

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

Docket 12-76-A
Docket 12-76-B

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Rationale for Legislature and Attorney General
Investigation of DPU Smart Meter Mandate

Legislative Brief

Call for Investigation of MA DPU Smart Meter Mandate

3/21/2015

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OVERVIEW

Under Section 85 of the Green Communities Act, Fitchburg Gas and Electric (09-31), National Grid (09-32 and 11-129), NStar Electric Company (09-33), and Western Massachusetts Electric Company (09-34) utility companies designed and implemented smart meter pilot programs in the Commonwealth of Massachusetts.¹ Fitchburg, NStar, and Western MA pilots have been completed. The National Grid Worcester smart meter pilot installations started in 2012, and customers were enrolled in experimental pricing programs in January 2015.²

On December 23, 2013, before the \$48M Worcester customer pricing programs began, the MA DPU issued 12-76-A, Investigation by the Department of Public Utilities on its Own Motion into Modernization of the Electric Grid.³

In February 2014, the MA DPU held hearings on the smart meter order 12-76-A. The panel discussion on health was held on February 27. Written comments were solicited through March 21. June 12, 2014, the MA DPU issued its subsequent Order 12-76-B by Commissioners Kate McKeever and Jolette Westbrook, and Chair Anne Berwick.⁴

This legislative brief outlines concerns about resources that the DPU presented to justify the safety of smart meters and related infrastructure in MA DPU 12-76-A and MA DPU 12-76-B in chronological order, followed by commentary.

The brief raises concerns that the MA DPU relied primarily on the testimony of one controversial witness possibly operating outside the parameters of the public proceedings.

¹ <http://www.mass.gov/eea/grants-and-tech-assistance/guidance-technical-assistance/agencies-and-divisions/dpu/dpu-divisions/legal-division/dpu-and-green-communities-act/smart-grid-dockets-sec-85/>

² <http://www.wbjournal.com/article/20150115/NEWS01/150119978>

³ <http://www.mass.gov/eea/docs/dpu/electric/12-76-a-order.pdf>

⁴ <http://www.mass.gov/eea/docs/dpu/orders/dpu-12-76-b-order-6-12-2014.pdf>

The brief also raises the issue of the extent to which docket 12-76-B constitutes fraudulent misrepresentation of the safety parameters of FCC guidelines for non-thermal impacts of radiofrequency exposure.

II. December 2013, Smart Meter Health Information provided by MA Department of Public Utilities in DPU Docket 12-76-A

On December 23, 2013, DPU Docket 12-76-A, *Investigation by the Department of Public Utilities on its Own Motion into Modernization of the Electric Grid*, was issued by Chair Ann Berwick and Commissioners Jollette Westbrook and David Cash.⁵

The 41-page document addresses the issue of health in Section 7, Concerns About Potential Health Effects and Opt-Out Provisions, on page 31, in one paragraph with footnotes.

The MA DPU states: *“Most grid modernization technologies involve the wireless transmission of data using radiofrequencies (“RF”). Judging from other proceedings, it is possible that some electricity customers will question the effects of RF on their health. A number of published reports on **potential health effects** of AMI **suggest** that RF from this technology is **unlikely to harm health** (Footnote #39). Nonetheless, some jurisdictions have explored different approaches to this issue. On the one hand, the **Idaho Public Utilities Commission** has held that installation of advanced metering is **mandatory** for all customers. (Footnote #40) On the other hand, some states have allowed customers to opt out of AMI without a charge, and others have imposed a fee.” (Footnote #41)*

Footnote #39 on the bottom of page 31 in Docket 12-76-A references the resources the MA DPU utilized to “suggest that this technology is unlikely to harm health.”

A. World Health Organization Health Reference

⁵ <http://www.mass.gov/eea/docs/dpu/electric/12-76-a-order.pdf>

The first reference provided in MA DPU 12-76-A is: the World Health Organization, Systematic Review on the Health Effects of Exposure to Radiofrequency Electromagnetic Fields from Mobile Phone Base Stations (2010). The WHO reference points to a 2010 document that does not refer to smart meters.

In the initial MA DPU Docket 12-76-A, the DPU defended the safety of smart meters by relying on a 2010 WHO study of mobile base stations.

In its subsequent DPU docket 12-76-B, the MA DPU rejected studies and data submitted by activists opposed to smart meters on the grounds that the research does not apply to smart meters.⁶

In 2011, the World Health Organization's International Agency for Research on Cancer classified radiofrequencies as a **Class 2B possible human carcinogen**⁷, **including the radiofrequencies emitted by smart meters**.⁸ This updated resource was overlooked or omitted in MA DPU 12-76-A.

B. Vermont Public Service Health Reference

The second resource that the DPU 12-76-A references to "suggest that this technology is unlikely to harm health" in footnotes on page 31 is Vermont Department of Public Service, An Evaluation of Radio Frequency Fields Produced by Smart Meters Deployed in Vermont (2013) (RF emissions from AMI fall well below the limits set by the Federal Communications Commission).

