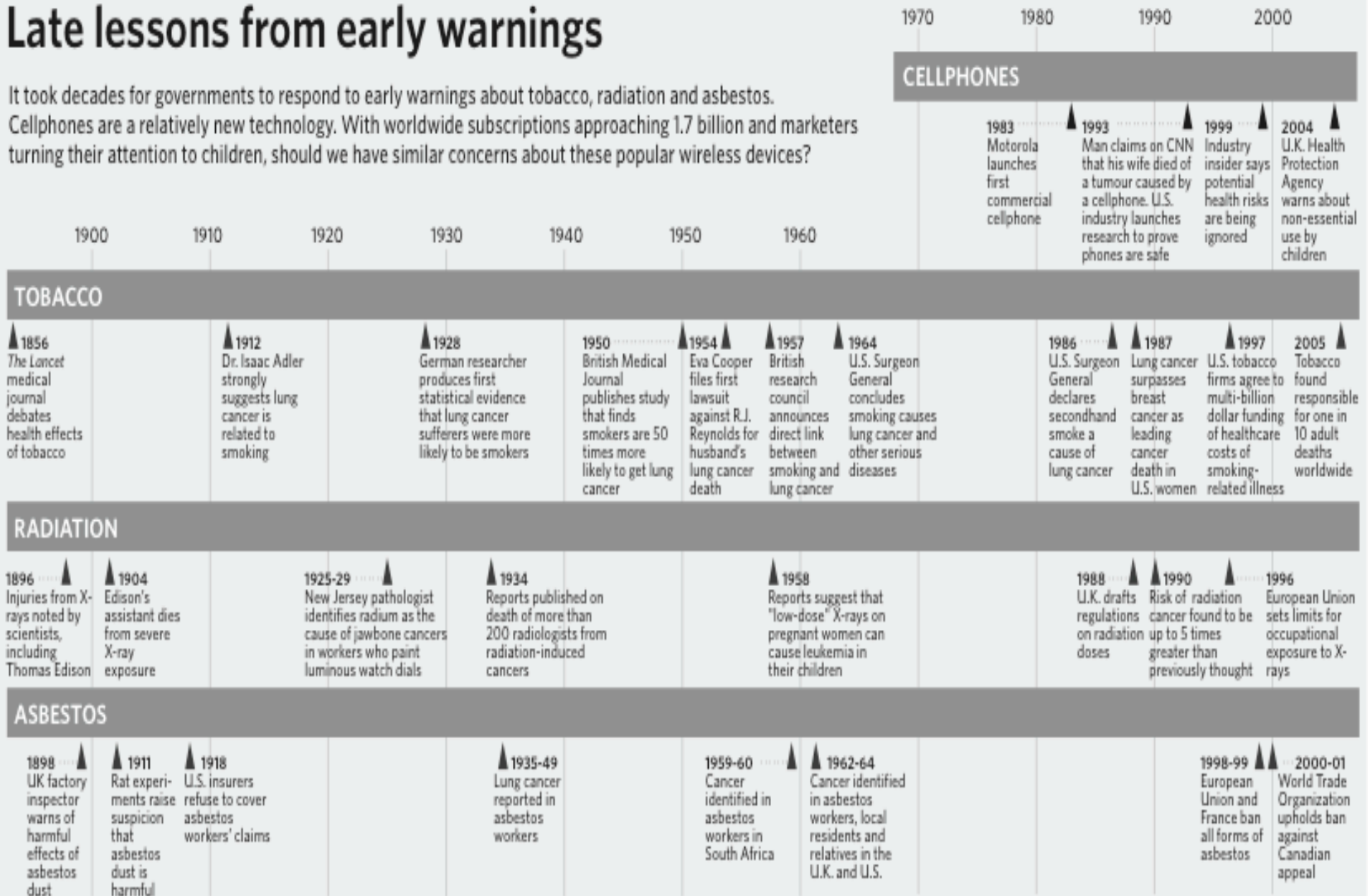


# Late Lessons

## Late lessons from early warnings

It took decades for governments to respond to early warnings about tobacco, radiation and asbestos.

