

Office of the Attorney General
Governor Baker
Massachusetts Inspector General

Patricia Burke, et al, Worcester Opts Out, Stop Smart Meters
Massachusetts, HaltMAsmartmeters.org, No Mass Smart
Meters, Healing Earth Refuge

Ethics Complaint

Worcester National Grid Smart Meter Pilot

City of Worcester

Worcester Smart Meter Health Report:
Dr. Michael Hirsch

"Let's be clear. ... The problem is not technology, which unarguably brings countless benefits to modern life. The problem is with the over-extension of claims for technology's usefulness and the worshipful adulation of technology even where it has fearful consequences. Most fundamentally, the problem is the willingness in Washington — for reasons of both venality and naïveté — to give technology a free pass."¹

- Captured Agency, How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates,
Published by: Edmond J. Safra Center for Ethics, Harvard University

October 2015

¹ http://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf

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Overview

The Massachusetts Department of Public Utilities has been engaged in a multi-year process of mandating wireless smart utility meters as the cornerstone to grid modernization. Investment for investor-owned utilities is to be financed by ratepayers.

Utilities in Massachusetts conducted smart meter pilot programs to test the technology's effectiveness, but in a grave absence of moral and ethical responsibility, no health or environmental monitoring was conducted.

Concerns about the integrity of the on-going Worcester National Grid pilot program, which is behind schedule and over budget, range from recruitment of participants, to size, cost, design, and accuracy of results reports.

Both the DPU and the City of Worcester produced fraudulent claims regarding the health and safety of the wireless meters and infrastructure.

This complaint calls on the Baker administration to investigate the Worcester Pilot, the DPU mandate, and the health claims that have justified smart meter investment.

Executive Summary

Excerpt from Worcester Smart Meter Health Study,
January 30, 2014, by Acting Commissioner of Public
Health Dr. Michael P. Hirsch

In 2011 the International Agency for Research on Cancer IARC listed RF EMF as possibly carcinogenic to humans Group 2B stating an increased risk for glioma a malignant type of brain cancer is associated with wireless phone use. The BioInitiative Report published after the IARC statement explains that though studies of long term exposure to low levels of RF radiation and brain tumors exist they have been occupational studies. As previously explained occupational exposure limits are higher than public exposure limits and therefore a causal relationship between smart meters and brain tumors has not been established. 14

Footnote 14 attributed to Prof. Michael Kundi, PhD med habil of the Institute of Environmental Health, Medical University of Vienna, Austria Full Member, Bioelectromagnetics Society, Contributing Author for the 2012 BioInitiative Report.

The Massachusetts Department of Public Utilities (DPU) is conducting on-going proceedings mandating deployment of wireless smart electric meters for investor-owned utilities, financed by ratepayers, to support Time of Use (TOU) or Time Varying Rates (TVR) as the default billing structure for MA electricity ratepayers.

Misleading claims attributed to National Grid that “the technology has been found to be safe” have been promoted widely, for example in Worcester and Boston print media.²

Industry safety claims conflict with the National Academies of Science 2008 NAS Report, *Identification of Research Needs Relating to Adverse Health Effects of Wireless Communication*³ identifying shortcomings in the radio frequency research record. The MA DPU received detailed information about the NAS report in a submission from Janet Newton of the EMR Policy institute in March of 2014.⁴ The NAS list of twenty research inadequacies is included in the

² <http://www.wbjournal.com/article/20150115/NEWS01/150119978/national-grid-kicks-off-worcester-smart-meter-pilot>,

<https://www.bostonglobe.com/business/2013/05/31/smart-meter-opponents-raise-concerns-over-health-security-privacy/ih0mDiFujPrF8yqAeJ2DeO/story.html>

³ www.nap.edu/catalog.php?record_id=12036, and Attachment of this report.

⁴ <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f12-76-Comments-10333.pdf>

attachments for this document, including lack of data on exposures for infants and children.

Two Massachusetts agencies have published misleading and potentially fraudulent claims regarding smart meter health impacts.

In June of 2014, in Order 12-76⁵ the MA DPU made inaccurate claims about the scope of FCC limits for non-thermal impacts of non-ionizing radiation, misrepresented sourced references that did not back up the claims, and relied on the testimony of career tobacco scientist Peter Valberg of the product defense firm Gradient to invalidate citizen concern.

In February of 2014, Worcester's Acting Commissioner of Public Health Dr. Michael P. Hirsh published a highly contested smart meter health report.

Critics note that the Worcester health report would have received a failing grade in an introductory high school physics, health, or science class due to glaring inaccuracies, and unfounded claims, and plagiarizing Wikipedia. Despite complaints by the community, the Worcester smart meter

⁵ <http://www.mass.gov/eea/docs/dpu/orders/dpu-12-76-b-order-6-12-2014.pdf>

health report was not investigated by the City's administration.

The fraudulent DPU Order 12-76-B was the subject of a complaint filed with the MA Attorney General's office and with key committees of the MA Legislature in March of 2015.

This report focusing on the Worcester Smart Meter Health Study and the National Grid pilot reinforces the need for an immediate, transparent, public inquiry independent of industry into the MA DPU smart meter order, the National Grid smart meter pilot program, and the Worcester smart meter health report.

National Grid has filed grid modernization plans with costs to MA ratepayers ranging from \$225.3 million to \$830.5 million and up to \$1.3 billion over ten years. Eversource's plan would reportedly cost \$67 million to \$120 million a year over a five-year period ⁶ (not all fees attributed to meters). These figures do not include expenditures by Massachusetts municipalities operating independently of investor-owned utilities that have also undertaken wireless meter installation as part of grid modernization, or who are planning to do so in the future. Massachusetts ratepayers will be forced to

⁶ http://www.masslive.com/business-news/index.ssf/2015/08/national_grid_plan_could_add_025_to_1_to.html

finance these expenditures through utility surcharges if comprehensive advanced metering plans demanded by the DPU are approved.

The figures do not reflect costs incurred for fees already paid to individuals and agencies, including hours and expenses billed by the DPU, in a revolving door between industry, consulting, and regulation over several years.⁷

This complaint calls on politicians, environmental groups, civic organizations, human rights advocates and others to hold the Commonwealth accountable for halting dissemination of fraudulent information regarding wireless smart meters by industry and regulators, and to prevent communities from being misled and saddled with the expense associated with the deployment of harmful, unproven ineffective technology and infrastructure.

"To deliberately deceive decision makers or the public in a attempt to steer decisions in a particular direction for self interested reason is not morally acceptable.

Not only would such a course violate the ideals of honesty central to basic science, but it would violate the trust placed in scientists to provide advice, and it would violate the basic ideal of democracy, that an elite few should not subvert the will of many for their own gain."

⁷ <http://www.greentechmedia.com/articles/read/massachusetts-makes-smart-grid-mandatory>

- Heather E. Douglas, Science, Policy, and the Value-Free Ideal⁸

Introduction

Excerpt from Worcester City Assessor William Ford March 2014 Report on Impact of Smart Meters on Property Values

"Francois Des Rosiers performed a study Des Rosiers 2002 based on a sample of 507 single family house sales in the City of Brossard a municipality located in the Greater Montreal Canada area that sold between 1991-6. The De Rosiers study showed that the decrease in value from the visual impact of the HVOTLs high voltage overhead transmission lines and pylons tends to be cancelled out by the increase in value from proximity to the easemen.t And he further states most studies conclude that proximity to a HVOTL per se does not necessarily lead to a drop in the value of surrounding properties and that other physical as well as neighborhood attributes prevail in the price determination process."

Excerpt from Worcester Smart Meter Health Study, January 30, 2014, by Acting Commissioner Dr. Michael P. Hirsch:

"In 2011 the International Agency for Research on Cancer IARC listed RF EMF as possibly carcinogenic to humans Group 2B stating an increased risk for glioma a malignant type of brain cancer is associated with wireless phone use. The BioInitiative Report published after the IARC statement explains that though studies of long term exposure to low levels of RF radiation and brain tumors exist they have been occupational studies. As previously explained occupational exposure limits are higher than public exposure limits and therefore a causal relationship between smart meters and brain tumors has not been established. 14"

⁸ Douglas, Heather E, Science, Policy, and Value Free Ideals, University of Pittsburgh Press, 2009, p. 80.

Footnote 14 attributed to Prof. Michael Kundi, PhD med habil of the Institute of Environmental Health, Medical University of Vienna, Austria Full Member, Bioelectromagnetics Society, Contributing Author for the 2012 BioInitiative Report.

This complaint provides evidence in support of the requirement for an independent, public, and transparent investigation and audit of the National Grid smart meter pilot program.

The complaint also provides evidence in support of the need for investigation of procedures utilized by the Massachusetts Department of Public Utilities to justify smart meter order 12-76-B for investor-owned utilities in the Commonwealth. Inadequate checks and balances have created financial burdens in the past and present for ratepayers, with future risks as the result of ineffective monitoring and regulation, for unproven and potentially unsafe infrastructure investments.

If smart meter pilots programs in Massachusetts financed under the mandate of the Green Communities Act were designed and administered to **justify** smart meter deployment, rather than to determine the feasibility and effectiveness of smart meter investment, and are ignoring emerging evidence of harm, the practice would be unfair to MA residents, unlawful, and necessitate additional

independent oversight, investigation, and possible prosecution from industry-neutral parties on behalf of the public.⁹

Inaccurate, incomplete, or misleading reporting concerning smart meter pilot implementation and/or results will have far-reaching deleterious impacts on energy policy and infrastructure investment in Massachusetts, as well as potentially endangering human health and the environment.¹⁰ This report indicates that there is sufficient evidence that intervention is now required to insure the integrity of the Commonwealth's infrastructure investment decisions.

MA Green Communities Act Smart Meter Pilot Program Mandate

Section 85 of the Green Communities Act¹¹ states:

On or before April 1, 2009, each electric distribution company shall file a proposed plan with the department of public utilities to establish a smart grid pilot program. Each such pilot program shall utilize advanced technology to operate an integrated grid network communication system in a limited geographic area. Each

⁹ <http://smartgrid.ieee.org/newsletter/april-2014/a-stakeholder-approach-to-grid-modernization-policy>

¹⁰ <http://www.naturalscience.org/publications/brochure-bees-birds-mankind-destroying-nature-electrosmog/>

¹¹ <https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter169>

pilot program shall include, but not be limited to advanced ("smart") meters that provide real time measurement and communication of energy consumption, automated load management systems embedded within current demand-side management programs and remote status detection and operation of distribution system equipment. On or before April 1, 2009, each electric distribution company shall file a proposal with the department of public utilities to implement a pilot program that requires time of use or hourly pricing for commodity service for a minimum of 0.25 per cent of the company's customers. A specific objective of the pilot shall be to reduce, for those customers who actively participate in the pilot, peak and average loads by a minimum of 5 per cent. The department shall work with the electric distribution companies to identify specific areas of study, and may incorporate and utilize information from past relevant studies or pilot programs. The department shall review and approve or modify such plans on or before August 1, 2010. Plans which provide for larger numbers of customers and can show higher bill savings than outlined above shall be eligible to earn incentives as outlined in an approved plan. The programs filed by the distribution company shall include proposals for ***rate treatment of incremental program costs; provided, however, that such program costs shall be deemed by the department to be a cost of basic service and recovered in rates charged for basic service.*** Following the completion of the pilot programs, the secretary of energy and environmental affairs shall submit a report to the joint committee on telecommunications, utilities and energy not later than September 1, 2012 detailing the operation and results of such programs, including information concerning changes in consumer's energy use patterns, an assessment of the value of the program to both participants and non-participants and ***recommendations concerning***

modification of the programs and further implementation.”

Smart Meter Pilot Programs in Massachusetts

Smart meter pilot programs implemented under the Green Communities Act in the Commonwealth of Massachusetts include:

- Fitchburg Gas and Electric (MA DPU 09-31) (approved),
- National Grid (MA DPU 09-32) (not approved),
- National Grid (MA DPU 11-129) (approved),
- NStar Electric Company (MA-DPU 09-33) (now Eversource) (approved),
- Western Massachusetts Electric Company (MA DPU 09-34) (approved)

Fitchburg and NStar pilots have been completed.

NStar/Eversource has not concluded that mandatory investment in AMI smart meters is the cornerstone to grid modernization, favoring an opt-in approach for Time Varying Rates (TVR) based on customer choice.¹²

Eversource stated, *“For example, although customer interest in the NSTAR Electric Smart Grid pilot was relatively strong*

¹² <http://smartgridawareness.org/2015/09/30/smart-meters-not-necessary-to-modernize-electric-grid/>

initially, it was very challenging to convert initial interest into participation in the pilot and then sustain the interest over time. Figure 4– Customer Interest in NSTAR Electric’s Smart Grid Pilot highlights that, out of the 53,000 customers contacted initially regarding participation, only 1,549 were enrolled in the pilot at the end of 2013 which represents just a 3 percent response rate.”

NStar/Eversource also concluded, “MOST RESIDENTIAL CUSTOMERS DO NOT HAVE SUFFICIENT LOAD TO SHIFT TO BENEFIT IN AN OPT-OUT TVR PROGRAM Air conditioners offer the greatest opportunity for residential load reductions, but the estimated central air conditioning (“A/C”) penetration in Eversource’s service territory is only approximately 38 percent with 2 to 3 months of use per year. Moreover, residential appliance data suggests that there is little discretionary load beyond the air conditioner.”

13

“OPT-OUT TVR PROGRAMS CAN NEGATIVELY IMPACT LOW INCOME CUSTOMERS AND THOSE CUSTOMERS WHO CANNOT SHIFT LOAD DUE TO MEDICAL OR OTHER CONDITIONS The NSTAR Electric Smart Grid Pilot showed that low income customers had little interest in the pilot.

¹³ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-122%2fInitial_Filing_Petition.pdf

Despite concerted efforts by NSTAR Electric to market to all customers in the pilot territory, low income customers did not enroll in high numbers, as evidenced by the fact that only about one percent of participants were taking service under the low income rate. In addition, in a survey of non-participants (those who were recruited to join but declined to participate), 46% indicated there was nothing the Company could have done to make them join. An opt-out TVR program is especially troubling for those customers who cannot shift load due to, for example, their reliance on medical devices.”¹⁴

The United Kingdom’s Institute of Directors, a business organization with over 34,500 members, issued a March 2105 report entitled “*Not Too Clever: Will Smart Meters Be the Next Government IT Disaster?*”¹⁵ declaring, “*IoD calls for Smart Meters scheme to be ‘halted, altered or scrapped’ to avoid ‘unjustified, over-engineered and expensive mistake’*”

“This scheme is far from smart. The dishonourable roll call of government IT projects that have haemorrhaged vast amounts of taxpayers’ money to no discernible effect needs

¹⁴ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-122%2fInitial_Filing_Petition.pdf

¹⁵ <http://www.iod.com/influencing/press-office/press-releases/smart-meters-a-government-it-disaster-waiting-to-happen>

no further additions. Consumers will not forgive the already unpopular energy companies for a costly programme which fails to deliver and ends up making them poorer."

"Consumers do not want the meters, they have proved a costly mistake in countries where they have been rolled out, and the Government is withholding key details about their costs and benefits. This makes for a programme which is devoid of credibility, over-engineered and mind-blowingly expensive."

National Grid's Controversial Smart Meter Pilot

National Grid's initial smart meter pilot proposal submitted via the Green Communities Act mandate in 2009 was rejected in part due to cost.

A subsequent proposal was submitted in 2011 and approved in 2012, despite concerns outlined by the Attorney General, who serves as the Ratepayer's Advocate in Massachusetts.

Former Attorney General Martha Coakley registered concerns about the National Grid pilot's size, scope and cost

in February ¹⁶ and May 2012,¹⁷ noting that the pilot was five times larger and more expensive than required by the Green Communities Act, in addition to issues concerning privacy, grid security, and extraordinary expense of the pilot.

The former MA Attorney General noted that the pilot was

- one of the most expensive smart grid pilots undertaken in the country
- \$2,973 per meter
- not well-designed and should not be approved
- (NGrid's) lack of disclosure on (the auto-enroll option) raises questions about whether Customers will even know that they may opt out of smart meters altogether and what they will need to do to opt out.
- pilot will have the unintended effect of skewing evaluation results
- The Company's inability to cite at the hearing to any specific policy regarding customer notification in the event of a data breach is troubling.
- saddles National Grid's Massachusetts ratepayers with needlessly high costs that will probably not yield results that are any different than those from other pilots conducted around the country.

¹⁶ <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-129%2f2812agincm.pdf>,

¹⁷ <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-129%2f53012aginbf.pdf>

- The Company's opt-out (auto-enroll) pilot design is fraught with risk in light of the same approach that resulted in the failed CommEd experiment.
- The only other large opt-out (auto-enroll) pilot ... documented that there was no statistically valid overall usage reduction or peak load usage reduction ...
- difference between ... (opt in vs. auto-enroll) comes down to customer choice.
- In fact, after some initial suggestion to the contrary, the Company admitted during the evidentiary hearing that it was not aware of any smart grid pilots from around the country that showed average use reduction.
- The Company concedes that average use reduction will not result from CPP (Critical Peak Period) rates or PTR rates but through "education."
- any conclusions drawn from the Company's proposed education plan are questionable and do not justify its expense.
- The AMR meters in service (have) remaining life of 20 years ¹⁸

¹⁸ Summary of AG Coakley's comments http://haltmasmartmeters.org/wp-content/uploads/2013/10/HMSM_Comprehensive_Resource_FINAL_revONEdot3.pdf, page 30

AMI Smart Meters-Advanced Metering Infrastructure

Wireless smart meters (and/or equivalent functionality) transmit data continuously utilizing microwave radiofrequencies to enable time-of-use pricing structures, or TVR Time Varying Rates, where customers will be charged different rates depending upon when they consume their electricity.