⁶ <http://www.mass.gov/eea/docs/dpu/orders/dpu-12-76-b-order-6-12-2014.pdf> page 41, 42

⁷ http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

⁸ <http://haltmasmartmeters.org/wp-content/uploads/2013/08/Supplemental-Information-for-the-Vermont-Senate-Finance-Committee.pdf>

The Vermont Public Service report is written by industry consultant Richard Tell.⁹ The report measured radiation emitted by smart meters installed in Vermont. Measuring radio frequency emissions does not constitute health or environmental testing. (Note, in panel proceedings for DPU-12-76-B, Janet Newton of the EMR Policy Institute submitted documentation challenging the equipment and testing protocols used in the Vermont report.¹⁰)

C. Texas Public Utilities Commission Reference

The third footnoted resource in MA DPU 12-76-A references that suggests that smart meter technology is unlikely to harm health is Texas Public Utilities Commission, Health and RF EMF from Advanced Meters (2012) (“the large body of scientific research reveals no definite or proven biological effects from exposure to low-level RF signals”).

The Texas PUC Health Report was a literature review compiled by an unqualified security analyst who is no longer employed by the Texas PUC. “It is not a peer-reviewed paper and merely reflects a compilation of biased commentary and quotations extracted from other industry prepared documents. The author has no subject matter technical expertise.”¹¹

The Texas PUC report states: “Staff has determined that the large body of scientific research reveals no definite or proven biological effects from exposure to low-level

⁹ <https://www.radhaz.com/docs/projects.pdf>

¹⁰

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f22714jntat1.pdf>

¹¹ <http://smartgridawareness.org/2014/01/16/rebuttal-texas-smart-meter-report/>

RF signals. Further, Staff found **no credible evidence** to suggest that advanced meters emit harmful amounts of EMF.”¹²

The use of the term “**credible**” is used to qualify the Texas PUC claims. The Texas PUC report fails to account for reports of harm from residents in communities where smart meters have been deployed, including California,^{13,14,15} relying instead on theory that radiofrequencies do not cause biological impacts at levels lower than the thermal threshold. No scientific research was conducted on the health impacts of smart meters and related infrastructure prior to deployment. Complaints by US citizens have not been investigated. The Texas PUC document is not a health study. The Texas report also discounts studies demonstrating biological impacts of radiofrequency exposure, including those outlined in the Bio-Initiative Report, A Rationale for Biologically-based Exposure Standards for Low Intensity Electromagnetic Radiation.¹⁶

D. Idaho Public Utilities Commission Reference on Opt Outs

The paragraph in question regarding health and opt outs began with the sentence “Most grid modernization technologies involve the wireless transmission of data using radiofrequencies (“RF”).” MA DPU Docket 12-76-A states, “A number of published reports on potential health effects of AMI suggest that RF from this technology is unlikely to harm health (Footnote #39). Nonetheless, some jurisdictions have explored different approaches to this issue. On the one hand, the

¹²

https://www.puc.texas.gov/industry/electric/reports/smartmeter/SmartMeter_RF_EMF_Health_12-14-2012.pdf, page 1

¹³ <http://emfsafetynetwork.org/cpuc-president-peevey-there-really-are-people-who-feel-pain-related-to-emf/>

¹⁴ <http://emfsafetynetwork.org/smart-meters/smart-meter-health-complaints/>

¹⁵ <http://marylandsmartmeterawareness.org/recources/symptoms-resulting-from-exposure-to-radiofrequencymicrowave-radiation-from-smart-meters/>

¹⁶ <http://www.bioinitiative.org/>

Idaho Public Utilities Commission has held that installation of advanced metering is mandatory for all customers.” (Footnote #40)

MA DPU Docket 12-76-A refers to the replacement of utility meters in Massachusetts with two-way wireless smart meter in order to institute time of use pricing and demand-response. Idaho did not deploy wireless smart meters.¹⁷ The Idaho legal decision was made in part on the grounds that the technology used in Idaho does not have the capability to control appliances or other devices, nor initiate surveillance of electrical usage at individual customer residences. The MA DPU’s inclusion of Idaho’s policy is misleading, and not pertinent to wireless smart meter opt out policies based on health concerns about RF exposure.

The carefully crafted sentence in MA DPU 12-76-A “A number of published reports on **potential** health effects of AMI **suggest** that RF from this technology is **unlikely to harm health**” does not ensure the safe and reliable delivery of electricity for Massachusetts residents.

MA DPU Order 12-76-A was published in December of 2013, yet the 2011 Class 2B classification of RF as a possible human carcinogen by the IARC, including RF emitted by smart meters, was overlooked in favor of the outdated WHO 2010 report. The DPU subsequently characterized research pertaining to low level exposures but not directly from smart meters as irrelevant to the proceedings in MA DPU 12-76-B. The MA DPU also presented engineering measurements as health

¹⁷ <http://www.smartgridlegalnews.com/smart-grid-basics/idaho-says-no-to-smart-meter-opt-out/> The Commission’s order found the AMI meters installed by Idaho Power do not have the capability to control appliances or other devices, nor initiate surveillance of electrical usage at individual customer residences. It is important to note the AMI meters installed by Idaho Power are not wireless, yet they still offer many benefits. http://www.smartgridlegalnews.com/20120327FINAL_ORDER_NO_32500.PDF Although the complainants understand the Smart Meters used by Idaho Power do not communicate wirelessly, they nonetheless believe the transmission of a pulse over the house wiring “produces high frequency voltage transients.”

data, and included the Texas PUC report, which is a literature review, in support of smart meter safety. Legislators, utilities, local communities, and ratepayers could be misled to conclude that the MA DPU offered sufficient justification for the claim that wireless smart meters are safe, supported by the Idaho mandate, when no evidence or consensus exists.