Cellphones are a relatively new technology. With worldwide subscriptions approaching 1.7 billion and marketers turning their attention to children, should we have similar concerns about these popular wireless devices?



# EMR 'safety' levels compared

UK	5800
US & Canada	580
Australia	200
Auckland, NZ	50
Italy, Russia	10
China	6
Switzerland	4
Saltzberg, Austria	0.1

# Other countries are more protective of children's health

- France, the UK, Russia, Japan, Germany, Israel, India, Austria and Belgium have all issued public health warnings regarding children and have placed limitations on cell phone use, WIFI in schools and even changed EMR regulations (to lower exposure, not higher).

» (source: [thepeoplesinitiative.org](http://thepeoplesinitiative.org))

# Promising new legislation

- **San Francisco** passed the 'cellphone right to know' law in June
- Mandates retailers advertise SAR radiation levels of phones at point of sale so people see it (info that's already in the phone manuals but in extremely tiny print.)
- The wireless industry threw a tantrum & sued



# Claims Made for Smart Meters

- Save money for ratepayers, more choice
- Save energy - no need for peaker plants
- Encourages green energy transition and foundation for the new “ smart grid”
- Safer - allows for remote power restoration
- No threat to privacy
- Biologically Safe

# Financial Impacts

- \$ Ratepayers will be paying off costs for years through increased rates. (aprox. \$200/meter plus other expenses)
- Meters are coupled with introduction of aggressive new billing rates - “Dynamic pricing” (time of use plus tied to changing cost of electricity)
- Ratepayers must *pay* for smart meters *plus* buy gadgets for appliances to communicate with the meters or will need to *purchase new* “smart” appliances, *plus* an interior meter to monitor usage.
- Much touted advantage of “real time usage info” can only be accessed on PG&E site 25 hours later.
- Low electricity users have little gain from time of use rates compared to inconvenience - approximately \$1.00/mo. - \$12/yr.
- If no flexibility, rates may double during peak hours in afternoon
- Manufacturing and replacing every meter in the US and worldwide is enormously energy consumptive.
- Investment of the \$2.2 Billion in energy efficiency programs instead would immediately yield cost and energy savings.

# May actually use more energy

- **Phantom electrical loads** are from electrical appliances, electronic home theater systems, etc. that are still plugged in and drawing current while turned off. (Better to use power strips to turn off)
- Smart meter networks **create entirely new systems** of “phantom” electric loads.
- Operation requires an **added system of electronics** to collect, analyze, transmit and receive energy usage data.
- This includes the **smart meters** themselves, the **RF mesh network** in the neighborhood, the **utilities’ computer servers** and any **devices in the home** that interact with the Smart System.
- Interacting equipment **must be left on all the time 24/7**, along with a wireless router, in order to communicate, **increasing both RF radiation and electricity usage by millions of customers.**  
(source: Michael R. Neuert, MA, BSME)
- The utilities’ increased energy draw for their computers needed to **process this incessant avalanche of usage data from many millions of customers could be huge.**

# Hackable - Not Secure

- **Computer experts and hackers** have warned that the wireless smart meters would make the grid very **vulnerable** to multiple sources and avenues of attack
- **Burglars** could monitor your home easily
- **PG&E can turn off power remotely** - so could hackers
- **Errors in billing** will be difficult to prove as students in Berkeley and other California residents discovered.
- **PG&E CEO Peter Darbee**: “We can zoom right in on homes and utility poles real time and see what’s going on. It’s pretty amazing. We can tell what the threat level is by address.”  
(Thoughtleaders Forum, August 12, 2010)

# Privacy concerns

- **Personal data** collected from smart meters can show exactly what people do and when they do it.
- PG&E, other corporations and the government **want to know!**
- Your personal info **may be sold** by PG&E
- Personal computers **may be infiltrated** and personal data lost or stolen
- **Potential for use in surveillance** within the home and office, etc.