“Most Smart Metering also includes advanced functionality in the meter such as

- (1) remote disconnect (the ability to remotely shut off and re-establish service), (not legal in Massachusetts at this time)
- (2) two-way communications (the ability to both read the meter and send information to the meter, including programming updates),
- (3) microprocessor control (a meter-based microprocessor controls the operation of the meter and its communication),
- (4) time stamp of usage (associating the meter read with the actual time when it was read) and
- (5) the ability to collect meter readings in multiple categories (e.g., supporting Time-of-Use (TOU) applications).”¹⁹

¹⁹ <http://www.thescottreport.com/faq.html>

AMR Automated Meter Reading in Massachusetts

Many homes and businesses in Massachusetts are already equipped with AMR, or Automated Meter Reading wireless electric meters.²⁰

For example, NStar/Eversource objected to mandatory smart meter installations based partly on cost of stranded assets of AMR meters already in service, stating, *"Eversource East (formerly, Boston Edison) began deploying an Automated Meter Reading ("AMR") drive-by system in 1994. The first 300,000 meters were strategic deployments for hard-to-read locations and were deployed from 1994-1999. From 2003 through 2007, the remaining 800,000 meters were deployed to complete the entire territory. Eversource West (formerly, WMECO) followed a similar transition plan, completing its upgrade to AMR in 2005. The*

²⁰ <http://smartgrid.ieee.org/newsletter/april-2014/a-stakeholder-approach-to-grid-modernization-policy> "Advanced metering infrastructure (AMI) is commonly considered a core technology of grid modernization. The Massachusetts stakeholder process prompted rich discussion and information sharing related to the question of AMI deployment. For example, since most Massachusetts electric distribution companies have automated meter reading, one benefit often attributed to AMI—reduced meter reading costs—would be smaller than in other states considering advanced metering. But AMI was found to have other potential benefits for Massachusetts customers, including the ability to collect customer interval data, automatically notifying the utility of outages and allowing two-way communication between the utility and customers. It also could provide a platform for yet-to-be-developed technologies that can enhance customer choice, energy efficiency and distributed generation and storage"

*average installation date of the current energy metering population is 2003 for Eversource East and 2001 for Eversource West. Prematurely replacing these assets en masse before they are fully depreciated, or before the end of their useful life, would create a "stranded cost."*²¹

Eversource refers to its technology as "drive by," implying that a truck will drive by to capture billing data once per month from the meter. Many customers assume that the meters transmit data once a month for billing purposes, and that they are inactive at other times.

Many consumers do not know that utility meters across the Commonwealth are transmitting wireless signals continually. How often or how the data is being collected and used has not been divulged to ratepayers or communities.

Uninformed public health officials have not monitored health and environmental impacts of the installation and activation of wireless meters and the resulting increase in ambient exposure to pulsed radio frequencies.

²¹ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-122%2fInitial_Filing_Petition.pdf

Readings taken with privately owned professional-grade devices that detect and measure radio frequencies, including the German Gigahertz Solutions meter,²² confirm that wireless electric, water and gas meters are already transmitting continually in Massachusetts in NStar/Eversource and National Grid territories and in many other communities. Professionally trained building biologists working to help residents mitigate health challenges confirm that many AMR meters across the Commonwealth and beyond (NH, RI, CT) are transmitting 24/7/365.

Public health concerns are emerging across the state and across the country, in part because some residents are reporting adverse physical reactions,²³ as communities install wireless gas, electric, and water meters with radio frequency-emitting electronic digital meters (that cannot be turned off, creating an inescapable hazard for sensitive individuals) and supporting wireless grid infrastructure.

Informed health care practitioners trained in environmental medicine who have monitored patients over time have linked the installation of smart utility meters with onset or

²² <https://www.gigahertz-solutions.de/en/cat/index/sCategory/79>

²³ http://psc.ky.gov/PSCSCF/2012%20Cases/2012-00428/20150407_PSC_ORDER.pdf
example of complaint, Kentucky

intensification of adverse health impacts, calling for a moratorium.²⁴

Wireless meters already in use have not been monitored for health or environmental impact, and need scrutiny. From a public health perspective, an independent review of onset or intensification of illness and chronic health conditions juxtaposed with data concerning the installation and activation of wireless meters would be a clarifying endeavor, as well as determining if symptoms improve when radio frequency exposure is eliminated, as was the case with the monitored removal of a base station in Japan.²⁵

However, the focus of this document is the question of whether Massachusetts has been responsible or corrupt in its promotion of AMI smart meter deployment for the future, and whether the smart meter hearings by the Department of Public Utilities and the Worcester smart meter pilot should be allowed to continue without scrutiny, oversight, examination, or outright rejection.

²⁴ <https://skyvisionsolutions.files.wordpress.com/2013/11/aaem-wireless-smart-meter-case-studies.pdf>

²⁵ <http://www.emfanalysis.com/wp-content/uploads/2015/10/Japanese-Study-2014-Significant-Decrease-of-Clinical-Symptoms-after-Mobile-Phone-Base-Station-Removal.pdf>

Have the appropriate steps been taken to insure that the Commonwealth is not wasting ratepayer and taxpayer time, money and energy in pursuit of an already-failed hypotheses with technology that may be causing tremendous harm to a portion of the population?

If MA regulatory agencies including the Department of Public Utilities and Worcester's Public Health Department have produced misleading and inaccurate documentation regarding the question of adverse health impacts, what protections are in place to insure that residents will not be burdened with the additional unnecessary expense of replacing unsafe infrastructure in the future, in addition to health care costs?

Who will be liable if investment by ratepayers proceeds on the basis of fraud by the DPU regarding health and safety?

AMR and AMI Risks to Informed Democracy

The question of whether smart meter deployment across the U.S. has been characterized by green washing, human rights violations, politicking, bullying, corruption, greed, racketeering, and manipulation of public opinion concerning credible science, or whether the U.S. has embarked in

responsible and ethical stewardship of human health and the environment, is reflected directly in policy decisions unfolding now in Massachusetts.

The industry has invalidated consumer complaints that the technology has not been proven safe by repeatedly making claims that smart meters have been “proven safe.”²⁶ ²⁷ publically and in the media.

To date, the Commonwealth and the City of Worcester has failed to give credence to activists’ concerns that the technology has not been proven safe, particularly for infants, children, pregnant women, and those with pre-existing medical conditions. FCC guidelines have never been tested for these populations, and are only relevant for protection from acute short-term exposures and for heating, and irrelevant for non-thermal impacts or multiple simultaneous juxtaposed sources of exposures, as delineated in the

²⁶ <https://www.bostonglobe.com/business/2013/05/31/smart-meter-opponents-raise-concerns-over-health-security-privacy/ih0mDiFujPrF8yqAeJ2DeO/story.html> National Grid said the new meters are proven safe and secure. The frequencies emitted by the devices are lower than cellphones and other common devices, said Deborah Drew, a National Grid spokeswoman.

<http://www.wbjournal.com/article/20150115/NEWS01/150119978/national-grid-kicks-off-worcester-smart-meter-pilot> Opposition to the smart meter program has focused around both privacy and health concerns. National Grid officials have stated that the technology has been found to be safe and it takes security precautions with all customer information.

²⁷ <http://smartgridcc.org/testimony-of-dr-peter-a-valberg/>

National Academies of Science radio frequency research review.

The Massachusetts Department of Public Utilities solicited testimony of a career tobacco scientist Peter Valberg of Gradient Corporation, and subsequently issued a DPU order 12-76-B that fraudulently misrepresents the scope of FCC protections concerning non-thermal impacts of non-ionizing radiation.²⁸

National Grid also relied on the testimony of the same career tobacco scientist to testify before the Worcester Zoning Board of Appeals in May of 2014 to dismiss smart meter health concerns.²⁹

(Please note, however, that Peter Valberg was misidentified as Dr. Walberg in the City of Worcester's documentation.)

David Michaels, author of "Doubt is Their Product, How Industry's Assault on Science Threatens Your Health" described the work of notorious product defense firms including Gradient, stating, "*Product defense consultants*

²⁸ <https://smartmeternewsupdates.wordpress.com/2015/05/14/ma-residents-file-dpu-fraud-complaint-with-attorney-general/>

²⁹ <http://www.worcesterma.gov/agendas-minutes/boards-commissions/zoning-board-of-appeals/2014/20140505.pdf> 9. 135 Goddard Memorial Drive (ZB-2014-008)

*have increasingly skewed the scientific literature, manufactured and magnified scientific uncertainty, and influenced policy decisions to the advantage of polluters and the manufacturers of dangerous products. To keep the public confused about the hazards posed by global warming, second-hand smoke, asbestos, lead, plastics, and many other toxic materials, industry executives have hired unscrupulous scientists and lobbyists to dispute scientific evidence about health risks. In doing so, they have not only delayed action on specific hazards, but they have constructed barriers to make it harder for lawmakers, government agencies, and courts to respond to future threats.”*³⁰

Neal Lane, former Science Advisor to President Bill Clinton and former Director of the National Science Foundation, stated: *“The cited examples illustrate how, with the help of irresponsible members of Congress and other public officials, corporate greed can trump any sense of ethics, morality, and human compassion.”*³¹

In the case of smart meters, the product defense industry’s mercenary scientists are working on behalf of agenda-driven

³⁰ <http://defending-science.org/writing-and-speeches/doubt-their-product>

³¹ <http://defending-science.org/writing-and-speeches/doubt-their-product>

lawmakers, regulators, politicians, and government agencies, under the guise of sustainability.³²

The public is being misled concerning the safety of wireless meters as a “solution” to address the deleterious impacts of the fossil fuel model.

The politicizing of the global warming and climate change debate³³ and blind pursuit of economic growth may result in investment in wireless technology that causes even more far-reaching damage to human health and the nature environment than the fossil fuel model.

The unprecedented size and scope and lack of monitoring of the Worcester pilot served to inflate reporting of green jobs and economic gains attributed to the Green Communities Act.

Outcome-oriented pilot design and implementation would lead to inaccurate forecasting and reporting concerning the cost-benefit analysis of smart meter deployment if information concerning adverse health impacts and the true

³² refers to product defense firms Gradient and Exponent

³³ Example: <https://malegislature.gov/Committees/Senate/S51> See MA Senate Committee on Climate Change Feb. 2015 report No Time To Waste,

cost of the pilot is withheld from decision makers, communities, and individuals.

The willingness to investigate the legitimacy of theoretical safety claims or reports of harm appears not to have been a component of the DPU or Commonwealth's agenda under Gov. Patrick.³⁴

Smart Meters: Ignoring Early Warnings in Favor of Short Term Financial and Political Gains

Despite lack of premarket safety or environmental testing, and despite reports of harm by US citizens where smart meters have been deployed, the utility industry, in collaboration with the wireless industry, is in the process replacing AMR meters with "smart" AMI electric meters that contain a second transmitter, to enable the utility to communicate with micro-chipped appliances inside the home.

³⁴ <http://www.tandfonline.com/doi/abs/10.3109/15368378.2012.712586>, **Hypothesis on how to measure electromagnetic hypersensitivity**; <http://www.electrosmogprevention.org/public-health-alert/non-thermal-effects-and-mechanisms-of-interaction-between-electromagnetic-fields-and-living-matter-giuliani-et-al/> Non-Thermal Effects and Mechanisms of Interaction Between Electromagnetic Fields and Living Matter - PART 2 Edited by Livio Giuliani and Morando Soffritti for the European Journal of Oncology - Library Vol. 5 of the National Institute for the Study and Control of Cancer and Environmental Diseases "Bernardo Ramazzini", Bologna, Italy, 2010.

The meters require 3 networks, the home network, local network and wide area network. They communicate in a mesh network where each meter acts as a data transmitter and receiver, increasing the ambient exposure of the community to pulsed radio frequencies, whether or not the individual home or business has a smart meter installed on its premises.

The wireless meters transmit data in microbursts of pulsed radio frequencies thousands of times per day.³⁵

In addition to time of use billing, smart meters enable utilities to collect data that provides insight into activities taking place inside the home. Miles Keogh, director of grants and research at the National Association of Regulatory Utility Commissioners, stated: "I think the data is going to be worth a lot more than the commodity that's being consumed to generate the data."³⁶

³⁵ <http://blog.sfgate.com/energy/2011/11/03/smartmeters-send-almost-10000-signals-a-day/>

³⁶ <http://smartgridawareness.org/2015/05/19/utilities-excited-about-mining-smart-meter-data/>

The question of unmonitored adverse health and environmental impacts caused by AMR wireless meters and related infrastructure already covertly deployed across the Commonwealth is a concern, but this complaint is specifically focused on the question of future investments by MA ratepayers for AMI wireless meters on the basis of inaccurate data from the Worcester smart meter pilot, which has been characterized by opponents as “policy-based evidence making.”

The controversial health report compiled by the City’s Public Health “expert” played a significant role in justification by the City Council, Mayor, and City Manager to ignore resident health concerns.

The UK Institute of Directors stated,

“Perhaps the only reason why the cost and ambition of this project has not become a national scandal already is because of a conspiracy of silence among politicians in thrall to big ideas and even bigger budgets.” “The professed aims of the Smart Meter programme are laudable, and we all recognise the benefits of reducing consumption and increasing energy awareness. But there is little credible

evidence to suggest that a scheme of this size and complexity will achieve those goals.”³⁷

Worcester National Grid Smart Meter Pilot Program
“Radiation without representation is tyranny”³⁸

“National Grid’s two-year pilot to implement and study smart grid applications in Worcester, Mass. is largest and most comprehensive in New England involving 15,000 customers. The project covers 30 square miles in the Webster Square and Tatnuk Square, Airport Hill, and Northwest area of Worcester covering approximately 540 streets. The project will cost \$57 million and is subject to approval by the Massachusetts DPU.

In February 2011, National Grid officially withdrew its application from the Massachusetts DPU, and implementation of this project was suspended. The project finally received approval in August 2012, and is expected to be complete in two years.”³⁹

Worcester, Massachusetts is the site of the “\$48M” National Grid Smart Meter Pilot Program, which has been rebranded “Smart Energy Solutions.”

National Grid smart meter installations commenced in an early field trial in Worcester in 2012, using meters donated

³⁷ <http://www.iod.com/influencing/press-office/press-releases/smart-meters-a-government-it-disaster-waiting-to-happen>

³⁸ Worcester resident Pamela Steinberg

³⁹ <http://web.energyacuity.com/GridProject.aspx?id=359>

by the manufacturer Itron, before the pilot was approved by the DPU, and without the knowledge or consent of residents.

The pilot officially launched when customers were enrolled in experimental pricing programs in January of 2015.⁴⁰

The Worcester pilot features installation of a reported 15,000 wireless smart utility meters and a network of 180 WiMax antennas blanketing the community within three new wireless networks.⁴¹

Gigaom reported in 2010 that National Grid was one of the first utilities to test WiMax technology in its smart grid pilot, adding another level of complexity to the potential biological impacts of the Worcester pilot.⁴² The community as a whole was not consulted concerning the approval process for the pilot or the installation of the network of WiMax devices.

Currently, approximately 11,000 residents are reported to be participating in the pilot⁴³ although many more were enrolled and opted out, and many more are being exposed to the network's non-ionizing radiation.

⁴⁰ <http://www.wbjournal.com/article/20150115/NEWS01/150119978/national-grid-kicks-off-worcester-smart-meter-pilot>

⁴¹ <http://web.energyacuity.com/GridProject.aspx?id=359>

⁴² <https://gigaom.com/2010/06/09/its-a-wimax-smart-grid-world-in-australia/>

⁴³ <http://www.iotjournal.com/articles/view?13624/2>

Because the DPU authorized the pilot as an auto-enroll with opt-out instead of an informed opt-in, the pilot program's design resulted in ratepayers being forced to finance the installation and de-installation of an undisclosed number of smart meters in Worcester.

In response to a survey of deployed homes where most residents reported that they were not informed that they had received a smart meter or that they were part of a pilot program, National Grid claimed that residents were informed about the pilot prior to meter installations, but no audit or oversight process was performed to validate the utility's claims.

There have been discrepancies in the reporting of the number of Worcester households that have opted out of the biologically experimental smart meters.⁴⁴ A January 2015 article states that 15,000 participants were outfitted with meters, while an October 2015 press release by CEIVA notes that 11,000 are participating, with 1,000 receiving the in-

⁴⁴ <http://www.wbjournal.com/article/20150115/NEWS01/150119978/national-grid-kicks-off-worcester-smart-meter-pilot>

home technology that has reportedly lowered consumption and bills.⁴⁵

The “free” technology⁴⁶ being tested in the Worcester pilot was not “free.” It was financed by MA ratepayers. The “free technology” will not be replicated in statewide deployment, as noted by former Attorney General Martha Coakley.