Lack of evidence of harm is misrepresented as evidence of lack of harm.

III. February 2014 Panel Hearings for MA DPU 12-76-A

MA DPU Docket 12-76-A was issued on Monday, December 23, 2013. Initial comments and notice of interest to appear on a panel were due January 17, 2014, with hearings to be held Feb. 24-28, 2014.

The inclusion of the holiday weeks in the docket commentary period adversely impacted the ability of some ratepayers (who are not paid for their time, in contrast to DPU and utility employees) to devote resources to commenting. In response to complaints by advocates, an allowance was made to provide extra leeway to deliver comments up until January 24.

The DPU received requests to participate on panels, and 144 comments to its straw proposal, by the end of January 2014. 100 comments were opposed, with 17 comments in favor from industry and its supporters, and 7 “other” mixed or unspecified. Privacy, safety, cost, and security concerns were also documented, but the majority of the comments focused on health, including national and international expert testimonies. In addition to Massachusetts residents, individuals from other states who experienced harm coinciding with smart meter installations submitted commentary.

On February 3, 2014, the DPU issued panel assignments for 8 hearings.

Advocates complained to the DPU that the health panel was the smallest panel, (4 participants, half the size of the cost recovery panel) and that no utilities were participating. A number of emails went back and forth concerning the composition of the health panel, accessibility issues, and open meeting laws. On Feb. 16, the DPU modified the instructions for panel assignments, allowing for audience expert support in addition to designated speakers. The DPU also provided permission for the health and opt out hearings to be videotaped.

On February 24, the DPU issued a revised list of panelists with designated experts who could also participate, with the following addition: "PANEL 8: Health and Safety, 6 participants, including Peter Valberg of Gradient, with possible additional panelists to be confirmed."

When the health panel discussion took place on Feb. 27, the DPU heard testimony from five designated activists, supported by two others in the audience, and Peter Valberg of Gradient.

No utilities representatives participated. No utilities were questioned concerning smart meter health and safety issues on behalf of Massachusetts ratepayers. The DPU questioned consumers about health concerns and the research validating those concerns. Peter Valberg negated the validity of health concerns.

The DPU did not record or televise the hearings. A transcript was available for purchase for the fee of .50 per page for 1075 total pages, plus a \$45 fee, (over \$500, a cost burden for consumers, but not for industry or the DPU). The transcription company Farmer Arsenault offered to break down the report further to one panel with 130-140 pages, and a \$45 fee. Citizen participants who took unpaid time off from work and paid their own expenses to travel to and from the hearings in Boston, including one panelist from Vermont and one from Martha's Vineyard, and who incurred the cost of providing materials for the DPU, would have been expected to

pay approximately \$100 to receive a transcript. A citizen volunteer videotaped the proceedings, and activists transcribed relevant passages.¹⁸

Later, a copy of the Opt Out and Health hearings transcript was gifted to activists by an anonymous individual.

At the health panel hearing, Peter Valberg's introduction stated, "My name is Peter Valberg, I'm a public health professional, I do what's called human health risk health assessment. My background is a graduate degree in Physics from Harvard University, and then I was on the faculty of the Harvard School of Public Health for many years doing toxicology, and actually studying ionizing and non-ionizing radiation. I'm currently with an environmental health consulting firm called Gradient, which is in Harvard Square. My expertise covers the areas of environmental impact from chemicals, ionizing radiation and non-ionizing radiation, and in this area of smart meters I guess I can just make a few introductory points."

What was not revealed in Peter Valberg's introduction is his work in product defense (discussed further on page 31 of this document).

In his last comment for the hearings, Peter Valberg referred the MA DPU Commissioners to Fact Sheet # 193 from the World Health Organization. He stated, *"Prior to coming to this meeting, I did look at the websites of many of these leading organizations, and I went just a day or so ago to the World Health Organization site. They have a publication called Fact Sheet 193, which is information on cell phones. And cell phones, we're talking about them here today because they have radiofrequency emissions as well." "And all of these organizations, if you go to their websites, at the very bottom they'll say, more research is needed. I mean, that's almost like a mantra for any public health organization. More research is always encouraged,*

¹⁸ Videotape of panel hearing recorded by volunteer can be provided by request

and I certainly would endorse that. But their conclusion, and this was a very recent Web page, but at the bottom it said the Web page had been last updated as of June 2011; and the bottom-line sentence was, "A large number of studies have been performed over the last two decades to assess whether mobile phones pose a potential health risk. To date, no adverse health effects have been established as being caused by mobile phone use."

Peter Valberg also did not divulge his involvement with the individuals who wrote Fact Sheet #193 (discussed further on page 34 of this document).