# Not Safe

- **15 fires** were reported in Bakersfield plus a couple of explosions; at least 1 fire reported in Berkeley
- **RF radiation** from the mesh-network in neighborhoods and cities **complexifies and multiplies** the radiation exponentially and unpredictably; banks of dozens of meters on apartments further multiply effects; hot spots occur
- **Pace-makers** and other medical implants can be **interfered with or disabled** 30,000 people now have medical implants!
- Other **electronic equipment** and wireless devices can be **interfered with or disabled**
- Growing numbers of people are now electro-magnetically sensitive - from **3 - 10% of population and increasing**
- **Over-exposure to EMF and RF radiation can cause hypersensitivity, just like chemical sensitivity. These people can no longer tolerate EMF and RF radiation. Where can they be safe?**

# Not Necessary

- If the goal were really to save energy, other methods work better:
- **Energy efficiency and reducing energy use** is still most economical.
- **Cyclers** on air conditioners are easier to use to reduce load at peak times and have been highly effective in Maryland.
- **Targeted large energy users** could be in special arrangements with PG&E to reduce load at peak use. Re-metering the entire customer base is unnecessary.

# Why should YOU be concerned? - (1)

- **Constant radio-frequency radiation (RFR)** - neighboring meters will bounce signals to each other 24/7
- **Does NOT save energy** - as claimed.
- **No FCC Safety Standards exist for chronic long-term exposure to RF radiation from multiple sources.**
- **Adverse health effects from electromagnetic pollution** include sleep disorders, irritability, short term memory loss, headaches, anxiety, nausea, DNA damage, cancer, premature aging, Alzheimers, heart palpitations, etc.
- **Untested technology** - wireless technologies are already causing illness in many people.
- **Skyrocketing utility bills** - up to 2 to 3 times higher than before the “smart meters” were installed, even for vacant homes.



# Why should YOU be concerned? - (2)

- **Privacy violated** - government and corporations want to buy your personal data
- **Security issues** - easily hacked and easily monitored by burglars
- **Fire hazards** - risk of electrical shock and frying sensitive electronic equipment.
- **Waste of our money** -ratepayers will pay for these meters through rate increases - \$2 billion is being spent.
- **Loss of jobs** – for meter readers when job creation should be a top priority.
- **Undemocratic process** - PG&E is telling people that they have absolutely no right to opt out.
- **Much Smarter & Wiser Alternatives exist that not use wireless.** - Existing powerlines, DSL or phone lines can be used. Or no smart meters at all!

# Real Solutions

- **Reduce energy** consumption
- **Energy efficiency**
- **Cyclers** on air conditioners
- **Local power** - CCA's
- Local **distributed** generation
- **Local micro** energy grids
- **Go Solar!** Current wireless smart meters can't provide the net metering required for solar.

# What YOU Can Do - Actions

- **Write the California Public Utilities Commission (CPUC), 505 Van Ness Ave. San Francisco, CA 94102, or call them at 916-386-5204.**
- **Call State Senator Dean Florez at (916) 651-4016**
- **Call our state senator Mark Leno at (916) 651-4003**
- **Sign an opt-out letter to the CPUC on-line by going to the [EMFSafetyNetwork.org](http://EMFSafetyNetwork.org)**
- **Organize your neighbors into a “SM Free Zone”**
- **Pass an ordinance at your city or county level calling for a permanent moratorium on the installation of smart meters. Demand freedom from radio-frequency assault & trespass!**
- *And...*

Post this sign:  
**SMART METER**



***DO NOT INSTALL  
SMART METER HERE***

- Download free from:  
[www.WestMarinAlert.com/resources](http://www.WestMarinAlert.com/resources)