Concerns persist that there are individuals in Worcester who have a smart meter installed and do not know about it, particularly in lower-income multi-family units where residents would experience higher levels of radio frequency exposures due to higher density installation of banks of wireless meters.⁴⁷

It is also unknown whether or not any lower-income residents received micro-chipped appliances under the guise of weatherization grants to support the pilot, without being informed that a new frig or air conditioner contained a radio transmitter.

⁴⁵ <http://www.marketwatch.com/story/ceiva-energy-technology-powers-20-additional-savings-for-national-grids-smart-energy-solutions-customers-2015-10-12>

⁴⁶ <http://www.iotjournal.com/articles/view?13624/2>

⁴⁷ <http://www.wccatv.com/video/about-smart-meters/ABOUTSMARTMETERS33>

Residents were not informed of the added exposure to radio frequencies inside the home caused by the AMI meter, because National Grid publicly claimed that the meters only operated outside.

The number of smart meters that National Grid installed in Worcester in order to replace opt outs in an attempt to fill the 15,000 quota is unknown, and has not been subjected to independent audit or investigation or regulatory scrutiny.

In other smart meter pilot programs in Massachusetts, participants who dropped out or opted out were not replaced by new enrollees. As NStar/Eversource reported: *Customer Interest in NSTAR Electric's Smart Grid Pilot highlights that, out of the 53,000 customers contacted initially regarding participation, only 1,549 were enrolled in the pilot at the end of 2013 which represents just a 3 percent response rate.*⁴⁸

National Grid was inexplicably given latitude to continuously backfill participants numbering over 1,000, which skewed the pilot results in favor of those who supported the program's objectives.

⁴⁸ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-122%2fInitial_Filing_Petition.pdf

National Grid enrolled its own employees in the pilot program.⁴⁹ It is unknown whether NStar and other utilities enrolled their employees in their test pilots. Individuals who would gain financially from smart meter deployment skew the pilot program's results by altering their behavior to support the program's goals and their employer's agenda.

The Worcester pilot has extended far beyond the approved map and is not limited to a specific geographic area.^{50, 51}

The program is behind schedule⁵² and over budget.

In DPU Docket 15-21, National Grid has requested an additional \$11M for expenses incurred through Dec. 2014, before the pilot officially launched.⁵³ The cost of the pilot is now \$3,970 per meter.

In its DPU Docket 15-21 request for additional surcharges to ratepayers for pilot expenses, National Grid stated that the

⁴⁹ <http://smartgrid.ieee.org/april-2015/1281-communications-key-in-smart-grid-launch>;

⁵⁰ <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-129%2f122311ngptam.pdf>

⁵¹ <http://haltmasmartmeters.org/worcester/maps/>

⁵² <http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-129%2f122311ngptds.pdf>

⁵³ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=15-21%2fAGO_Testimony_Bishop_072415.pdf DPU 15-21: National Grid filed to surcharge ratepayers an additional \$11M for the Worcester smart meter pilot program from expenses through Dec. 2014, before the pilot officially launched.

meter manufacturer Itron indicated that more smart meters were required, and that a different type of meter was needed.

It is unknown whether additional smart meters beyond the pilot parameters have been installed in Worcester without the knowledge or consent of the community to support the mesh network's communications integrity.

No health or environmental data has been provided to support a claim that the functionality of the newly required meters is safe or has been tested for health or environmental impacts. No verification is available to indicate that the community or homeowners were informed of a change in meter technology once the pilot was underway.

In addition, no health or environmental data was provided to support a claim that the functionality of the meters operating in conjunction with the Wi-Max network is safe for human health or the environment for long-term chronic involuntary exposures, in addition to emissions from personal wireless devices already in use.

The smart meter pilot program is characterized by National Grid as being “co-created with the community.” But in fact, some residents were and remain unaware of the program, despite the pre-pilot education budget of \$1.8M financed by ratepayers,⁵⁴ in addition to off-the-books expenditures including donations for the Sustainability Hub.

The Department of Energy report “Voices of Experience, Insights on Customer Engagement” reveals that: *“Worcester Community Summit (Broader Collaboration)—National Grid decided to work with the city’s Sustainability Office and locate their 15,000 household pilot in this diverse city that is representative of the state population as a whole. They invited key stakeholders to be part of the steering committee for a Community Summit. (See www.green2growth.com.) As part of the planning, the group identified the mix of roles/perspectives desired to be part of the visioning process. Each committee member identified specific people they knew (and provided contact details, which saved tremendous time and opened doors.) Those personal relationships and follow up were why 300 community leaders were willing to spend two workdays*

⁵⁴ <http://haltmasmartmeters.org/wp-content/uploads/2013/08/temp-pages27-29-customerengagementbudget1.pdf>

*focused on the community's energy future. The steering committee morphed into a Green2Growth Council.”*⁵⁵

In what can be described as a manipulative exercise, the Green2Growth summit was professionally facilitated to guide mostly industry-friendly participants to come to the conclusion that they wanted more information about their energy usage, without divulging the scope and extent of cost, security, safety, reliability, fire, health, surveillance and green-washing risks of the smart metering agenda.

National Grid partnered with resources in the community, including Worcester Polytechnic Institute (WPI) and Clark University, to act as “leverage influencers”⁵⁶ to encourage Worcester residents to support the pilot program.

WPI and Clark were recipients of funding for Smart Grid research beyond the pilot budget for National Grid, and are not independent of industry influence.^{57, 58}

⁵⁵ https://www.smartgrid.gov/files/VoicesofExperience_Brochure_9.26.2013.pdf

⁵⁶ See Appendix 1, Powerpoint presentation by National Grid to MA DPU identifying WPI, Clark, and Worcester Business Journal as leverage influencers

⁵⁷ <http://wpiresearch.epubxp.com/i/63254-2012/36> ...Prof John Orr of WPI shared \$495 award,

⁵⁸ <http://news.clarku.edu/news/2012/10/23/prof-stephens-presents-smart-grid-research-at-denmark-conference/>

National Grid Summary of Smart Meter Pilot Technology to IEEE, April 2015

"Communications Key in Smart Grid Launch"

Written by William F. Jones, Jr. and Stephen Koscs

Major utility National Grid has recently completed the full deployment of a smart grid pilot delivering a multi-tier communications network infrastructure to enable the end-to-end smart grid pilot objectives. The authors share the utility's approach and some initial experiences in delivering this complex solution including some of the early lessons learned and experiences with the technologies utilized.

Launching a smart grid pilot program emphasizes the need for resilient and reliable communications. On January 1, 2015, National Grid formally launched its comprehensive smart grid pilot program across 11 feeders and 15,000 customers in the City of Worcester, Massachusetts.

The program enabled smart grid capabilities all the way from the substation to customers' homes. The capabilities include: customer energy management tools linked to new smart meters; power quality and reliability schemes utilizing approximately 180 communicating distribution line devices; and new IS systems to manage and control all the devices.

*These technologies were implemented **using WiMAX, cellular, RF Mesh and Zigbee communications creating a multi-tier network. These tiers were identified as***

the Wide Area Network (WAN), the Local Area Network (LAN) and the Home Area Network (HAN). In order to build out the various networks, the company first completed a working prototype of all the protocols and technologies at the company training center. This lab environment enabled both the engineers and the installation and maintenance work force to engage in training and testing of all the new protocols to be deployed. It also supported the ability to perform some preliminary cybersecurity testing and validation of the base solutions and verify the manufacturer claims. The development of the lab was invaluable in resolving integration issues between grid controls and the communications devices that carry their data. The lab also identified missing features that would enhance certain vendor solutions which led to development of those features or inclusion on their product development roadmaps.

The next major effort was to perform a communications assessment and engineer the network designs for the pilot area. Despite the efforts to factor in known risks to obtaining optimal communications and quality of service, ***there were many unknown factors that came to light during network design, testing, deployment and activation.***

Wide Area Network

*National Grid chose WiMAX as the wide area networking communications protocol. The performance characteristics WiMAX provided supported the advanced distribution automation capabilities being implemented. Following the network design, 12 base stations were constructed across the pilot area. Where practical company owned substations were used as base installation sites followed by 3rd party lease arrangements on existing cell towers or other communication sites. Due to the frequency band and power levels being used, it was necessary to establish Near Line Of Sight (NLOS) between grid devices and their associated base station. **Trees, hills, and buildings proved to be major challenges in delivering the optimal network.** However, testing of all grid device locations using temporary base stations and field crews with bucket trucks prior to actual deployment identified problem locations prior to installation. Another challenge faced was local opposition to a few of the planned base locations which added complexity and delays to the initial deployment plan.*

Local Area Network

*This **represents the metering network, which uses RF Mesh and IPv6 protocol to establish secure two-way communication with the meters.** Approval to initiate an early field trial (EFT) of the technology made up of about 5,000 meters was another key success factor in progressing*

*from a controlled environment into a field deployment environment with exposure to the inherent unknowns. While installing and enabling the meters was not a major challenge, building the network that could communicate with all the meters while maintaining high Quality of Service (QoS) proved more challenging. Some initial challenges were experienced with using low-strength signals in less densely populated areas with lots of foliage. Another key learning centered round the dynamics of the chosen solution and the reliance on the strength of the mesh to support data collection. Some of the experience influenced future strategy, such as **the need for the development of a vegetation management strategy for wireless router locations to ensure that a good quality signal is maintained.***

When analyzing plans to integrate with an Outage Management System (OMS), the actual behaviors of the meters and mesh network required greater understanding and assessment. Scenarios to be assessed included transient outages, meter communication outages, and data transfer paths in a mesh. This assessment extended to major event and restoration planning, where adjustments in design were necessary for locating routers on mainline, rather than on side taps.

Home Area Network

*It is as easy as plug-in-play, or so it seemed. Many of the home area network solutions use the Zigbee protocol for communications from the meter to the HAN. In addition, to support some of the features of the proposed customer solution, **a customer's WiFi was used for connectivity.** To support verification of the technical design and products, **employees participating in the pilot area were leveraged to confirm the assumptions and test the deployment model.** This was a critical success factor, providing operating environment experience and knowledge to support planning and mitigate the typical start-up issues customers might experience. **Multiple and diverse challenges were encountered around utilizing customer Wi-Fi and Zigbee communications in specific types of home construction (e.g. plaster vs. dry wall), and multi-level units with meters located on the first floor or in the basement.***

This represents only a small number of the many positive lessons and technical experience gained. It is clear that success is heavily reliant on all the tiers of communications and networks. Despite the best laid plans, issues still arose during the field deployment. However, development of a prototype lab solution, early testing of the design and engaging the entire workforce during the initial planning

*stages allowed the program to minimize impacts through the learnings and develop creative and innovative solutions to many challenges faced.*⁵⁹

It should be noted that while National Grid reported that vegetation interfered with signals, National Grid did not appear to consider how signals impacted vegetation.

It is unknown how much vegetation National Grid removed to insure the integrity of its communication network, or whether tree removal for the pilot's radio signals was distinguished from vegetation management for other purposes, such as electricity reliability and storm management.

No consideration has been given to the question of how the radio frequencies interact with human beings, pets, wildlife, and the nature environment, and whether they are absorbed, reflected, or refracted by various building materials. The industry has been given latitude to evaluate signal integrity only, with no consideration of adverse environmental or health impacts. As opponents stated, the pilot program could have offered the opportunity to re-

⁵⁹ <http://smartgrid.ieee.org/newsletter/april-2015/communications-key-in-smart-grid-launch>

evaluate the presumption of innocence towards mounting evidence of bio effects.

The 2008 report *Bees, Birds, and Mankind, Destroying Nature by Electrosmog*, by Ulrich Warnke states:

*"For many decades, research results showing that the natural electrical and magnetic fields and their variation are a vital precondition for the orientation and navigation of a whole range of animals, have been freely available. What has also been known to science for many decades is that we as humans depend on this natural environment for many of our vital functions. Today, however, this natural information and functional system of humans, animals and plants has been superimposed by an unprecedented dense and energetic mesh of artificial magnetic, electrical and electromagnetic fields, generated by numerous mobile radio and wireless communication technologies. The consequences of this development have also been predicted by the critics for many decades and can now no longer be ignored. Bees and other insects disappear, birds avoid certain areas and are disoriented in other locations. Humans suffer from functional disorders and diseases. And those that are hereditary are passed on to the next generation as existing defects."*⁶⁰

⁶⁰ <http://apps.fcc.gov/ecfs/document/view?id=7521097891>

Worcester Resident Opposition

Citizen opposition galvanized in Worcester in 2013 when National Grid petitioned the Zoning Board of Appeals with plans to install a 80 ft. tower housing 5 microwave antennas in the bucolic Tory Fort neighborhood adjacent to occupied homes, after tripling the size of the area substation.^{61, 62}

The substation was subsequently found to be in violation of sound ordinances endured by abutters for over a year, with no restitution, due to engineering errors. Industrial-scale sound walls had been installed at a cost rumored to be in excess of \$250,000 not included in the pilot budget.

Resistance to the smart meter pilot spread to other neighborhoods as National Grid attempted to secure another location for the communications tower by overriding local zoning ordinances. Some members of the community become increasingly angered about being enrolled in human experimentation without knowledge and consent, and being used as pawns for a political agenda, with no true representation or inclusion.

⁶¹ http://haltmasmartmeters.org/wp-content/uploads/2013/09/worcestercouncilcommittee_8_21_13_hearingsummaryNEWSLETTER3.pdf

⁶² <http://www.golocalworcester.com/news/new-public-hearing-to-be-held-on-worcester-smart-meters/>

Worcester Politicians' Delays and Lack of Response to Citizen Concerns

Residents expressed concerns regarding security, privacy, cost, property values, green-washing, and fires, supported by documentation from around the country and from international sources, and requested a public hearing where they could directly question National Grid about claims that were made to the community about smart meters, (for example, the false claim that the meters “only operate outside”) for a pilot program portrayed as being “co-created with the community.”

Health complaints of Worcester and Massachusetts residents reporting harm due to the installation of wireless meters and related infrastructure were voiced at numerous City Council meetings, and before the Zoning Board of Appeals.⁶³

In April of 2013, Councilor Konnie Lukes requested an opinion by the City regarding smart meters and health.

Motion Lukes @ #8.4A CM – Request City Manager request

⁶³ <http://www.wccatv.com/video/about-smart-meters/asmSpecial2> On 1/13/14 National Grid presented its request for variances for the towers for the Smart Meter/Smart Energy Solutions program to the Worcester Zoning Board of Appeals. 25 informed residents testified for one to three minutes, including four Worcester City Councilors, two ex-ZBA officials, one WPI graduate electrical engineer with 24 patents, at least one Ph.D., a Clark University professor, many Worcester residents, concerned Massachusetts residents, and state consumer advocates. 30 minutes of National Grid and 90 minutes of citizen's commentaries

the Commissioner of Public Health provide an opinion as to the potential health hazards regarding the Smart Grid Pilot Program, ⁶⁴

Orders languished through the remainder of 2013 election season as National Grid continued to install smart meters.⁶⁵

Private meetings were held with state legislators Senators Moore and Chandler, and Worcester residents continued to appeal to their own district councilors, especially in District 5, for representation and advocacy, with very little success.

State Representative Steve DiNatale of Fitchburg traveled to Worcester to attend a hearing with Worcester's Public Service sub-committee in August 2013, but did not have the opportunity to speak.

Citizen concerns were continually tabled by the City's administration.

1a. ~ impact of Smart Grid meters and towers to property values. [0425-1a-propertyvalues-7pages-attachment](#)

1b. ~ National Grid's responses to various requests (MAIN DOC) [042521b-whatcancurrentsystemdo-1pages-first attachment](#) + [0425-1b-various-75pages-attachment](#)

⁶⁴ <http://www.worcesterma.gov/agendas-minutes/city-council/2013/20130423.htm> 21.D

⁶⁵ http://haltmasmartmeters.org/wp-content/uploads/2013/08/Council_National_Grid_Orders.pdf

1c. ~ update of the Smart Grid Program (HEALTH). [0425-1c-update-75pages-attachment](#)

1d. ~ National Grid – Smart Energy Solutions Program (Smart Grid) – Guide to Safety and Security. ~ In Committee August 21, 2013 – **Held** ~ Attachments = [0425-1d-safety&security-5pages-attachment](#)

1e. ~ correspondence received from National Grid notifying City Council of an upcoming vegetation management activities, specifically selective side pruning and/or danger tree removal along an electric transmission right-of-way. ~ In Committee August 21, 2013 – **Held** ~ Attachments = [0425-1e-vegetation-trees-3pages-attachment](#)

1f. ~ Transmitting informational communication relative to the Smart Grid Deployment update. ~ # 9.4D CM March 12, 2013 ~ In Committee August 21, 2013 – **Held** ~ Attachments = [0425-1f-update-14pages-second_attachment](#)+ [0425-1f-update-3pages-first_attachment](#)

1g. ~ the City’s Smart Grid Program. ~ In Committee August 21, 2013 – **Held** ~ Attachments = [0425-1g-non-specific-14pages-attachment](#)

1h. ~ the City’s Smart Grid Pilot. ~ In Committee August 21, 2013 – **Held** ~ Attachments = [0425-1h-nonspecific-51pages-attachment](#)

2a. ~ Petition of John Dick et al request to speak before City Council in opposition to the National Grid Smart Energy Solutions Pilot Program.