IV. Feb. 27 Through March 21, 2014; Written Reply Comments Following Panel Hearings for MA DPU 12-76-A

In both the panel hearing and in written testimony, Janet Newton of the EMR Policy Institute and other testifiers clarified that FCC limits only protect against over-heating, or thermal impacts.

In written testimony presented to the Massachusetts DPU, Janet Newton provided an overview of the 2008 National Academy of Sciences Report on RF guidelines.¹⁹

“The task of the 2008 National Academy of Sciences (NAS) Report, Identification of Research Needs Relating to Adverse Health Effects of Wireless Communication, was to **identify any inadequacies in the research upon which the current US Radiofrequency radiation (RF) safety guidelines are based.** The NAS Report did indeed find numerous inadequacies in that research record. An inadequate research record results in safety regulations that fail to address all exposures encountered by the public. **Based on the 2008 NAS findings it cannot be asserted that US RF**

¹⁹

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f22714jntat6.pdf>

safety policy protects all members of the public from all mechanisms of harm in all exposure scenarios.”

Her written testimony included the list of twenty inadequacies of exposure limits outlined by the National Academies, of which the MA DPU was made aware:²⁰

- a) Exposure of juveniles, children, pregnant women, and fetuses both for personal wireless devices (e.g., cell phones, wireless personal computers [PCs] and for RF fields from base station antennas.)
- b) Variability of exposures to the actual use of the device, the environment in which it is used, and exposures from other sources.
- c) Multilateral exposures.
- d) Multiple frequency exposures.
- e) Exposure to pulsed radiofrequency radiation.
- f) Location of use (both geographic location and whether a device is primarily used indoors or outdoors).
- g) Models for men and women of various heights and for children of various ages.
- h) Exposure to others sources of RF radiation such as cordless phones, wireless computer communications, and other communications systems.
- i) Exposure to the eyes, hand or the human lap or parts of the body close to the device.
- j) RF exposure in close proximity to metallic adornments and implanted medical devices (IMDs) including metal rim glasses, earrings, and various prostheses (e.g., hearing aids, cochlear implants, cardiac pacemakers, insulin pumps, Deep Brain Stimulators).
- k) Sufficiently long exposure and follow-up to allow for detection of effects that occur with a latency of several years.

20

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

- l) Lack of information concerning the health effects associated with living in close proximity to base stations.
- m) Research that includes children, the elderly, and people with underlying diseases.
- n) Research on possible adverse RF effects identified by changes in EEG (electroencephalogram) activity.

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Her written testimony included the list of twenty inadequacies of exposure limits outlined by the National Academies, of which the MA DPU was made aware:²¹

- a) Exposure of juveniles, children, pregnant women, and fetuses both for personal wireless devices (e.g., cell phones, wireless personal computers [PCs] and for RF fields from base station antennas.)
- b) Variability of exposures to the actual use of the device, the environment in which it is used, and exposures from other sources.
- c) Multilateral exposures.
- d) Multiple frequency exposures.
- e) Exposure to pulsed radiofrequency radiation.

²¹

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

- f) Location of use (both geographic location and whether a device is primarily used indoors or outdoors).
 - g) Models for men and women of various heights and for children of various ages.
 - h) Exposure to others sources of RF radiation such as cordless phones, wireless computer communications, and other communications systems.
 - i) Exposure to the eyes, hand or the human lap or parts of the body close to the device.
 - j) RF exposure in close proximity to metallic adornments and implanted medical devices (IMDs) including metal rim glasses, earrings, and various prostheses (e.g., hearing aids, cochlear implants, cardiac pacemakers, insulin pumps, Deep Brain Stimulators).
 - k) Sufficiently long exposure and follow-up to allow for detection of effects that occur with a latency of several years.
 - l) Lack of information concerning the health effects associated with living in close proximity to base stations.
 - m) Research that includes children, the elderly, and people with underlying diseases.
 - n) Research on possible adverse RF effects identified by changes in EEG (electroencephalogram) activity.
 - o) Lack of information on possible neurophysiologic effects developing during long-term exposure to RF fields.
 - p) Studies focusing on possible adverse RF effects identified by changes in cognitive performance functions.
 - q) Effects of RF exposure to the sensitive biological targets of neural networks.
 - r) Possible effects of RF exposure on fetal and neonatal development.
 - s) Possible influences of exposure on the structure and function of the immune system, including prenatal, neonatal, and juvenile exposures.
 - t) Possible influences of RF exposures on the structure and function of the central nervous system, including prenatal, neonatal, and juvenile exposures.
- .