⁶⁶

Elected officials continued to be pressured by media coverage and complaints concerning lack of response, representation, and protections, and

- mounting citizen concern over smart meter health risks, including the World Health Organization’s International Agency for Research on Cancer classification of radiofrequencies as a class 2B possible

⁶⁶ http://haltmasmartmeters.org/worcester/worcester_city_council/

human carcinogen ⁶⁷ reported by citizens in City Council meetings and via emails

- reports of harm from other states where smart meters have been deployed ⁶⁸
- reports of harm to a small number of Worcester residents, some of whom did not have smart meters on their own homes, but who were impacted by installations on neighboring homes or by encroaching infrastructure
- challenges to unsubstantiated claims by the utility that smart meters had been proven safe ⁶⁹
- challenges to utility claims that health studies were performed in California ⁷⁰ and Texas ⁷¹, when no such health studies were performed
- a sourced rebuttal ⁷² by Clare Donegan of HaltMAsmartmeters to National Grid customer information ⁷³ that mischaracterized the comparisons

⁶⁷ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

⁶⁸ <http://emfsafetynetwork.org/smart-meters/smart-meter-health-complaints/>

⁶⁹ <http://www.golocalworcester.com/news/smart-meter-infrastructure-delayed-again-opposition-still-remains>; <http://www.golocalworcester.com/news/anti-smart-meter-group-blasts-new-transmitter-for-health-concerns>

⁷⁰ The Texas PUC report was a literature review compiled by a securities analyst.

⁷¹ The smart meter report by the California Council on Science and Technology was not a health study and was partially cut and pasted from an industry brochure.

⁷² http://haltmasmartmeters.org/wp-content/uploads/2013/08/WCC_071613_NG_Rebuttal_FINAL1.pdf

⁷³ <http://www.worcesterma.gov/agendas-minutes/city-council/2013/20130716.htm> item 11.4D;

<http://www4.ci.worcester.ma.us/weblink7/DocView.aspx?id=415201&searchhandle=497>

- between common household devices and smart meters. Additional inaccuracies included false claims that the FDA and WHO have found no adverse health impacts from smart meters, (implying that both organizations have researched the safety question of smart meters)
- Evidence of health damage due to tower and antenna proximity from research in other nations, including Brazil and Germany,⁷⁴ (because the U.S. has founded no tower health research studies).
 - Evidence presented to the Worcester community via a cable television show produced by volunteers aired on WCCA Channel 194, *About Smart Meters*, which proved to be the only consistent and accessible free speech venue where activists/opponents were able to present information to the community⁷⁵

Amidst mounting opposition due to held City Council orders and lack of response by the City, Worcester residents continued to pressure the City to monitor the pilot program and to investigate the utility's safety claims.

In addition to lack of response at City Council Meetings, Zoning Board of Appeals hearings for the Tory Fort tower

⁷⁴ <http://rfemf.com/media/2014-0224-Paul-Dart-35552.pdf>

⁷⁵ <http://www.wccatv.com/video/about-smart-meters>

were delayed time and again, for over a year. Abutters were frequently inconvenienced by last minute cancellations by National Grid. *Zoning Board of Appeals list of delays for Tory Fort tower Public Hearing Deadlines: 6/20/13, 7/8/13, 7/29/13, 9/9/13, 9/30/13, 10/21/13, 12/2/13, 1/13/14, 3/17/14, 5/5/14*⁷⁶

The Coes Pond microwave tower issue was not resolved for the Tory Fort neighborhood until National Grid was forced to pursue an alternative location based on the ruling by Worcester's legal department that the utility did not have the right to override local zoning based on the Telecommunications Act of 1996, because the utility is not a telecom provider.

After the fall 2013 elections, City Councilors, the Mayor, and the City Manager finally called for the input of the Worcester's public health authority for his professional guidance and expertise regarding the smart meter health and safety issue, after National Grid had deployed thousands meters in Worcester.

Dr. Hirsch submitted his report at the public meeting held on February 6, 2014.

⁷⁶ <http://www.worcesterma.gov/agendas-minutes/boards-commissions/zoning-board-of-appeals/2014/20140505.pdf>

Critique of Smart Meter Technology Health Report

"We are morally responsible to some extent for side effects of our actions. Two general categories cover unintended consequences; recklessness and negligence.

When one knowingly creates an unreasonable risk to self or others, one is reckless; when one unknowingly or faultily creates a risk, one is **negligent**.

When one is **reckless**, one is fully aware of the risks one is taking with on others, and those risks are unjustified. What justifies certain risks can be contentious, particularly when the risks involve other people not given decision-making authority or choice in a given situation.

One can consciously weigh the risks but mis-assess it, either because of hasty or otherwise insufficient scrutiny (rashness) **or through willful blindness to the magnitude of risk.**" ⁷⁷

- Heather E Douglas, Science, Policy, and Value Free Ideals

⁷⁷ Douglas, Heather E, Science, Policy, and Value Free Ideals, University of Pittsburgh Press, 2009, page 68

**Excerpt from Worcester Smart Meter Health Study,
January 30, 2014, by Acting Commissioner of Public
Health Dr. Michael P. Hirsch**

Page 3, Paragraph 2,

In 2011 the International Agency for Research on Cancer IARC listed RF EMF as possibly carcinogenic to humans Group 2B stating an increased risk for glioma a malignant type of brain cancer is associated with wireless phone use. The BioInitiative Report published after the IARC statement explains that though studies of long term exposure to low levels of RF radiation and brain tumors exist they have been occupational studies As previously explained occupational exposure limits are higher than public exposure limits and therefore a causal relationship between smart meters and brain tumors has not been established.

Footnote 14 attributed to Prof. Michael Kundi, PhD med habil of the Institute of Environmental Health, Medical University of Vienna, Austria Full Member, Bioelectromagnetics Society, Contributing Author for the 2012 BioInitiative Report.

This critique analyzes the Worcester Division of Public Health report provided by the Acting Public Health Commissioner Michael Hirsch, generated on January 30, 2014, and presented to the Worcester City Manager on Feb. 4, 2014.

The health report was used by the City's administration to justify decisions not to take any action to advocate on behalf of Worcester resident safety and welfare.

There are fundamental cognitive flaws in the 5-page report generated by the Public Health Department, which indict the author for either speaking outside his area of competence and expertise, and/or for seeking to mislead the reader concerning credible science, or both.

Page 1 Paragraph 2 Background

"To test how smart meters can decrease energy use"

The definition presumes that smart meters decrease energy usage, without quantifying the consumption of energy and natural resources required to power the communications network.

Time of Use (TUO) billing structures enabled by smart meters can be used to decrease peak loads.

An alternative no-risk strategy to decrease peak loads is customer education, for example, a small magnet on an appliance "Can it Wait Until 8?" as suggested by Clare Donegan.

This strategy however assumes that the use of smart meters to coerce customers to alter their consumption patterns will not contribute to catastrophic grid synchronization.

MIT research scientist Mardavij Roozbehani and professors Sanjoy Mitter and Munther Dahleh found that if consumer response to price fluctuation is large enough to significantly alter patterns of energy use — and if it's not, there's no point in installing smart meters — then price variations well within the normal range can cause dangerous oscillations in demand. "For the system to work, supply and demand must match almost perfectly at each instant of time," Roozbehani says. "The generators have what are called ramp constraints: They cannot ramp up their production arbitrarily fast, and they cannot ramp it down arbitrarily fast. If these oscillations become very wild, they'll have a hard time keeping track of the demand. And that's bad for everyone."⁷⁸

As noted by the Attorney General, outreach and education, not smart meters, create change in customer behavior.

⁷⁸ <http://phys.org/news/2011-08-too-smart-for-its-own-good-grid.html>,
<http://phys.org/news/2015-07-seemingly-obvious-electricity-worse.html#jCp>

In the National Grid smart meter pilot, participants received incentives such as Dunkin Donuts gift cards⁷⁹ and iPads, which will not be replicated in statewide deployment.

Conclusions about how smart meters enabled energy savings in Worcester⁸⁰ must be evaluated within the context of the entire Worcester pilot design, and cannot be extrapolated to statewide deployment under different parameters.

The phrase “to test how smart meters can decrease energy use” could be adjusted to state, “to test how smart meters can decrease energy use when research works backwards to manufacture desirable outcomes and is not conducted to test the real life conditions of the planned deployment, and no other alternatives are explored.”

Alternative, less costly, and safer strategies to allow customers to support demand-response have not been considered or tested.

Page 1 Paragraph 2

⁷⁹ <https://www1.nationalgridus.com/SmartEnergy-MA-RES> See picture, bottom right corner

⁸⁰ <http://www.marketwatch.com/story/ceiva-energy-technology-powers-20-additional-savings-for-national-grids-smart-energy-solutions-customers-2015-10-12>

"Smart meters indicate the amount of energy that is household uses, what appliances the energy is coming from"

The "energy" is not "coming from" the appliances; the appliances are using the "electricity".

Page 1 Paragraph 2

"what time of day the most energy is used and provide a way of measuring this information that allows utility companies to set prices"

A 20102 report by New England States Committee on Electricity (NESCOE) states, [1] In New England, on peak hours are from 7:00 a.m. through 11:00 p.m. on all non-holiday weekdays; off-peak hours are weekday hours between 11:00 p.m. and 7:00 a.m. and all day Saturdays, Sundays, and holidays.⁸¹ Smart meter data was not used to set the parameters for peak and off-peak pricing patterns. If the pilot is not replicating the variables concerning peak and non-peak rates that will used for future deployment, the results of the pilot must be qualified.

⁸¹ <http://nescoe.com/resources/smart-grid-implementation-may2012/> Footnote 1

For example, ratepayers are often told that the meters will help them to save money. In Ontario, rates are increasing for peak, mid-peak, and off-peak rates, in addition for paying the costs of deployment.⁸²

Maine's smart meter deployment has not yielded promised savings *"Central Maine Power told the Maine Public Utilities Commission in 2010 that the meters could save customers up to \$338 million over 20 years. The company said it would have the early stages of a time-of-day pricing system for electricity available by 2014. That system offers a potential for significant savings for customers – especially businesses – who shift their electricity consumption to off-peak hours, when prices are lower. But that hasn't happened. And the company's failure to meet its 2014 goals prompted regulators to take action and negotiate a settlement that reduced CMP's rates."*⁸³

Again, however, the industry is assuming that "shifting load" will not lead to the catastrophic grid synchronization outlined by Physics.org.⁸⁴

⁸² <http://toronto.ctvnews.ca/hydro-rates-set-to-increase-november-1-1.2611709>

⁸³ <http://www.pressherald.com/2015/07/19/consumers-still-waiting-for-smart-meters-to-pay-off/>

⁸⁴ <http://phys.org/news/2015-07-seemingly-obvious-electricity-worse.html#jCp>

Page 1 Paragraph 2

One smart meter interconnects residents through a Local Area Network (LAN) and is placed on a central house in the neighborhood. A second transmitter is placed on neighboring houses and interacts with devices within a residence to create a Home Area Network (HAN).

Researchers in a new study have used an alternative model based on econophysics that shows that adaptive pricing has the exact opposite effect: rather than dampen the fluctuations, it amplifies them.

"Our work examines the, at first sight, great idea to use smart electricity meters to dampen fluctuations in the electricity power nets," Stefan Bornholdt at the University of Bremen told *Phys.org*. "However, we find that under some conditions, consumers with such meters start competing and create a new artificial market which exhibits properties of real markets, such as bubbles and crashes. Thus, instead of dampening out fluctuations, it may create new ones. In this way, interacting smart meters may generate chaos instead of stability."

The reason for amplifying the fluctuations, as Bornholdt and coauthors Sebastian M. Krause and Stefan Börries explain in a paper to be published in *Physical Review E*, is that changing the price of electricity over time can lead to the emergence of coordinated behavior among consumers.

"The coordinated action of consumers in our model stems from our basic needs (of electricity), i.e., the fraction of needs which cannot be postponed indefinitely: washing machines, heaters, AC, etc. Those can wait for a while, however, eventually have to be operated when need has increased (laundry has piled up). We will then even accept a higher electricity price. Indeed, the first washing machines that connect to smart meters allow such a price threshold to be set.

"When laundry piles up, users (or algorithms in advanced machines) can adapt the threshold to a higher allowed price. When the fluctuating price then drops after a while from higher levels, those consumers who postponed their activity will then join the 'happy hour' of cheap electricity, leading to an avalanche of demand (reminding of some crowded bars at happy hour). This is a dynamic phenomenon which econophysics models, but not standard economic models, can represent."

Each participating home is installed with a smart meter that contains two transmitters. One transmitter operating in about the 900 MHz (cellphone) range communicates to and from the utility (Local Area Network LAN). A second transmitter in each smart meter communicates with micro-chipped appliances inside the home in the Wi-Fi range (2.4 GHz). (Home Area Network HAN). A neighborhood node, also known as a medusa meter,⁸⁵ is placed on the home of an unsuspecting consumer, and collects the data for hundreds of smart meters.

National Grid describes the Worcester pilot as using “WiMAX, cellular, RF Mesh and Zigbee communications creating a multi-tier network. These tiers were identified as the Wide Area Network (WAN), the Local Area Network (LAN) and the Home Area Network (HAN).”⁸⁶

⁸⁵ <http://stopsmartmetersirvine.com/2012/03/03/medusa-collector-smart-meter-ladera-heights-california-and-dead-bees-on-walkway-near-smart-meter-irvine-california/>
http://haltmartsmartmeters.org/home/do_i_have_a_smart_meter/
Booster/Repeater/Medusa ‘smart’ meters which look deceptively like standard ‘smart’ meters but are a bit ‘deeper’ have a third powerful transmitter/receiver and transmit not only that home’s data but the data of the neighborhood (hundreds or thousands of ‘neighors’) to the nearby WiMax antenna. These booster/repeaters (sometimes called Medusa Meters) are usually affixed to the utility’s best customers, long term residents who pay on-time.

⁸⁶ <http://smartgrid.ieee.org/newsletter/april-2015/communications-key-in-smart-grid-launch>

Because of the capacity of the network to transmit far more data than needed by the utility, it has also been described as the equivalent of blasting a mosquito with a bazooka gun, leading to speculation that the utility is seeking to eventually establish itself as the communications network for the future of the Internet of Things and other uses.

Page 1 Paragraph 2

Through this two way communication system, information is read from the smart meter about once every fifteen minutes

In California under court order PG&E (Pacific Gas and Electric) was forced to reveal that the meters they had installed transmit via microwaves between up to 132 times per minute or 190,000 times per day.⁸⁷

All of these pulsed transmissions are not data; most are to maintain the integrity of the 'mesh' network for all of the 'smart' meters and infrastructure in the neighborhood.

Although National Grid and its partners implied to the community that the meters are only read about every 15 minutes, biological impact would need to be evaluated

⁸⁷ http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives_11-1-11-3pm.pdf

relative to all of the pulsed radiation emitted by the meter and the network, for whatever purpose, and not just for the industry's data reads.

No independent monitoring has confirmed how often the meters and related infrastructure are transmitting or being read in Worcester.

In a predatory model, the industry has downplayed the amount of time that the smart meter transmits, for example stating that it transmits "about 15 minutes a day" or less.⁸⁸ This is similar to assuming that a jackhammer or strobe light is only bioactive for a small portion of time because its not doing anything then it is not flashing or hammering.

In actuality, the meters are bioactive 24/7/365, and the misinformation campaign deserves rejection from informed decision makers.

Page 1 Paragraph 2

information is read from the smart meter "about every fifteen minutes" and is communicated back to the electric utility company using radiofrequency (RF) or electronic and magnetic frequency (EMF).

⁸⁸ <http://www.pge.com/en/safety/systemworks/rf/faq/index.page>

Radiofrequency is not the equivalent of the invented phrase “electronic and magnetic frequency” and the phrase is not found in the Boston Globe article by Alyssa Edes referenced in Footnote 6.

Page 2 Paragraph 1

The footnoted reference for the health concerns is a City Council Meeting. Health concerns due to exposure from 24/7/365-pulsed radiation are not limited only to EHS and possible increased rates of cancer.

The 2012 Bio-Initiative report found:⁸⁹

SUMMARY OF KEY SCIENTIFIC EVIDENCE

- A. Evidence for Damage to Sperm and Reproduction
- B. Evidence that Children are More Vulnerable
- C. Evidence for Fetal and Neonatal Effects
- D. Evidence for Effects on Autism (Autism Spectrum Conditions)
- E. Evidence for Electrohypersensitivity
- F. Evidence for Effects from Cell Tower-Level RFR Exposures
- G. Evidence for Effects on the Blood-brain Barrier

⁸⁹ http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec01_2012_summary_for_public.pdf

- H. Evidence for Effects on Brain Tumors
- I. Evidence for Effects on Genes (Genotoxicity)
- J. Evidence for Effects on the Nervous System (Neurotoxicity)
- K. Evidence for Effects on Cancer (Childhood Leukemia, Adult Cancers)
- L. Melatonin, Breast Cancer and Alzheimer's Disease
- M. Stress, Stress Proteins and DNA as a Fractal Antenna
- N. Effects of Weak-Field Interactions on Non-Linear Biological Oscillators and Synchronized Neural Activity

Page 2 Paragraph 2

Footnote number 8 providing statistics for meter installations; www.smartergrid.org is an informal website created by Clark University students. Land and Water Use course Professor Robert Pontius stated, "It seems odd to cite that website for that fact that the document has" except perhaps to give the casual reader the impression that Clark University is an expert community resource. The website is no longer available on the internet.

Page 2 Paragraph 2

Participation in the program is not mandatory and households have the ability to "opt out."