In 2011, the California Council on Science and Technology issued a report about smart meters, commissioned by the CA legislature. It has been rebutted for misleading calculations of exposures from smart meters compared to common household devices, because it was partially cut and pasted from an industry brochure, and because was not a health study.²²

Several documents submitted to the MA DPU by the EMR Policy Institute on March 14 address shortcomings of the CCST report, which **blurred the distinction between protections for thermal and non-thermal impacts relative to FCC limits** by claiming that FCC limits are adequate, while not addressing non-thermal impacts.^{23,24}

In written testimony, the EMR Policy Institute testimony clarified: *“De-Kin Li, MD, PhD Senior Reproductive and Perinatal Epidemiologist at the Kaiser Foundation Research Institute was also asked to comment by CCST. He stated that, “**when it comes to non-thermal effects of RF, which is the most relevant effect for public concerns, FCC guidelines are irrelevant and can not be used for any claims of Smart Meter safety unless we are addressing heat damage.**”*

*He concluded, “**The bottom line is that the safety level for RF exposure related to non-thermal effect is unknown at present and whoever claims that their device is safe regarding non-thermal effect is either ignorant or misleading.**”*

²²

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f22714jntat9.pdf>

²³

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f22714jntat7.pdf>

²⁴

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2f22714jntat11.pdf>

Raymond Richard Neutra MD, Dr. PH, former Director of the California EMF Program, submitted comments stating that, "There is lots of evidence that would suggest that RF and ELF exposures well below the current standards may be capable of causing added lifetime risk that exceeds the benchmark which triggers health based regulation." He criticized the CCST, stating that the CCST was perpetuating a pattern of, "language use, hidden assumptions and making the uncertain seem certain so as to provide cover for policy."

The significance of the distinction between thermal and non-thermal impacts of RF exposure pertaining the FCC limits and smart meters, and the significance of the California Council on Science and Technology smart meter report is discussed further in this commentary on page 23.

V. Follow up Documentation From EMR Policy Institute about EMF Agencies

Following the panel hearings for MA DPU-12-76-A, Janet Newton of the EMR Policy Institute sent a follow-up email to the DPU about the organizations Peter Valberg referenced as evidence of scientific consensus, including WHO and ICNIRP:

*Please include the attached document with EMRPI's Reply in DPU 12-76 that was timely filed on Friday March 21, 2014. I became aware of this document today, Sunday, March 23, 2014. **It is a peer-reviewed article published in the academic journal Reviews on Environmental Health that directly addresses Dr.Valberg's reliance on the positions on RF radiation safety limits of The International Council on Non-Ionizing Radiation Protection (ICNIRP), the World Health Organization (WHO) and the European Commission's Scientific Committee on Emerging Newly Identified Health Risks (SCENIHR).** Specifically, this article tracks the history of the individuals who have headed these three bodies while their positions on RF safety guidelines were developed and how these histories are intertwined. This history has also been chronicled in the news outlet of record for the EMF health debate - Microwave News - at <http://microwavenews.com/news/time-stop-who-charade> The website for the journal Reviews on Environmental Health is found at:*

<http://www.degruyter.com/view/j/reveh.2010.25.4/reveh.2010.25.4.325/reveh.2010.25.4.325.xml?rskey=EAZLTG&result=1>

Thank you for your consideration of this request.

Sincerely, Janet Newton, President, The **EMR** Radiation Policy Institute

The clarifying document, which could have assisted the DPU in evaluating Peter Valberg's claims about the agencies he referenced, was submitted 3 days after the comment deadline. It does not appear on the MA DPU website for the docket.

VI. June 12, 2014; MA DPU 12-76-B, Investigation by the Department of Public Utilities on its Own Motion into Modernization of the Electric Grid

MA DPU 12-76-B is a 53-page document with Appendixes. Section VII, pages 36-47 is devoted "Concerns about Health Effects and Opt Out Provisions"²⁵

A. MA DPU 12-76-B Page 36 – "Credible Peer Reviewed Studies Find No Risk"

On page 36, the docket reads: "In considering the use of such technologies, the Department has weighed: (1) our strong belief that in order for all customers to enjoy the numerous benefits of grid modernization, the electric distribution companies must achieve advanced metering functionality, which likely will include broad deployment of advanced meters that transmit data wirelessly ("advanced meters") **(2) the credible, peer-reviewed scientific studies that find no direct human health risk from advanced meters;** and (3) our recognition that some individuals feel strongly that advanced meters will have a negative impact on their health."

²⁵

http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2fOrder_1276B.pdf

The statement by the MA DPU about its reliance on credible, peer-reviewed scientific studies that find no direct human health risk from advanced meters **implies that credible peer-reviewed studies exist and were reviewed.**

Citizen activists clarify, “No human health impact studies were conducted prior to the deployment of RF emitting smart grid technologies, which include the smart meters themselves as well as the associated gatekeepers and routers that are part of the overall mesh communications network for each utility’s smart grid system. From a smart grid industry perspective, safety claims for smart meters are made based upon industry testing documents demonstrating that RF emissions from individual smart meter devices comply with outdated Federal Communications Commission (FCC) exposure guidelines, and then referring to such documentation as a “study” showing that wireless smart meters pose no health risk. **Unfortunately, FCC exposure guidelines were never formulated to fully protect human health. In fact, they are only believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn.** FCC exposure guidelines have no biological relevance to protect humans from chronic exposure to pulsed radiofrequency radiation emitted by devices such as smart meters. Therefore, RF emissions from smart meters devices being installed on every home in America are **simply unregulated.**”²⁶

B. MA DPU 12-76-B Page 37 – “Unaware of Credible Peer Reviewed Studies”

On page 37, MA DPU 12-76-B states “after thorough review and consideration of the issue, the Department is **unaware of any credible, peer-reviewed scientific studies that demonstrate a direct human health risk** from exposure to the low-level RF signals from advanced meters.”

²⁶ <http://smartgridawareness.org/2014/02/27/smart-meter-no-credible-evidence-controversy/>

Smart Grid Awareness clarifies, “Because there have been **no organized health impact studies regarding RF emitting technologies prior to deployment**, at best, it must be concluded that **the safety of smart meters is ‘unknown.’** As stated by Dr. De-Kun Li, a leading research scientist in reproductive and prenatal epidemiology, ‘Unknown does not mean safe.’ However, going beyond the statements made by Dr. Li, although there have been no health impact studies demonstrating the safety of smart meters prior to deployment, there have been at least limited studies subsequent to deployment indicating ill-effects from smart meter exposure”²⁷

In an absence of regulatory responsibility, the MA DPU shifted the burden from pre-deployment proof of safety by the industry to “after the fact” evidence of harm by citizens.

C. MA DPU 12-76-B Page 38, DPU Alters its Manner of Identifying Commenters, Obscuring Contributions of Peter Valberg

In the main body of MA-DPU-12-B, the identity of commenters was not provided in some sections of the order.

“**Commenters** opposed to advanced meters refer to studies that they *contend* provide evidence of associated negative health impacts. **Another commenter** argues that national and international studies have not shown a conclusive causal link between RF exposures and detrimental health effects.”

²⁷ <http://smartgridawareness.org/2014/02/27/smart-meter-no-credible-evidence-controversy/> (<http://www.ncbi.nlm.nih.gov/pubmed/25478801>;
<http://marylandsmartmeterawareness.org/recources/symptoms-resulting-from-exposure-to-radiofrequencymicrowave-radiation-from-smart-meters/>;
https://skyvisionsolutions.files.wordpress.com/2014/01/halteman_survey-results-final.pdf)

The docket mirrors the tobacco war use of “manufacturing doubt”, discussed further of page 31 of this brief.

D. MA DPU 12-76-B Page 42 “Other Jurisdictions”

“Other jurisdictions that have considered potential health impacts of RF, including regulatory bodies and public health organizations, **do not find that RF exposure from advanced meters, operating under established U.S. and international exposure limit guidelines, leads to adverse health effects”**

The paragraph **implies that other jurisdictions have examined the RF exposure from advanced meters in use in the U.S., and found no harm.**

The MA DPU’s implication that other jurisdictions concur with microwave exposure limits in the U.S. only applies to other nations with militarized RF limits.

In 2012, India examined emerging evidence of adverse health impacts of RF outlined in the Bio-Initiative Report, and lowered its guidelines to 1/10 of the previous limit.²⁸ France has taken unprecedented action to limit the exposure of young children to Wi-Fi (after the DPU docket was published)²⁹ Actions have been taken in Austria, Switzerland, Germany, Belgium, and other jurisdictions to reduce RF exposures.³⁰

²⁸ http://www.business-standard.com/article/printer-friendly-version?article_id=112090102008_1

²⁹ <http://www.powerwatch.org.uk/news/2015-02-05-france-wifi-restrictions.asp> Wi-Fi banned from nurseries in France In an unprecedented move, France has passed a law regarding children's exposure to wireless devices by entirely banning Wi-Fi

in nursery / daycare settings, and restricted in primary schools to only be enabled when actively being used for education. Not only does this demonstrate an awareness and proactive approach to mitigate potential harm from radiofrequency electromagnetic fields, it also demonstrates the first national implementation of the precautionary principle with regards to managing the prevalence of wireless technology.

³⁰ <http://www.electronicsilentspring.com/international-policy-actions/>

MA DPU 12-76-B subtly blurs the crucial distinction between FCC protections from adverse effects for thermal and from non-thermal impacts of RF exposure by presuming that there are no adverse impacts. Jurisdictions recognized by the MA DPU are limited to the jurisdictions that do not recognize non-thermal impacts of RF exposure. This includes Canada, New Zealand, Australia, and the UK, and Norway.

The existence of jurisdictions that protect against non-thermal impacts with RF exposure limits 10-100 times lower than those promoted by the U.S., and the science informing those policies, is overlooked as non-existent (including Austria, Italy, Russia, China, India).

E. MA DPU 12-76-B Page 43 Some Commenters Assert, Another Commenter Disagrees

“Some commenters assert that national and international exposure limits, including, specifically, the guidelines established by the Federal Communications Commission (“FCC”), are inadequate to protect the public from the effects of electric meter RF exposure, especially non-thermal effects. **Another commenter disagrees and asserts** that existing standards adequately protect public health, arguing that a number of national and international standards bodies agree on the adequacy of existing RF exposure limits, and that a number of these bodies have recently reviewed their limits.”