The opt out, promoted by National Grid as indicative of its commitment to customer choice, was necessitated by the fact that customers reported that they were not informed when smart meters were installed, and had to request de-installation. Some residents with smart meters still report not being aware until being informed by community activists.

However, opting out will not protect residents from exposure to neighboring meters, the mesh network, and the WiMax towers. The exposure to the radio frequencies generated by the program is inescapable and involuntary.

National Grid promoted itself as considerate of those requesting a free opt out and committed to customer choice. Yet, in proceedings for MA DPU 13-83,⁹⁰ National Grid petitioned the DPU to penalize customers who desired to opt out of the first generation wireless AMR meters with punitive fees for both gas and electric meter removal and monthly surcharges, thereby discriminating against medically vulnerable residents.

⁹⁰ http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=13-83%2fDPU1383A_FinalOrder.pdf

In its August 2015 smart meter submission to the DPU, National Grid again proposed charging its AMR opt-out fees for AMI smart meter opt outs.

The discrepancy between the “National Grid Here with you Here for You” customer relations used in Worcester and the state-wide plan to mandate smart meters with punitive opt out fees raises concerns about the lack of integrity of the pilot administered by the utility and approved by its regulators, and those community partners who lent their support to the misrepresentation.

Informed activists note that the pilot has the characteristics of a predatory model.

**Page 2 Paragraph 3 Explanation of Radiation:
Texas PUC Smart Meter Health Report**

The Texas PUC Smart Meter Health Report was a flawed literature review, not a health study. Regarding the Texas PUC report, Texas activists wrote: To Texas’ shame, a smart meter report entitled, Health and RF EMF From Advanced Meters, has been put out by Alan Rivaldo, an unqualified former Xerox employee turned Cybersecurity Analyst, who has absolutely no medical expertise on the damaging

bioeffects of EMFs to human tissue. Those who stand to gain financially from the deployment of smart meters are pushing this report as the final word with cherry-picked studies and analyses that deny the real bio-effects of wireless RF and EMF. Texas is contributing to reckless endangerment of American citizens and negligence by the industry because the Texas PUC report is inaccurate, outdated and exhibits bias regarding the adverse effects of radio frequency exposure. If unresolved health and safety issues are addressed with inaccurate information, our nation will be investing in dangerous technologies in the short run, and creating exorbitant and unnecessary costs in the long run when the whole system has to be replaced.”

Upon learning that the Texas PUC report was being presented as evidence of smart meter safety in other states, and in Worcester, the Lieutenant Governor of Texas David Dewhurst issued a 3/26/2014 statement urging “administrative bodies” not to rely on the Texas PUC ‘health’ report (authored by a cybersecurity analyst no longer employed by the Texas PUC.)

----- Original Message -----

Subject: Rivaldo report update

From: “Lt. Governor David Dewhurst”

<Service.Account@ltgov.state.tx.us>

Date: Wed, March 26, 2014 3:48 pm

To: "patriotshar@texansagainstsmartmeters.com"

<patriotshar@texansagainstsmartmeters.com>

Dear Patriot Shar,

Since the December 2012 issuance of a report on the health effects of smart meters by the Public Utilities Commission of Texas, many individuals have contacted our office raising concerns about the methodology used in the study of studies. In light of these communications, we have asked for the State to again look into these health concerns. It has also been brought to our attention that the report is being relied upon by administrative bodies across the United States and Canada. We encourage all such administrative bodies to conduct independent research to ensure that health concerns are fully addressed.

Sincerely,

David Dewhurst

Lieutenant Governor

The correspondence from Texas was ignored in by Worcester's administration.

The Texas PUC health report remains on National Grid's website.⁹¹

The Safer Utilities Network in Arizona wrote a synopsis:

"Several pages of the (Texas PUC Smart Meter Health) Report are used to discredit the opposition in a manner that is surprising for a document published by a public entity. The theme throughout the Report is that the opposition is based on myths and hysteria, propagated by social media, and totally lacks scientific support. This is a very one-sided assessment, based on cherry-picked evidence. The Report resorts to personal attacks on five people, including two American physicians who have voiced their objections to wireless smart meters.

The Report places great weight on sources focused on promoting the smart grid, not sources focused on public health. The Electric Power Research Institute (EPRI) is referred to very prominently in the Report. Its publications are cited several times and the same publications have also been the foundation of the opinions of other entities cited in

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https://www1.nationalgridus.com/Files/AddedPDF/Texas%20PUC%20SmartMeter_RF_EMF_Health_12-14-2012.pdf

the Report (such as the California Council of Science and Technology).

The author of the Report even echoes the EPRI stance that there are no long-term health effects from cell phones, contrary to that of the World Health Organization (WHO). The WHO's cancer panels are not known for their snap judgments, and should be much more qualified to make such assessments than techno-centric EPRI. However, the Report's author almost mocks the WHO evaluation of cell phones' health effects.

EPRI is portrayed as an "independent" organization with the implication that they are not beholden to special interests. The reality is that EPRI is closely aligned with the utility industry, on which it is almost fully dependent for funding. We are not aware of any case where EPRI has published anything contrary to industry interests.

The Smart Grid Technical Advisory Project (SGTAP) is another group focused on advancing the smart grid, which carries great weight in the Report. According to SGTAP, the findings on health effects from the use of cell phones do not have any bearing on smart meters. It is true that there are important differences. A cell phone imparts a higher level of

radiation, for a limited period of time, while a smart meter provides chronic radiation at a lower level. However, it is important to realize that the announcement by the World Health Organization was not limited to cell phones.

One of the very few medical sources cited is a Swedish paper, where the primary author is Anders Ahlbom. Ahlbom has been deeply involved in the issue of EMF health effects and served with ICNIRP, WHO and other entities, always promoting his view of no health effects. In 2011 it was revealed he co-owned a firm that specialized in lobbying on behalf of the cell phone industry. He was asked to step down as chairman of WHO's radio-frequency cancer board (IARC), but remains influential in the debate (Microwave News, 5/22/11).

The logic employed in many of these reports is based on the smart meters radiating less than the FCC limits, therefore they are deemed safe. The FCC limits were set in 1996 and are based on an outdated thermal model, which much evidence shows to be too simplistic (according to the BioInitiative report, the Council of Europe Resolution 1815, the Freiburger Appeal, the Benevento Resolution, etc.).

The Texas PUC Report refers multiple times to the obscure website www.emfandhealth.com for opinions on the medical research. This web site specializes in criticizing certain studies finding EMF health effects, but does not appear to be subject to scientific standards and review. Their tone is not exactly unbiased, either.

The Report states: Double-blind studies which were well-controlled and well-conducted had shown that symptoms were not correlated with EMF exposure.

It is true that the majority of the studies do not demonstrate such a correlation, but very few, if any, of the studies are well-conducted or well-controlled.

The mentioned studies at King's College were conducted in regular offices in a regular building, with several of the test subjects getting symptoms from just being in the lab.

It is very difficult to conduct such studies on EHS patients. It requires rigorous controls of the environment, which most of the studies fail to do. Common problems include the presence of computers, fluorescent lighting and other triggers. This is analogous to asking an asthmatic to

discern whether there is a cigarette smoker present in a room filled with cigar smoke.

Other problems include delayed reactions. Few people with EHS react right away and sometimes have their most severe symptoms hours later. Travel to the lab may produce symptoms that first show up after entering the laboratory.

There is also the problem that symptoms rarely turn on and off on command. Instead, the EHS patients tend to get generalized symptoms after exposures, which linger long after the exposure ends. Some people experience symptoms which then disappear with further exposures as the body adapts, but with worse effects happening the following day. These mechanisms may already be at play before the experiments even start, due to the travel to the site and the ambient levels in the laboratory. It is very difficult for most people with EHS to determine exposures with the precision demanded for these tests.

Very few of the studies have attempted to separate the effects of trauma and anxiety, which are a common result of contracting EHS, as they are for other life-altering illnesses.

Many of the studies are conducted by departments which are focused on psychiatric illnesses, which may slant their conclusions. The King's College research group published a 2012 article which puts forth the absurd idea that people with EHS simply want to live as hermits (PubMed 23288087).

The Report does not mention that EHS is recognized as a legitimate illness by the Austrian Medical Association, and as a functional impairment in Sweden. The Council of Europe has also recognized EHS in its Resolution 1815.

The physical mechanism for EHS is presently not understood. This is normal for a new syndrome, and does not mean EHS is not "legitimate". Many other diseases of the past half century were not well understood either in the beginning, such as AIDS, asbestosis, allergies and asthma. Autism and fibromyalgia are still not understood.

General acceptance of an illness takes time, especially when it conflicts with established dogma and special interests. Meanwhile, those who are sick are subjected to the ridicule of which this Report is a mild example. With very little funding available to investigate an illness that is not "legitimate", the prospect for proving its existence scientifically is very long.

Conclusion *The Report's cover letter to the Texas PUC states that the report is "intended to objectively address the issue." Unfortunately, the Report cannot be considered objective, as it has a strong bias in its content, language and choice of sources. The theme throughout the Report is that there are no legitimate concerns of any kind and the public discussion is simply a matter of science versus myth and hysteria... that the concerns of the public are simply an artifact of social media with no basis in reality.*

*This Report is neither objective nor scientific, and is of limited value to a balanced debate. Some opponents to smart meters have certainly produced what amounts to propaganda, and so have some utilities, but one should not expect that from a governmental agency, funded by taxpayer money."*⁹²

Industry Statement about Texas PUC Influence:

"The (Texas) PUC will fulfill its role in security by continuing to engage utilities, maintaining an open dialogue with its reliability entities, and staying involved in the standards development process for smart grid, including cybersecurity. Staff has been actively involved in the activities of the NIST

⁹² http://www.eiwellspring.org/smartmeter/ACC_TPUCrebuttal.htm

*CSWG, NESCOR, NESCO, UCAIug, and other groups over the past three years. As a result, the presence of state regulators is well-known and witnessed by other participants **which helps to ensure the interests of our constituents are represented in discussions.**"*⁹³

"Constituents" refers to corporate interests.

Page 2 Paragraph 3 Explanation of Radiation: California Council on Science and Technology Report Was Not a Health Study

In January 2011, Daniel Hirsh of the Committee to Bridge the Gap issued a critique of the CCST document, stating; *"Rather than being an independent, science-based study, the CCST largely cuts and pastes estimates from a brochure by the Electric Power Research Institute, an industry group, issued some weeks earlier. The EPRI estimates appear incorrect in a number of regards. Two of the most central errors are the failure to take into account duty cycles of cell phones and microwave ovens and the failure to utilize the*

⁹³ http://www.puc.texas.gov/industry/projects/electric/40128/PUCT_Project_40128_Electric_Grid_Cybersecurity_in_Texas.pdf

same units (they should compare everything in terms of average whole body exposure).”⁹⁴

Page 2 Paragraph 3 Explanation of Radiation: CCST, LBNL, EPRI Collusion

The Texas Public Utilities Commission report is mentioned that relied on research from the California Council on Science and Technology, the Lawrence Berkeley National Laboratory, and the Electrical Power Research Institute. The three organizations form an inter-related think tank. **CCST describes how these organizations are intertwined collaboratively:** “In 2005, CCST invited Lawrence Berkeley National Laboratory to join as CCST affiliate. Through this collaboration, laboratories are provided a forum through which they can inform policymakers on issues that are both laboratory and non-laboratory specific and that affect the health and vitality of the science and technology enterprise in California.” (Not the health and vitality of Worcester or Massachusetts residents or the environment)

Page 2 Paragraph 3 Explanation of Radiation: AM Radios, Cell Phones, and Microwave Ovens

⁹⁴ http://www.committeetobridgethegap.org/pdf/110212_RFrad_comments.pdf

Professor John Orr of WPI is quoted as stating that “these frequencies are forms of non-ionizing radiation” similar to AM radios, cell phones, and microwave ovens.

Activist Clare Donegan noted, “Please try to cook your dinner next to your AM radio, or make a call from your microwave oven. This sentence is misleading, untrue, and lacking in scientific rigor. These technologies should not be thrown together in a misguided attempt to convince consumers that the technology is safe because it is ubiquitous, or that smart meters are the same as technologies already in common use.”

A comprehensive critique of misleading comparisons by National Grid ⁹⁵ of common household devices and smart meters was compiled by HaltMA smartmeters.org.⁹⁶

**Page 2 Paragraph 3 Explanation of Radiation:
“non-ionizing EMF radiation has a thermal effect on human tissue.”**

Non-ionizing radiation has non-thermal effects (biological impacts below the heating threshold) recognized by 40% of the world’s population to be harmful. ⁹⁷

⁹⁵ <https://www1.nationalgridus.com/SafetyAndSecurity>

⁹⁶ http://haltmasmartmeters.org/wp-content/uploads/2013/08/WCC_071613_NG_Rebuttal_FINAL1.pdf

The paragraph is misleading due to omissions, and ignores the crux of the debate concerning the non-thermal impact of non-ionizing radiation.

Page 2 Paragraph 3 Explanation of Radiation:

"tissue damage is based upon the level of intensity in which EMF radiation increases. For example, as the sun heats up, skin tissue will be damaged over time."

The sentence is poorly constructed at best, but seems to imply that tissue is damaged in relationship to the intensity of EMF increasing, without clarifying if the intensity increasing measurement is of power density or frequency or orientation to the field or proximity or some other variable. The sentence is an attempt to nullify the biological impacts of low-intensity chronic exposures other than heating.

In the EMF Scientist Appeal, representing 190 scientists who have published over 2,00 peer-reviewed studies, Joel Moskowitz, from the School of Public Health at the University of California, Berkeley, and a member of the Appeal Committee, stated, "**U.S. regulatory standards and international guidelines only control for short-term**

⁹⁷ http://www.bcuc.com/Documents/Proceedings/2013/DOC_33694_C9-13-2_CSTS_Dr-Isaac-Jamieson-Response_FBC-IR-1_IntvrEvidence.pdf

heating of tissue. The standards do not protect us from the low-intensity, chronic exposures to electromagnetic fields (EMF) that are common today.”

In February 2014, the U.S. Department of the Interior also stated, **“The electromagnetic radiation standards used by the Federal Communications Commission (FCC) continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.”⁹⁸**

Page 2 Paragraph 3 Explanation of Radiation:

“However, the radiation emitted by smart meters is Extremely Low Frequency (ELF) radiation, which is not at the intensity that damages tissue.”

The report introduces a fundamental cognitive error in stating twice that smart meters emit ELF, or **Extremely Low Frequency**.

Smart meters do not emit ELF; smart meters emit shorter faster signals in the high frequency microwave range.

⁹⁸ http://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf

Worcester 'smart' meters LAN transmitters use the 902-922 Frequency Range (MHZ) ⁹⁹ The Zigbee HAN network uses "Frequency 2.4 GHz."

National Grid antennas use higher frequencies for WiMax but the report failed to address them.¹⁰⁰

The ELF line of demarcation is 3,000 Hz.

The **misuse of the technical term ELF** may imply to a casual reader that ELF indicates low intensity, low risk, or low biological impact.

The entire claim is inaccurate, incorrect, and misleading, and invalidates the Worcester smart meter health report, indicating that the author lacked a basic understanding of the material, or wrote the document to mislead the reader, or both.

Page 2, Last Paragraph

⁹⁹

https://apps.fcc.gov/oetcf/tcb/reports/Tcb731GrantForm.cfm?mode=COPY&RequestTimeout=500&tcb_code=&application_id=578983&fcc_id=SK9AMI7

¹⁰⁰

<https://www.itron.com/na/PublishedContent/OpenWay%20Wireless%20Networking%20with%20ZigBee.pdf>

Maximum Permissible Exposure

The discussion of Maximum Permissible Exposure Limits for occupational and general population is irrelevant to the discussion of non-thermal impacts of non-ionizing radiation emitted by wireless smart meters.

Page 3 Paragraph 2 Negative Health Impact Arguments for RF

The second paragraph on page 3 alone forms the basis of a fraud and ethics complaint against Dr. Michael Hirsh and the Worcester City administration.

Page 3 of the Worcester Smart Meter Health Report states that the International Agency for Research on Cancer found “an increased risk for glioma, a malignant type of brain tumor, is associated with wireless phone use.” This sentence is true, but misleading, because the classification was for radiofrequency technologies, not just wireless phones.¹⁰¹

Worcester City Councilors, the Mayor, and the City Manager received a written copy of the clarification that the

¹⁰¹ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

classification included the RF emitted by smart meters at the City Council meeting on Tuesday January 21st.¹⁰²

The Bioinitiative Report is misrepresented in a fraudulent discussion of occupational and public exposure limits.

The BioInitiative Report as a whole does not imply that the IARC findings needed to be qualified because they are based on occupational studies.

The Bio-Initiative Report actually concluded, "Bioeffects are clearly established and occur at very low levels of exposure to electromagnetic fields and radiofrequency radiation. Bioeffects can occur in the first few minutes at levels associated with cell and cordless phone use. Bioeffects can also occur from just minutes of exposure to mobile phone masts (cell towers), WI-FI, and wireless utility 'smart' meters that produce whole-body exposure. Chronic base station level exposures can result in illness."