Health Canada is one of the organizations that recently reviewed its RF exposure limits.³¹ Although Canada’s RF limits have been portrayed as encompassing non-thermal impacts, a recent court ruling clarifies that Health Canada only incorporates non-thermal impacts of RF in the 3-100kHz range, and not in the ranges relevant to

³¹ http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-eng.php

smart meters (900 MHz and 2.4 GHz, others for water and gas meters). In Canada, for frequencies between 100 kHz and 300 GHz. only thermal effects are considered, and cell towers fall within this “thermal range.”³²

VII. MA DPU 12-76-B Misrepresentation of FCC Limits, For Thermal and Non-thermal Impacts

“Evidence from peer-reviewed studies, determinations by standards bodies, and conclusions from other **jurisdictions do not support a finding that the FCC guidelines are inadequate to protect against either thermal or non-thermal effects of RF emissions.**”³³

³² <http://www.magdahavas.com/health-canada-admits-safety-code-6-guideline-for-microwave-radiation-is-based-only-on-thermal-effects/> For years Health Canada has stated that Safety Code 6 takes into consideration and protects the public from both thermal and non-thermal effects. They made this statement to groups concerned about Wi-Fi in schools and to those concerned about smart meters and cell towers coming into their neighborhoods. While they are technically correct in their statement, they mislead the public by what they failed to mention. What Health Canada failed to mention is that the “non-thermal” effects are considered ONLY for frequencies between 3 and 100 kHz. For frequencies between 100 kHz and 300 GHz ONLY thermal effects are considered and cell towers fall within this “thermal range.”

³³ Footnote 44 references: See, e.g., Tr. 4, at 945, 977-979, 1012 (existing exposure limits adequately protect public health; national and international standards bodies agree on the adequacy of existing RF limits); **California Council on Science and Technology, Health Impacts of Radio Frequency Exposure** from Smart Meters at 2, 5 (2011) (FCC guidelines provide an adequate factor of safety against RF health impacts of smart meters; evidence does not support a causal link between RF emissions and non-thermal health impacts); **Maine Examiners Report 44** (there is no basis for finding that the FCC limits inadequate for both thermal and non-thermal effects); **Colorado Department of Public Health and Environment, Fact Sheet on Smart Meters and Associated Health Concerns** at 3 (2012) (“[o]verall, based on the current knowledge, additional standards are not needed to protect public health”).

The statement above is the most controversial and perhaps misleading inclusion by the MA DPU in Order 12-76-B. The distinction between thermal and non-thermal impacts of radiofrequency exposures is central to the debate on the safety of smart meters.

The 3 documents/sources listed by the DPU under footnote #44 to support the statement implying that FCC limits protect against thermal and non-thermal impacts mislead and misinform MA ratepayers and decision-makers.

A. California Council on Science and Technology re: Thermal/Non-thermal

The MA DPU statement directly contradicts the study by the California Council on Science and Technology in its characterization of FCC limits.³⁴

The key report findings of the California study state:

*“The current FCC standard provides an adequate factor of safety **against known thermally induced health impacts** of existing common household electronic devices and smart meters.”*

To date, scientific studies have not identified or confirmed negative health effects from potential/non thermal impacts of RF emissions such as those produced by existing common household electronic devices and smart meters.

³⁴ <http://www.ccst.us/publications/2011/2011smart-final.pdf>

Not enough is currently known about potential non-thermal impacts of radio frequency emissions to identify or recommend additional standards for such impacts.

As the CCST report summarizes, the FCC has not assumed responsibility or liability for non-thermal impacts of exposure to RF.

B. Maine Examiner's Report #44

The MA DPU's order 12-76-B includes a draft statement from a Maine legal proceeding that was not incorporated into the final Maine order. The Examiner's Report is included in the Appendix. The draft is dated March 25, 2014. The Maine Examiner's Report states: "This Examiners' Report contains the recommendation of the Commission Staff. Although it is in the form of **a draft Commission Order, it does not constitute Commission action.** Parties may file comments or exceptions to the Examiners' Report on or before 4:00 P.M., Friday, April 11, 2014.

The final annotated Maine Report was issued on December 14, 2014 and does not include the statement listed by the MA DPU in 12-76-B.

C. Colorado Department of Public Health and Environment, Fact Sheet on Smart Meters and Associated Health Concerns on Thermal/Non-thermal

The Colorado Fact Sheet reference listed in the MA DPU docket resources states: "RF emissions from several sources including Smart Meters are regulated by the FCC, with advisory support from the Food and Drug Administration (FDA) and Environmental Protection Agency (EPA). The FCC has adopted, for several RF exposure sources, exposure limit values with a wide margin of safety **against known thermally induced health impacts** (Table 2, Appendix A). **Overall, based**

on the current knowledge, additional standards are not needed to protect public health.” ^{35,36}

The Colorado paper listed in the DPU footnote purportedly encompassing non-thermal impacts specifies that is applicable to **known thermally induced impacts**, blurring the distinction of the thermal and non-thermal.

VIII. MA DPU 12-76-B Appendix 1 (Health begins on page 29)

The unsubstantiated Maine examiner’s report and the Colorado paper were not discussed during the panel hearings. Appendix 2 Page 1 provides a list of resources, stating, “As noted in Section VII.A, above, in addressing concerns regarding health effects, the Department reviewed a number of sources in addition to those provided by commenters. These sources are listed below.” The appendix notation implies that the misleading Maine draft report was incorporated into 12-76-B by the MA DPU.