The 2012 Bio-Initiative report found:¹⁰³

SUMMARY OF KEY SCIENTIFIC EVIDENCE

¹⁰² <http://haltmartsmartmeters.org/wp-content/uploads/2013/08/Supplemental-Information-for-the-Vermont-Senate-Finance-Committee.pdf>

¹⁰³ http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec01_2012_summary_for_public.pdf

- A. Evidence for Damage to Sperm and Reproduction
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- H. Evidence for Effects on Brain Tumors
- I. Evidence for Effects on Genes (Genotoxicity)
- J. Evidence for Effects on the Nervous System (Neurotoxicity)
- K. Evidence for Effects on Cancer (Childhood Leukemia, Adult Cancers)
- L. Melatonin, Breast Cancer and Alzheimer's Disease
- M. Stress, Stress Proteins and DNA as a Fractal Antenna
- N. Effects of Weak-Field Interactions on Non-Linear Biological Oscillators and Synchronized Neural Activity

The Worcester health document's claim that the Bio-Initiative report, published after the WHO classification of RF as a possible human carcinogen, concluded that a casual relationship between smart meters and brain tumors has not been established is an outright fabrication.

This bait and switch to the question of whether smart meters cause brain tumors is a misrepresentation of the work of both the World Health Organization and the Bio-Initiative working group.

The World Health Organization did not study the relationship between smart meters and brain tumors.

The cancer concern is not limited to cellphones.

The cancer concern is not limited to brain tumors.

The latency period for cancers can be over ten years, and smart meters were installed in the US starting in 2009.

The health debate is not limited to cancer concerns.

The World Health Organization only studied adult cellphone users, and has conducted no research on infants and children, or chronic involuntary exposures to the multiple technologies deployed in the Worcester pilot program.

Although much of the research reviewed by the World Health Organization and the BioInitiative report has focused on adult cellphone users, the scientists involved felt that the

evidence supported the conclusion that the risk of damage due to other sources of RF was also valid, including the RF emitted by wireless smart meters.¹⁰⁴

HaltMAsmartMeters contacted Albany School of Public Health's Dr. David Carpenter, a contributing author of the Bioinitiative Report, for his response to Dr. Hirsh's submittal. Dr. Carpenter's said at 12:46 p.m. on 2/4 via email to HMSM: "*The statement about the Bioinitiative Report is totally false.*"

Footnote 14 attributed the sentence "As previously explained, occupational exposure limits are higher than public exposure limits, and therefore a causal relationship between smart meters and brain tumors has not been established" to Michael Kundi, The BioInitiative Report 2012, Evidence for Brain Tumors.¹⁰⁵

¹⁰⁴ <http://haltmasmartmeters.org/wp-content/uploads/2013/08/Supplemental-Information-for-the-Vermont-Senate-Finance-Committee.pdf>

¹⁰⁵ http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec11_2012_Evidence_%20Brain_Tumors.pdf

Dr. Kundi did not make this statement, because there were no studies to review that examined a possible link between smart meters and brain tumors.

Prof. Michael Kundi, PhD¹⁰⁶ med habil of the Institute of Environmental Health, Medical University of Vienna, Austria Full Member, Bioelectromagnetics Society is a Contributing Author for the 2012 BioInitiative Report.

Dr. Kundi's conclusions in his submission on brain tumors stated:

- *Only few studies of long-term exposure to low levels of RF fields and brain tumors exist, all of which have methodological shortcomings including lack of quantitative exposure assessment. Given the crude exposure categories and the likelihood of a bias towards the null hypothesis of no association the body of evidence is consistent with a moderately elevated risk.*
- *Occupational studies indicate that long term exposure at workplaces may be associated with an elevated brain tumor risk.*
- *Although in some occupations and especially in military jobs current exposure guidelines may have sometimes been*

¹⁰⁶ http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec25_participants.pdf

reached or exceeded, overall the evidence suggest that long-term exposure to levels generally lying below current guideline levels still carry the risk of increasing the incidence of brain tumors.

- *Although the population attributable risk is low (likely below 4%), still more than 2,000 cases per year in the US can be attributed to RF exposure at workplaces alone. Due to the lack of conclusive studies of environmental RF exposure and brain tumors the potential of these exposures to increase the risk cannot be estimated. However, these figures are theoretical as long as the evidence is as weak as it is for the time being.*¹⁰⁷

Professor Olle Johansson clarifies that the brain tumor issue is minor compared to many other harmful effects. *"While brain tumors affect a small percentage, other serious effects affect the whole population including genetic damage, sleep disturbances, reduced learning capacity, concentration difficulties and psychological problems."*

Johansson finds it is serious that the politicians take such risks with the whole population in spite of repeated earnest warnings from scientists. He points out that the level of electromagnetic exposure that we are exposed to is huge

¹⁰⁷ http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec11_2012_Evidence_%20Brain_Tumors.pdf

compared with what has been there through billions of years before.

"If this radiation is not dangerous, then a large number of high quality scientific papers reporting harmful effects of the radiation hazards must be wrong, but it is highly unlikely that they all are wrong" says Professor Johansson.¹⁰⁸

A cursory glance at the work of the Bio-initiative Group would have to lead a reader to the conclusion that the Worcester Smart Meter Technology Report is fundamentally flawed, that the author of the Worcester document was not qualified to write the report, or that the paragraph was intentionally constructed as a falsehood.

On the basis of the convoluted discussion of the IARC findings and the Bio-initiative Report, the Worcester Health Report, financed by Worcester taxpayers, should be not only disregarded, but also investigated and possibly prosecuted as fraudulent.

Page 3 Paragraph 4

According to the World Health Organization (WHO) a number of studies have been conducted where EHS

¹⁰⁸ <http://www.psrast.org/mobileng/mobilstarteng.htm#junk>

individuals were exposed to EMF in order to elicit symptoms. Strict scientific studies revealed that symptoms had no correlation to EMF exposure, and in fact, individuals with EHS did not detect any differently than those who did not have EHS.

The science regarding Electromagnetic Hypersensitivity has continued to evolve since the publication of the Fact Sheet by WHO in 2005, and especially since smart meter deployment began in 2009 and individuals reported corresponding EHS symptom development.

The December 2014 draft report by the European Economic and Social Committee noted:

"There are court decisions in some Member States (Spain and Italy, for example) recognising electromagnetic and environmental hypersensitivity as grounds for declaring total and permanent work disability. Some countries consider it to be an occupational illness whereas others treat it as a functional disability.

Furthermore, on 3 March 2012, the Austrian Medical Association published guidelines for the diagnosis and treatment of electromagnetic hypersensitivity, in the context of "EMF-related health problems and illnesses".

*There are more and more people suffering from electromagnetic and environmental hypersensitivity syndrome. In addition, these people may sometimes suffer the incomprehension and skepticism of doctors who do not deal with the problem professionally. That is why measures to stem the increase in the numbers of those affected and prevent those suffering becoming socially excluded are so important.”*¹⁰⁹

Heart rate provocation studies were performed in 2010 by Dr. Magda Havas,¹¹⁰ *“This test is objective and directly measures the heart’s response to radiation and is unlike subjective testing, where scientists ask individuals if they know whether a device is turned on or off and then determine their “sensitivity” based on perception of exposure, which is just that perception and NOT sensitivity. It clearly documents that some individuals are hypersensitive to specific frequencies and supports complaints people have when they are exposed to radiation, including a racing or fluttering heart, pain or pressure in the*

¹⁰⁹

EESC-2014-05117-00-00-pa-tra-en-5.pdf

¹¹⁰ <http://www.magdahavas.com/new-study-radiation-from-cordless-phone-base-station-affects-the-heart/>, <http://www.magdahavas.com/wordpress/wp-content/uploads/2010/10/Havas-HRV-Ramazzini1.pdf>

chest, and feelings of anxiety that resemble the onset of a heart attack.”

The American Academy of Environmental Medicine EHS diagnostic protocol,¹¹¹ the Austrian Medical Association Diagnostic protocols,¹¹² in addition to the work of Dr. Dominique Belpomme in France,¹¹³ provide more recent examples of work in the western medical frontier of EHS.

Most troubling is a recent interview with Dr. Belpomme entitled “**Electrosensitivity is a Pre-Alzheimer’s state**”.

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Dr. Belpomme has questioned and clinically examined more than 1,000 electrohypersensitivity (EHS) self-reported persons. He says, “These are real sick people who are in a Pre-Alzheimer’s state.” He says the most conclusive scientific proof of biological effects are animal studies and biological tests in EHS persons which indicate a Pre-Alzheimer’s state.

¹¹¹ <http://www.ehcd.com/emf-sensitivity-recognition-treatment/>

¹¹² <http://www.magdahavas.com/austrian-medical-association-guidelines-to-diagnosing-and-treating-patients-with-electrohypersensitivity/>

¹¹³ <http://electromagnetichealth.org/electromagnetic-health-blog/dominique-belpomme/>

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<http://electromagnetichealth.org/electromagnetic-health-blog/electrosensitivity-a-pre-alzheimers-state/>

The lab tests that show the irregularities (also found in animals exposed to EMF), he says, include:

1. Brain imagery showing vascular hypoperfusion in the area of the brain (the limbic system) where Alzheimer's starts
2. 2-10 times higher levels of histamine in the blood.
3. Detection of other markers of the opening of the blood brain barrier.
4. Higher levels of auto-antibodies against O- myelin and/or stress proteins
5. Decrease in the production of melatonin in 24h urine

Quotes from the Canadian radio interview with Dr. Belpomme, translated: "High level independent scientists all agree that there is a major risk from propagation of wireless technology: appearance of certain cancers (EMF are recognized as "potentially carcinogenic" by WHO) and the risk of Alzheimer's in electrosensitive persons."

"Do we continue this technology for purely economic reasons or do we take into account the very high health costs that we will be paying as a result?"

With regard to smart meters, Dr. Belpomme says **“more than the dose it is the repetition of the dose that makes the poison.”**

Page 3 Paragraph 4 Misuse of the Term ELF:

“Non-ionizing EMF radiation as previously explained has a thermal effect which heats living tissue when the tissue is exposed to certain levels of intensity however the radiation emitted from smart meters is ELF radiation and therefore not harmful.”

As previously explained, smart meters do not emit ELF. The substitution of ELF for RF nullifies the technical validity of the report and indicates that the report’s author was either speaking beyond his area of expertise and training, and/or that the report was written to mislead the community by using a misleading term to constructing a false claim about the safety of wireless radio frequency emitting smart meters.

Page 3 Last Paragraph, Page 4 First Paragraph

Reference to industry-affiliated Richard Tell is not relevant to the question of non-thermal impacts of non-ionizing

radiation. FCC guidelines do not protect against non-thermal impacts of radio frequency exposures.

Critique of Richard Tell's calculations for Itron meters by Sage Associates:

"Tell did additional surveying of meters at two homes for five-minute sessions on a single day in Downey, California is not informative due to small sample size and extremely short sampling time. There is no information about whether the mesh network in the area is fully functional. The duty cycle may or may not be 'typical' and we cannot know whether the measurement period (in hours, once only) reflects the intensive periods for beaconing, maintenance and network synchronizing.

Tell also relied on some limited SDG&E testing results of Itron meters, but meters were only tested for a five minutes on one day (December 2, 2010) and the data "is for meters distributed across ten cells of approximately 600 meters per cell." This is minimal information from which to draw conclusions about duty cycle.¹¹⁵

Page 4, Paragraph 1

¹¹⁵ http://sagereports.com/smart-meter-rf/?page_id=474

"Professor Orr explained that the radiation from smart meters is lower on the electromagnetic spectrum than light, and therefore believes that smart meters do not negatively impact the health of the public."

Prof. John Orr of WPI is essentially a paid industry spokesperson,¹¹⁶ and not qualified or licensed to advise the Acting Commissioner of Health in Worcester in regard to the adverse health effects of RF exposure.

He has never been trained medically to recognize illness related to radio frequency exposures, and has not diagnosed or treated any patient suffering from electromagnetic hypersensitivity, and if he were to begin playing Dr. and giving physicals at WPI, he would be subject to arrest. It is misleading for the utility to promote him as an expert on the health impacts of radiofrequencies.

The claim that smart meter radiation is lower than light fails to distinguish between man-made artificial frequencies and natural light.¹¹⁷

¹¹⁶ <http://wpiresearch.epubxp.com/i/63254-2012/36> ...Prof John Orr of WPI shared \$495 award,

¹¹⁷ <http://www.ncbi.nlm.nih.gov/pubmed/26456585>

Page 4 Paragraph 2

As with industry-generated data, the debate concerning the non-thermal impacts of exposure to non-ionizing radiation is

Polarization: A Key Difference between Man-made and Natural Electromagnetic Fields, in regard to Biological Activity.

Panagopoulos DJ^{1,2,3}, Johansson O⁴, Carlo GL⁵.

In the present study we analyze the role of polarization in the biological activity of Electromagnetic Fields (EMFs)/Electromagnetic Radiation (EMR). All types of man-made EMFs/EMR - in contrast to natural EMFs/EMR - are polarized. Polarized EMFs/EMR can have increased biological activity, due to: 1) Ability to produce constructive interference effects and amplify their intensities at many locations. 2) Ability to force all charged/polar molecules and especially free ions within and around all living cells to oscillate on parallel planes and in phase with the applied polarized field. Such ionic forced-oscillations exert additive electrostatic forces on the sensors of cell membrane electro-sensitive ion channels, resulting in their irregular gating and consequent disruption of the cell's electrochemical balance. These features render man-made EMFs/EMR more bioactive than natural non-ionizing EMFs/EMR. This explains the increasing number of biological effects discovered during the past few decades to be induced by man-made EMFs, in contrast to natural EMFs in the terrestrial environment which have always been present throughout evolution, although human exposure to the latter ones is normally of significantly higher intensities/energy and longer durations. Thus, polarization seems to be a trigger that significantly increases the probability for the initiation of biological/health effects.

obscured in the Worcester Health Report, which is the crux of the smart meter debate.

The discussion of FCC MPE Maximum Permissible Exposure levels is irrelevant, because FCC guidelines only apply to thermal impacts.

The question is not whether the meters are ionizing or non-ionizing, or whether they emit RF above the thermal threshold.

The question is whether or not the public is protected from the non-thermal impacts of chronic, inescapable, 24/7/265 exposure to pulse modulated non-ionizing radiation.

The irrelevant concept of the Maximum Permissible Exposure (MPE) was systematically integrated into the Worcester smart meter health report to support an inaccurate conclusion.

Sage Associates in California published a smart meter health report "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters"¹¹⁸ that states,

¹¹⁸ <http://sagereports.com/smart-meter-rf/>

"There has been virtually no information made available to the public, nor to decision-makers on RF radiation levels. Significant unanswered questions still exist about what levels of radiofrequency microwave radiation will be produced by these meters. This question has very important consequences for public health and welfare, because the public may be subjected to exposures at levels that either violate federal safety limits, or face chronic exposure levels that have already been associated with adverse health impacts, or both."

"This Report uses computer modeling to predict power density levels that may be present where smart meters are in operation. The methodology used in this assessment is consistent with FCC OET 65 equations for prediction of RF power density levels. Many scenarios are modeled, to bracket the range of reasonably predictable RF exposures in typical living conditions. Many variables must be considered (installation very close to occupied space, how many meters are installed on a single wall, how frequently they will transmit an RF pulse, how powerful the RF radiation pulses will be, how far inside a home they will penetrate and at what intensities, how much 'piggybacking' of RF signals will occur from neighboring wireless meters, reflections that may

increase RF levels, and what amount of RF wireless exposure may already be present beforehand, etc.)”

The Sage Report conclusions state:

“The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California. It includes analysis of both two-antenna smart meters (the typical installation) and of three-antenna meters (the collector meters that relay RF signals from another 500 to 5000 homes in the area).”

“RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 – 14).” “Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are predicted in this Report, based on computer modeling (Tables 10 – 17).”

Page 4 Paragraph 2

Professor Orr stated that no evidence has been found that radiation below the FCC limit has negative effects on health but cautioned that scientists cannot test the

negative and therefore cannot say for sure that as research progresses no health implications will be found.

Industry-sponsored engineer Dr. John Orr of WPI “wore the face of the utility”¹¹⁹ in the community and was quoted in print media and appeared on the radio and on Cable TV to discount health concerns of residents.¹²⁰

Dr. Orr’s research in energy storage is funded by National Grid.¹²¹

In the Worcester Health report, Dr. Orr is presented as the final authority regarding the health impacts of microwave radiofrequencies. He possesses no medical credentials or expertise and is not qualified to diagnose or treat patients experiencing adverse health effects due to microwave radiofrequencies, and is merely parroting the industry’s unsubstantiated claims.

In his email 2/4 email to HMSM, Dr. David Carpenter, an author of the Bioinitiative report wrote:

¹¹⁹ <http://www.massra.com/agenda21/vincentdevito.pdf>

¹²⁰ Beacon Hill Chat #149, WCCA TV.

¹²¹ <http://wpiresearch.epubxp.com/i/63254-2012/36> ...Prof John Orr of WPI shared \$495 NGrid award,

“Finally it is interesting that the local health expert is Professor of Electrical and Computer Engineering John Orr. I trust it is Prof. Orr that local residents will go to for treatment of the cancers they develop from exposure to the radiofrequency radiation coming from smart meters.”

The Worcester smart meter health report neglects to issue an expert opinion of its own, and quotes the industry-sponsored engineer, who qualifies his safety statements, side stepping liability.

Over 5,000 research studies from the US Naval Research Report and the BioInitiative Report can be reviewed at: <http://justproveit.net/studies>. The science that informs policy decisions in nations representing over 40% of the world’s population does not coincide with Dr. Orr’s claim that there is no evidence of harm below FCC limits.¹²²

Critique of Key definitions page/glossary at back of the Worcester Health Report (WHR) (with commentary/analysis provided by supporting engineer/activist)

¹²² http://www.bcuc.com/Documents/Proceedings/2013/DOC_33694_C9-13-2_CSTS_Dr-Isaac-Jamieson-Response_FBC-IR-1_IntvrEvidence.pdf

***WHR: Advanced Metering Infrastructure AMI:
Electronic device that records consumption of electric
energy in intervals of one hour or less and
communicates that information at least daily back to
the utility for monitoring and billing purposes***

Reference of one hour or less” and “at least daily” is misleading and inaccurate, vs. specifying microbursts of radiofrequency microwaves, up to 190,000 per day. “For monitoring and billing purposes” does not convey that smart meters will be used to remotely control appliances, to enable punitive pricing structures, and for citizen surveillance.

***WHR: Electromagnetic Hypersensitivity EHS
Symptoms purportedly caused by exposure to
electromagnetic fields***

EHS definition is partially extracted from Wikipedia. It is not an expert driven reference. It appears that Dr. Hirsh used it without referencing it. That is somewhat troubling in itself. He evidently knew little about the subject matter and then plagiarized bits and pieces of Wikipedia along with information from Dr. Orr, the PUCT report, etc. The report does appear to have been written by a health care professional.

WHR: Extremely Low Frequency ELF Electromagnetic radiation radio waves with frequencies from 3 to 30 Hz

ELF definition is incorrect and not relevant to question to radio frequencies and the ELF term was improperly applied to the erroneous discussion of smart meter emissions in the report. The definition indicates that the author realized that ELF is at or below 30Hz, which does not encompass the range used for smart meter wireless transmissions, indicating a lack of basic competency or a desire to mislead the public.

WHR: Electronic and Magnetic Frequency EMF: Invisible areas of radiation that are associated with the use of electrical power EMTs are typically characterized by wavelength or frequency into one of two radioactive categories

Term and definition for "electronic and magnetic frequency" being "invisible areas of radiation," is unverifiable. Odd language about characterized into "one of two **radioactive** categories." How did we get into a conversation about something being "radioactive"? Are the smart meters radioactive? off-the-wall gibberish

WHR: Home Area Network HAN: A type of local area network that facilitates communication among digital devices inside or in close vicinity of a home

Home area network necessitates radio transmitters in smart appliances, thermostats, etc. introducing pulsed RF into the home environment.

WHR: Local Area Network LAN Network that interconnects smart meters in a limited geographic area such as a home school computer laboratory or office building using network media

The reference to LAN is somewhat erroneous and looks like it was adapted from a LAN definition like for a computer network at home, business, or school, instead of the correct term of NAN (Neighborhood Area Network), and does not apply to smart meters

WHR: Maximum Permissible Exposure MPE Limit of exposure where apparent injury due to ionizing and nonionizing radiation during a normal lifetime is unlikely

Source of MPE definition is unclear. FCC Maximum Permissible Exposure would only address thermal hazards and has no relevance for "non-ionizing radiation." Also, the FCC MPE only addresses short-term effects; no assertions

can be made regarding "normal lifetime." Appears to be an invented definition.

WHR: Radio Frequency RF: A rate of oscillation in the range of around 3 kHz to 300 GHz which corresponds to the frequency of radio waves and the alternating currents which carry radio signals

The RF definition is an un-cited excerpt from Wikipedia, which would merit a failing academic grade for plagiarism. Wikipedia is a contributor-driven resource, and not a reference to be relied on for expert medical opinion.

from http://en.wikipedia.org/wiki/Radio_frequency

"Radio frequency (RF) is a rate of oscillation in the range of around 3 kHz to 300 GHz, which corresponds to the frequency of radio waves, and the alternating currents which carry radio signals. RF usually refers to electrical rather than mechanical oscillations; however, mechanical RF systems do exist (see mechanical filter and RF MEMS). Although radio frequency is a rate of oscillation, the term "radio frequency" or its abbreviation "RF" are also used as a synonym for radio – i.e. to describe the use of wireless communication, as opposed to communication via electric wires."

"The (Worcester smart meter) report was compiled not by an expert, but by someone using Wikipedia and distorting information to support a certain outcome. The City Council may want to question who contributed to this report besides the Acting Health Commissioner."¹²³

¹²³ Analysis from anonymous volunteer citizen activist with industry background

Worcester Smart Meter Health Report Discussion

The Worcester health report mischaracterizes over 1800 new studies outlined in the 2012 BioInitiative Report, which followed the initial 2007 BioInitiative report.

The smart meter rollout in the United States began before the World Health Organization International Agency for Research on Cancer's May 2011 classified radio frequency exposure as a class 2B possible human carcinogen.¹²⁴

The Worcester Smart Meter Health Report featured a convoluted claim that demonstrated either a lack of comprehension or an intentional desire to mislead the public concerning the IARC Classification, occupational vs. public maximum permissible exposures, and research outlined in the 2012 BioInitiative Report.

Worcester officials previously received documentation clarifying that the IARC possible carcinogen classification applies to all RF emissions, including those emitted from wireless smart meters¹²⁵ on January 21, 2014, and ignored the information.

¹²⁴ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

¹²⁵ <http://haltmartsmartmeters.org/wp-content/uploads/2013/08/Supplemental-Information-for-the-Vermont-Senate-Finance-Committee.pdf>

Presentation of Worcester Smart Meter Health Report to Worcester City Council and Community

An outpouring of incredulous disbelief followed the presentation of the Worcester smart meter health report by informed residents who were familiar with the BioInitiative Report.

The Worcester smart meter health report was so clearly flawed that District Five City Councilor Gary Rosen was compelled to ask who wrote actually it.

Rumors circulated that a student intern at National Grid's Sustainability Hub, also known as the Propaganda Pub, might have been the author, except for the fact that it was recognized as being below par for a freshman college reading level.

Complaints about the report, however, were dismissed in Council Chambers as an attack on Dr. Hirsch.

Dr. Hirsch's spoken comments (and reference to peanut butter) during the meeting only served to cause more concern.

Clare Donegan, of HAltMA smartmeters reported: "The question is not whether or not Worcester's Acting Health Commissioner is well liked, the question is: is the Hirsh 'smart' meter Health Report flawed? The answer is a resounding 'yes!'"

Hirsh verbal comments to City Council:

Dr. Hirsh: "There are people with electrical sensitivities and we've heard from some tonight, it's a tragic problem to have..."

Dr. Hirsh: "We're not proposing ridding ourselves of all peanut products in the environment to affect those few who are so severely effected by peanuts. That analogy (comparing 'smart' meter and its three data network microwave exposure) applies here."

(HMSM comment: peanuts are not allowed in many schools, no longer served on airplanes, etc.)

Dr. Hirsh: "We didn't find anything in the literature or in the experience of other practitioners, either medical or in the radiation field that would indicate that the risk of this process of 'smart' metering outweighed the benefits to the community in the regard of being better able to serve our

needs as far as the power grid went so we submitted the report as you read it."

(HMSM comment: there is nothing in the literature because in a grave absence of moral and ethical responsibility, no premarket health or safety testing or monitoring has been conducted.

Published reports of smart meter harm began to emerge after the fact, for example including a report from January of 2014: Symptoms Resulting from Exposure to Radiofrequency/Microwave Radiation from Smart Meters; by Ronald M. Powell, PhD [1], January 13, 2014¹²⁶ and: "Self-Reporting of Symptom Development from Exposure to Radiofrequency Fields of Wireless Smart Meters in Victoria, Australia: A Case Series," by Dr. Federica Lamech, MBBS was published in the November/ December 2014 issue of the journal *Alternative Therapies in Health and Medicine*.)

¹²⁶ <http://smartgridawareness.org/2014/01/18/symptoms-from-exposure-to-smart-meters/>
<http://smartgridawareness.org/2014/01/18/symptoms-from-exposure-to-smart-meters/>
<http://smartgridawareness.org/2014/02/27/smart-meter-no-credible-evidence-controversy/>
<http://smartgridawareness.org/2014/05/14/urgent-need-for-smart-meter-safety-legislation/>
<http://smartgridawareness.org/2014/04/20/the-health-argument-against-wireless-smart-meters/>

Dr. Hirsh: "It's very hard to stand in this council chamber and hear the negative comments about it..."¹²⁷

(HMSM comment: The discomfort that Dr. Hirsh expressed in receiving criticism for his report pales in comparison to the symptoms being experienced by a portion of the population who are being induced by microwaves and suffering inescapable, debilitating, disabling symptoms.

A "Smart Meter Health Effects Survey" was conducted by Dr. Richard H. Conrad. The purpose of the survey "was to develop reliable data much more solid than ordinary anecdotal evidence, about possible smart meter health effects, and their time-line ..." According to Dr. Conrad, "the survey results provide very strong evidence that smart meters are causing painful and debilitating new symptoms in many previously normal healthy people, and causing them to become electrically sensitive to a whole range of electronic devices including Wi-Fi, cell phones and computers. **Because of exposure to smart meters, people are becoming electrically sensitive at an unprecedented rate. ...**"¹²⁸

¹²⁷ <http://view.earthchannel.com/PlayerController.aspx?PGD=worcema&eId=70>
video archive

¹²⁸ <http://smartgridawareness.org/2014/01/18/symptoms-from-exposure-to-smart-meters/>

After more than 18 months of informed activism and outreach, citizens operating under the assumption that Worcester’s political leadership and community partners were simply misinformed were faced with the realization that the Commissioner of Public Health, the Assessor, the City Manager, the Mayor, the majority of the City Council, the Department of Public Utilities, and the Patrick administration had not only “drunk the smart meter koolaide,” but they were pouring it.

The question was, “Why?,” and, who in the Commonwealth would have the integrity to confront the issue?

Four City Councilors Moe Bergman, Konnie Lukes, Michael Gaffney, and Gary Rosen, who repeatedly attempted to advocate for the citizens, were dismissed, marginalized, over-ruled and out-voted, and concerns about intimidation were also emerging.

Worcester Assessor Property Value Report

In addition to the controversial health report, the City’s Assessor also issued a report¹²⁹ to address citizens’ property

¹²⁹ <http://haltsmartmeters.org/wp-content/uploads/2013/08/0425-1a-propertyvalues-7pages-attachment.pdf>

value concerns regarding the installation of a tower housing multiple microwave antennas adjacent to occupied homes.

The assessor referenced an obscure study on Canadian high voltage overhead transmission lines that had no bearing of the question of adverse health impacts from exposure to microwave radiation: *"Francois Des Rosiers performed a study Des Rosiers 2002 based on a sample of 507 single family house sales in the City of Brossard a municipality located in the Greater Montreal Canada area that sold between 1991-6 The De Rosiers study showed that the decrease in value from the visual impact of the HVOTLs high voltage overhead transmission lines and pylons tends to be cancelled out by the increase in value from proximity to the easement and he further states short most studies conclude that proximity to a HVOTL per se does not necessarily lead to a drop in the value of surrounding properties and that other physical as well as neighborhood attributes prevail in the price determination process."*

The assessor concluded, *"The quantifiable effect of the addition of a relay tower in areas where adverse conditions may currently exist is further diluted. The significant tree cover existence of a current radio pole at one site and the*

fact both sites currently have electrical power substations any impact to property value would be de minimis."

The tree cover surrounding the substation has been removed by the utility, and outdated photos of the property were used in the report. The property was subsequently proven to be in violation of sound ordinances, possibly in part due to removal of buffering foliage.

It is unclear how much foliage National Grid removed from the substation perimeter as well as on private property to clear-cut airspace to support the integrity of its wireless signals, and whether or not the community was informed or given the opportunity to grant permission, or was compensated in any way.

It is also not known whether plantings in Worcester may be dying due to RF exposures, and being returned by consumers to arborists or garden centers, cost-shifting the burden to small businesses, because homeowners do not know the pathways or potential damaging impacts of the covert transmissions.

Finally, it is not known whether radiofrequency exposure has contributed to the die off of several tree species by stressing

the immune system of the plant and rendering it less able to defend itself against stressors including pests, viruses, and fungi, because research and monitoring is not taking place.

Addressing Junk Science

In her book *Science, Policy, and Value Free Ideals*, Heather Douglas wrote, "There are of course cases of junk science. First, **some scientists speak on issues outside their area of expertise**, misunderstanding the work of their colleagues.

Second, **there are incompetent scientists**, unable to do acceptable work within their supposed area of expertise. Their poor methodology and unsupported inferences can lead to junk science. Only peer review and public announcements pointing out the errors of such work when it gains a forum can remedy such junk science.

Finally, **there are those who do science without integrity**, who are willing to say anything to support a predetermined outcome, regardless of the available

evidence, or who are willing to set up a methodology that will guarantee a particular outcome to their liking.”¹³⁰

“The three different sources of junk science call for different methods, with varying levels of difficulty for the observers and users of science. The first kind of junk science - that produced by experts speaking outside their area of expertise - is relatively easy to detect. One needs only to discover the nature of the expert speaking, which requires only a quick internet search.

For the second source of junk science, incompetent experts, a bit more legwork is required to uncover the problem....”

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“The third source of junk science, which arises from a lack of integrity, is the most problematic, both because it probably undermines science the most and because it can be the most time-consuming to uncover.”

¹³⁰ Douglas, Heather E, Science, Policy, and Value Free Ideals, University of Pittsburgh Press, 2009, p. 165.

¹³¹ Douglas, Heather E, Science, Policy, and Value Free Ideals, University of Pittsburgh Press, 2009, p. 151.

In the case of the DPU's health expert Peter Valberg, the identification of lack of integrity is not problematic, because evidence of his on-going work and history as a tobacco scientist is readily available.

The fact that the MA DPU's and National Grid's smart meter safety chosen expert testifier Peter Valberg is a mercenary career tobacco scientist liar-for-hire is irrefutable.

The Legacy Tobacco Library at the University of California, San Francisco maintains a database of tobacco documents through 2005; Peter Valberg has 378 documents in the first cache¹³², and an additional 422 in an archive of previously confidential documents just released on 2015.¹³³

In February of 2014, in addition to providing testimony for the MA DPU on smart meters, Peter Valberg defended Phillips Morris in a light cigarette court case in Ohio.¹³⁴

David Michael's, author of Doubt is Their Product, stated in an interview with Fast Company: **What exactly do**

¹³² <http://legacy.library.ucsf.edu/action/search/basic?fd=0&q=peter+valberg>

¹³³ <http://beta.industrydocuments.library.ucsf.edu/tobacco/>

¹³⁴

http://business.cch.com/plsd/PhillipsvPhilipMorris.pdf?utm_source=rss&utm_medium=rss&utm_campaign=eva-marie-phillips-plaintiff-vs-philip-morris-companies-inc-nka-altria-group-inc-et-al-defendant-pdf

product-defense companies do? DM: “They combine science with public relations to help clients avoid regulation and litigation. I have yet to see a study published by a product-defense firm that conflicts with the needs of the study's sponsors. The intent is to cast doubt on real science. The industry has deep roots in the fight over tobacco.”

Who are the major players? DM: “**Some of the big ones are Exponent, Gradient, ChemRisk, and the Weinberg Group.**” ¹³⁵

Unscrupulous experts from Exponent¹³⁶ and Peter Valberg of Gradient ¹³⁷ have testified in many U.S. jurisdictions to

¹³⁵ <http://www.fastcompany.com/1139299/manufacturing-doubt-product-defense>

¹³⁶ <http://smartgridawareness.org/2014/03/27/maine-releases-seriously-flawed-report/>

¹³⁷ <https://www.bge.com/smartenergy/smartgrid/smartmeters/Pages/How-Smart-Meters-Work.aspx>, <http://smartgridcc.org/resauth/gradient/>, <http://smartgridcc.org/faqs/it-would-take-375-years-of-direct-contact-with-a-smart-meter-to-equal-the-same-amount-of-radio-frequency-exposure-from-a-daily-15-minute-cell-phone-call/>,

“It would take 375 years of direct contact with a smart meter to equal the same amount of radio frequency exposure from a daily, 15-minute cell phone call over the course of one year.”

“While analyzing the health effects of radio frequency from smart meters a Principal for Environmental Health at Gradient, an environmental consulting firm specializing in quantitative assessment of environmental impact and human health risk, named Peter A. Valberg found that all of the common smart grid myths and misinformation were untrue as depicted in his testimony located here.”

promote or defend smart meters, shifting the burden of proof for safety away from the industry, and placing the burden of proof of harm on consumers, while implying that lack of evidence of harm is the equivalent of evidence of lack of harm.

What is more problematic and alarming is the extent to which the MA DPU and other regulatory agencies have relied

“A basis for Mr. Valberg’s findings was from the California Council on Science and Technology and its report “Health impacts of radio frequency from smart meters.” This report found that, “Wireless smart meters, when installed and properly maintained, result in much smaller levels of radio frequency (RF) exposure than many existing common household electronic devices, particularly cell phones and microwave ovens.”

<http://www.eweb.org/public/documents/smartmeter/valbergPresentation.pdf>: Valberg: “Low levels of RF can come from appliances with electric motors, such as refrigerators, dish washers, clothes washers, clothes dryers, electric shavers, and electric mixers”

“Between four and six times per day, for periods on the order of milliseconds, the smart meters transmit data on energy consumption.”

“We’ve used RF in densely populated regions for more than a hundred years, and we’ve no indication that such RF exposure has increased human disease.”

“Recommended approach: rely on legitimate public health agencies: None of the “blue ribbon” scientific review groups has determined that RF levels from smart meters are harmful to health.”

on Peter Valberg and Gradient Corporation to validate the safety of major infrastructure projects in Massachusetts and beyond.¹³⁸

Like chemist Annie Dookhan, who was arrested for falsifying drug test results at a State Crime Lab, Massachusetts residents may be justified in expressing profound concern over proceedings in which Gradient provided safety testimony for utilities concerning power lines, radio frequencies, magnetic fields, and electric field exposures, in contrast with building biology¹³⁹ environmental recommendations not driven by electric power industry priorities.

The unexamined role that Peter Valberg has played for NStar, National Grid, and the MA DPU is stupefying, juxtaposed with the knowledge of the damage he has caused as a tobacco scientist.

In his book "The Cigarette Century" author Alan Brandt describes the 50-year conspiracy to deceive and defraud the American people about the known lethal harms of tobacco,

¹³⁸ http://www.velco.com/library/document/download/1883/PET%2016_2.pdf

¹³⁹ <http://hbelc.org/> Building Biology is joyful science that leads to natural healthy ecological homes, schools, and workplaces that exist in harmony with the planetary environment.

and the techniques of scientific disinformation and development of special interest lobbying and corporate spin. "As a result of litigation against the tobacco industry, some 40 million pages of confidential and secret internal documents have become available. This massive archive offers an unprecedented view into the internal workings of a major industry." ¹⁴⁰ "The World Health Organization now predicts 1 billion deaths over the next hundred years; ten times as many as died in the 20th century." ¹⁴¹

In a state steeped with unparalleled academic, scientific, medical, and engineering expertise, Massachusetts residents deserve an explanation as to why their ratepayer and taxpayer dollars have been spent compensating a mercenary scientist who continues to contribute to the deaths of 1 billion people in his work for Phillip Morris cigarettes, for example in the Feb. 28, 2014 light cigarette case in Ohio. ¹⁴²

How or why Dr. Michael Hirsh of Worcester played a part in the dissemination of such a flawed smart meter health report in the City of Worcester may be a more complex issue that nonetheless deserves investigation.

¹⁴⁰ <http://www.cigarettecentury.com/points.html>

¹⁴¹ <http://www.cigarettecentury.com/points.html>

¹⁴² <https://www.truthinadvertising.org/wp-content/uploads/2014/05/Phillips-v.-Philip-Morris-order-denying-class-cert-.pdf>

The question must be asked:

Was the health report and property value report issued within the context of coordinated efforts on a variety of fronts to support the pilot program's objectives and to override and suppress citizen opposition in Worcester?

The stakes are very high for Massachusetts residents who are already experiencing adverse impacts due to the installation and activation of wireless infrastructure in their homes and communities.

The number of individuals seeing treatment for radiation-related health concerns, (also known as microwave sickness), who may be misdiagnosed is unknown, because patients and their health care providers have not been informed concerning increasing ambient exposures, and consumers hold a presumption of innocence to wireless devices in part because they unwittingly defer to experts including Peter Valberg, Dr. Hirsh, and the DPU.

In addition, many traditional health care providers have no training in the areas of emerging illnesses including

electromagnetic hypersensitivity and microwave radiation sickness.

And, like a 60's physician with a pack of Camels cigarettes in his pocket, many health care practitioners are uninformed proponents of wireless devices.

"The junk science war is about which piece(s) of science should shape policy. What scientific experts are to be believed by policy makers, Congress, and the public?"¹⁴³ .

"Radio frequency (RF) signals from [smart] meters are well within any science-based standards of safety governing impacts of RF on human health, and as a result, they pose no legitimate health concerns for customers whose homes have smart meters."

– Dr. Peter Valberg, former faculty member and researcher at the Harvard School of Public Health¹⁴⁴

Tobacco scientist industry shill Pater Valberg, who has contributed to the poor health and premature death of

¹⁴³ Douglas, Heather E, Science, Policy, and Value Free Ideals, University of Pittsburgh Press, 2009, p. 151. Page 5

¹⁴⁴ <http://www.oncor.com/EN/Pages/AMS-Safety.aspx>

millions of smokers worldwide in his on-going work as for the cigarette industry, has been granted the authority to discern what constitutes "science-based" standards and what constitutes "legitimate" health concerns regarding wireless smart meters.

The Commonwealth of Massachusetts has not done its due diligence in discerning the ethics of the industry and the DPU's compromised safety expert.

Late Lessons from Early Warnings: Emerging Evidence of Harm

International research published in 2015 based on World Health Organizational health data indicates that deaths due to neurological illnesses in the United States have skyrocketed, out of proportion to increases in 20 other nations, in the 55 and over age groups, for both men and women.¹⁴⁵

"Neurological Deaths -- Twenty country average 55-74 male rates per million (pm) rose 2% to 503 pm,

USA increased by 82% to 627 pm.

¹⁴⁵ http://surgicalneurologyint.com/surgicalint_articles/neurological-deaths-of-american-adults-55-74-and-the-over-75s-by-sex-compared-with-20-western-countries-1989-2010-cause-for-concern/

*Twenty country average females rose 1% to 390 pm,
USA rising 48% to 560 pm.*

*Twenty country average over 75's male and female
increased 117% and 143%;
**USA rising 368% and 663%, significantly more than 16
countries.***

*Neurological deaths are reported by the World Health
Organization (WHO) in two global categories, **Alzheimer
and other dementias, and nervous disease deaths**
which enables us to calculate a total neurological death
(TND) rate per million (pm) of population. Thus, TND include
such disparate conditions **as Parkinson's disease, motor
neuron disease (MND), hereditary neuromuscular
conditions, prion disorders, degenerative diseases,
including Creutzfeldt Jacob's disease (CJD), and new
variant CJD.**"*

*The report's authors state: **The nature of any environmental
factors are uncertain but there have been major
environmental changes; including increased population,
economic activity, substantial rises in road and air travel;
increased home technology involving background
electromagnetic fields (mobile phones, microwave
ovens, computers), which are unique to these later***

years and these possible environmental factors cannot be ignored, especially as they probably interact. This list of possible features might be described as "modern living" and the USA is the epitome of "modern living."

"Crucially therefore, relative to other specialties, the present configuration of services may require re-organization, especially for specialist neurological services and for community psychosocial provision, to meet the challenge. While increases in Alzheimer disease is recognized in many Western countries, **there have also been rises in other neurological diseases that need to be brought to national attention**. Indeed, there are lessons to be drawn from reduced cancer mortality as every government has made major additional investments in cancer services to respond to wider public concern which led to major research and treatment resources. This level of commitment, investment, and research needs to be matched in the field of neurology to meet the new challenge, **especially in the USA, as with their disproportionate increases in neurological morbidity and mortality, this must be a major cause for concern.** "

The May, 2015 Brussels International Scientific Declaration on Electromagnetic Hypersensitivity and Multiple Chemical Sensitivity,¹⁴⁶ states in part:

*"Considering that the chemical and electromagnetic environment is deteriorating globally, and that so called electromagnetic hypersensitivity (EHS) and multiple chemical sensitivity (MCS) are an escalating worldwide health problem, affecting industrialized as well as developing countries, We, **physicians, acting in accordance with the Hippocratic Oath, we, scientists, acting in the name of scientific truth**, we all, medical doctors and researchers working in different countries worldwide, hereby state in full independence of judgment:*

*In view of our present scientific knowledge, we thereby stress all national and international bodies and institutions, more particularly the World Health Organization (WHO), to recognize **EHS and MCS as true medical conditions which acting as sentinel diseases may create a major public health concern in years to come worldwide i.e. in all the countries implementing unrestricted use of electromagnetic field-based***

¹⁴⁶ <http://www.isde.it/wp-content/uploads/2014/06/2015-Bruxelles-International-Scientific-Declaration-on-Electromagnetic-Hypersensitivity-and-Multiple-Chemical-Sensitivity.pdf>

wireless technologies and marketed chemical substances. Inaction is a cost to society and is not an option any more.

*We unanimously request that institutional committees designed for evaluating the risks of EMFs and chemicals be constituted by scientists acting **in clear science based independency and so exclude any experts with industry affiliation.***

Why Did the MA DPU and Democratic Leadership Ignore Emerging Evidence of Harm?

**“Power tends to corrupt,
and absolute power corrupts absolutely.”**

- Lord Acton

Did the Green Communities Act represent an attempt to inflate the economic outlook for Massachusetts by green-washing projects like the \$48M smart meter pilot, which could have been 1/5 the size and cost to meet the constitutional mandate, and was testing already failed hypothesis?

Like the \$113M New Bedford Marine Terminal, will the ratepayers be saddled with additional stranded assets?¹⁴⁷

Against the backdrop of a possible vice-presidential run by former MA Governor Duval Patrick, questions about the integrity of the DPU's decisions under the auspices of the Green Communities Act may be crucial in evaluating the path forward for voters.

Decision-Based Evidence Making

As the Commonwealth of Massachusetts continues to pursue smart meter deployment, questions concerning the integrity of the Worcester pilot are crucial to facilitating ethical and informed decision-making.

¹⁴⁷

<https://www.bostonglobe.com/business/2015/08/30/after-million-state-funds-new-bedford-terminal-still-remains-largely-idle-now-what/maUMCJJZ1GMagIAqEBfG5K/story.html>

To supporters, the terminal is still viewed as a potentially viable, vibrant piece of the city's waterfront. To critics, the terminal is seen as an unnecessary expense of millions of dollars in taxpayer funds. The Baker administration inherited the project from Patrick, who prioritized it as a way to create clean energy jobs while providing a boost to a city in need of some economic help.

Concerns have mounted in the Worcester community and beyond that the pilot program is an exercise in “decision-based evidence making” for National Grid and the MA DPU and beyond.

In the book *“Bending Science, How Special Interests Corrupt Public Health Research,”* authors Thomas O. McGarity and Wendy W. Wagner identify ways that the science pipeline is corrupted, by shaping, hiding, attacking, packaging, and spinning science.

The Worcester pilot program may offer a textbook case for studying how industry and its partners, with the consent of the MA DPU regulatory agency, applied the strategies of:

- Creating research to fit one’s needs
- Manufacturing consent
- Cherry-picking experts
- Concealing unwelcomed information
- Manipulating public perception about credible science

What the pilot did not do is determine how nearly \$3,000 per meter could have been spent by homeowners for energy efficiency initiatives that would not alter the natural electromagnetic environment or consume vast amounts of

energy while harming the health of a portion of the population.

The assumption that the wireless grid needs to offer homeowners the opportunity to remotely control appliances continuously without accounting for the energy and natural resources consumed by the wireless transmissions is short-sighted at best; ignoring evidence of physical harm is criminal.

The smart grid wastefully transmits data continuously without offering basic discernments, for example, *it is better to use an electric tea kettle or a stove top range to heat water?* that the homeowner only needs to determine once for informed decision making.

The solution to addressing decision-based evidence making is transparency, and rejection of junk science and tobacco scientists who represent only the industry's financial interests, regardless of the consequences for the public.

“Our immense technological development has not been accompanied by a development in human responsibility, values, and conscience”- Pope Francis

The MA DPU Fraud Complaint

This document concerning the Worcester pilot was preceded by a complaint¹⁴⁸ filed with the Office of the Attorney General, the Inspector General, and several Legislative Committees in March 2015 concerning fraudulent claims by the Department of Public Utilities in smart meter order MA DPU 12-76-B.¹⁴⁹

The MA DPU mischaracterized FCC limits regarding non-thermal impacts of non-ionizing radiation and misrepresented the content of footnoted resources to back up the faulty claim.

The MA DPU and National Grid engaged the services of career tobacco scientist Peter Valberg to invalidate citizen health concerns about smart meters. He testified on behalf of Phillip Morris cigarettes the same week he testified for the MA DPU.¹⁵⁰ He also testified for National Grid before the Worcester Zoning Board of Appeals in May 2014, misrepresenting the scope, purpose, and enforcement of

¹⁴⁸ <https://smartmeternewsupdates.wordpress.com/2015/05/14/ma-residents-file-dpu-fraud-complaint-with-attorney-general/>

¹⁴⁹ <http://www.mass.gov/eea/docs/dpu/orders/dpu-12-76-b-order-6-12-2014.pdf>

¹⁵⁰ <https://www.truthinadvertising.org/wp-content/uploads/2014/05/Phillips-v.-Philip-Morris-order-denying-class-cert-.pdf>

international RF exposure limits that are lower than those in the U.S..

Conclusion

Together, the two complaints concerning the MA DPU Order 12-76-B and the report from the Acting Commissioner of Public Health from the City of Worcester regarding fraudulent safety claims for smart meters intensify the risk to health-vulnerable Massachusetts residents.

In addition to damage to human and environmental health that may be caused by increasing unmonitored juxtapositions of non-ionizing across the Commonwealth, Massachusetts ratepayers will be saddled with the costs of replacing the equipment when it is eventually proven to be unsafe.

Smart meter pilot programs are experiments in both technology and in customer attitudes and behaviors. Marketing materials in support of smart meters are provided to customers and key decision makers in communities, including documentation to support the claim that smart meters and their related infrastructure do not pose health risks to residents exposed to microwave radio frequencies.

In 2011, two years after economic stimulus funding jump-started the rollout of wireless smart meters in the United States, the World Health Organization's International Agency for Research on Cancer (IARC) classified radio frequency exposures a Class 2B possible human carcinogen.¹⁵¹

Some participants in the IARC working group felt that there was sufficient justification for the classification of probable or definite carcinogen,¹⁵² but the IARC process itself was compromised by political and economic pressure, including the actions of the delegate from the United States, Peter Inspek, of the National Cancer Institute.¹⁵³

The utility industry, the wireless industry and regulators have minimized, denied, ridiculed and ignored the IARC 2B possible carcinogen classification.¹⁵⁴,

Peter Valberg testified "IARC's ranking of heavy cell phone use as Group 2B was not directed at smart meters, and

¹⁵¹ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf
<http://www.microwavenews.com/news-center/iarc-cell-phone-radiation-possible-human-carcinogen>

¹⁵² <http://smartgridawareness.org/2013/12/04/rf-fields-possibly-probably-or-definitely-carcinogenic/>

¹⁵³ <http://www.microwavenews.com/news-center/iarc-cell-phone-radiation-possible-human-carcinogen>

¹⁵⁴ <http://smartgridawareness.org/2013/07/18/puct-accuses-smart-meter-opponents-with-negative-bias/>

IARC's Group 2B category includes everyday items (carbon black [car tires], coffee, 'carpentry,' talc, nickels, iron pills, pickled vegetables, mothballs, some teas, etc.). • Notably, IARC classifies both 'sunlight' and 'sand' at much higher risk rankings, namely, Group 1, as "known" human carcinogens. Yet, we don't keep children off of sunny beaches because of these IARC classifications with regard to sunlight and sand."

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Increased long term risk for cancer is but one of a myriad of health concerns related to chronic low-level EMF exposure.

In testimony to the FCC in 2013, the legal counsel for the City of Boston wrote:

"The 1999-2000 judicial challenge to the FCC's 1996 rules never reached the issue of "electrosensitivity" as a cognizable disability under the Americans with Disabilities Act. ("ADA") Here again, an agency responsible for ADA implementation acknowledges that the impairment may be disabling but has promised merely further inquiry. After more than a decade, that investigation remains unopened.

¹⁵⁵ <http://www.eweb.org/public/documents/smartmeter/valbergPresentation.pdf>

The dockets here have been updated with massive additional evidence of the crippling effects of RF radiation on an admitted minority – but a suffering minority – of U.S. citizens.

The FCC and its sister regulatory agencies share responsibility for adherence to the ADA and should replace promises with serious attention to a serious medical problem. This is one area where the FCC could lead in advice to electrosensitive persons about prudent avoidance.”

Respectfully submitted, William F. Sinnott,
Corporation Counsel CITY OF BOSTON, MASSACHUSETTS

If the City of Worcester or the MA DPU exemplified the ethics, stewardship, precaution, and compassion of William Sinnott, Massachusetts would not and could not be pursuing wireless smart utility meters and infrastructure under the guise of sustainability.

The well-known sociopath Bernie Madoff has come to symbolize the damage that one individual operating outside the bounds of ethics and morality can unleash in the lives of many innocent people.

A system of checks and balances must be employed to insure that the Commonwealth does not unleash unfathomable harm, led astray by rouge regulators and state agencies, financed by taxpayers, that rely on mercenary science.

How much money have National Grid and NStar ratepayers paid to fund expert testimony by tobacco scientist Peter Valberg? How much money has the MA DPU spent paying Peter Valberg to justify its misguided smart meter agenda?

In light of emerging evidence of harm, the Commonwealth and Governor Baker face the extraordinary opportunity to realign energy policy with environmental justice and human rights.

“The arc of the moral Universe is very long but it bends towards justice.” – Dr. Martin Luther King

Patricia Burke, October 2015

WorcesterOptsOut

HaltMAsmartmeters

NoMassSmartMeters

Healing Earth Refuge

Stop Smart Meters Massachusetts

Attachments and Resources

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