The appendix of the DPU order contains specific references for rebuttals to health issues by “Gradient.” For example:

“Commenters contend that current Federal Communication Commission (“FCC”)

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http://navopache.coopwebbuilder.com/sites/navopache.coopwebbuilder.com/files/colorado_dept_public_health_stmnt.pdf

³⁶ Additionally, the FDA does not regulate smart utility meters.
<http://www.fda.gov/radiation-emittingproducts/radiationemittingproductsandprocedures/surgicalandtherapeutic/ucm115931.htm>

standards to which RF-emitting meter manufacturers are required to adhere are outdated, and that studies that indicate meter adherence to these standards is inadequate (StopSmartMetersMassachusetts Comments at 4-5; HaltMASmartMeters Reply Comments at 5; MACI Comments at 5). **These commenters argue** that FCC standards only account for thermal effects and do not address non-thermal effects (Tr. 4, at 965-966; AAEM Comments at 2; HaltMASmartMeters Reply Comments at 5).⁸ Additionally, they assert that studies evaluating RF exposure, including those on which FCC bases its standards, have not looked specifically at RF-emitting meters, have rejected critical variables such as the effects of whole body exposure, have not evaluated RF exposure impacts on children, and are inherently flawed in their research methodologies (StopSmartMetersMassachusetts Comments at 3-5; HaltMASmartMeters Reply Comments at 5; MACI Comments at 5-6).

Gradient Consulting (“Gradient”) disagrees and asserts that existing standards adequately protect public health (Tr. 4, at 945, 977-979). **Gradient argues that standards bodies establish these standards through an evaluation of peer-reviewed, reproducible science, evaluating both thermal and non-thermal effects of RF exposure** (Tr. 4, at 945, 977-979). Gradient also notes that a number of national and international standards bodies agree on the adequacy of existing RF standards, and that a number of these bodies have recently reviewed their standards (Tr. 4, at 978, 1012).⁹

Here, the MA-DPU blurred the distinction between non-thermal and thermal impacts in FCC guidelines, based on Gradient testimony.

The Department of Interior did not blur the distinction between thermal and non-thermal effects of RF exposure in a letter issued February 2, 2014, stating **“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."³⁷

IX. Peter Valberg and the MA DPU 12-76 Proceedings

Peter Valberg did not submit comments or request to participate in the panel discussion before the initial deadline of January 17 for 12-76-A.

Peter Valberg testified in the panel discussion on health held on February 27.³⁸ Following the panel discussions the last week of February, further written comments were solicited until the deadline of March 21. Peter Valberg did not provide written comments.

In MA DPU 12-76-B, Gradient testimony is used to rebut the commentary provided by other parties.

The question of whether Peter Valberg of Gradient was given the opportunity to contribute, assess, review, and negate other commentaries outside the scope of the proceedings on behalf of the MA-DPU was denied by DPU staff.

A crucial question is how the misrepresented Maine Examiners Report #44 found its way into MA DPU 12-76-B.

There is also a question as to whether it was MA ratepayers or MA taxpayers who compensated Peter Valberg for his testimony on behalf of the DPU, directly or indirectly, and how much he was paid.

³⁷ http://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf, Enclosure A

³⁸ When queried, a DPU employee stated that the DPU solicited Peter Valberg's participation because he had participated in proceedings in other states.

**X. May 5, 2014 Peter Valberg Testimony on Behalf of National Grid to
City of Worcester Zoning Board of Appeals (MA DPU 11-129)**

Worcester is the site of the controversial National Grid smart meter pilot program (MA DPU 11-129), also under the purview of the MA DPU.³⁹

On May 5, 2014, National Grid provided testimony to the Worcester Zoning Board of Appeals regarding the placement of a microwave antenna for the smart meter pilot program.^{40,41,42}

In response to a question by the a zoning board member about the comparison of FCC limits to those in other countries, Peter Valberg stated,

“Well, our regulations are pretty much in conformance with, as I mentioned, Health Canada, the International Commission on Non-Ionizing Radiation, the World Health Organization, and so forth.”

“I mean, there are some smaller countries that have set limits that are more restrictive than ours, but they haven’t set them on the basis of some literature that says, Oh we should go much lower. I think, some countries say, well, we need bigger precautionary factors and so they, you know, lower it on that basis.

I would say of the ones that I am aware of, there’s some that may be as low as 10 times than what we have, but they’re not really widely accepted. And in fact, my feeling is that is in the countries that they’re promulgated in they’re not that widely enforced.

³⁹

<http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=11-129%2f8312dpuord.pdf>

⁴⁰ <http://www.worcesterma.gov/agendas-minutes/boards-commissions/zoning-board-of-appeals/2014/20140505.pdf>

⁴¹ <http://ec4.cc/ed2f7e5b> video link to Worcester Zoning Board meeting

⁴² In documents filed May 5, the antenna range was listed as 75 miles.

*But at least in terms of this facility, even a 10-fold factor is not a, ah, is not going to be a consideration that puts it out of compliance.*⁴³

Mr. Abramoff is the Chair of the Worcester Zoning Board. Following testimony by Peter Valberg, according to meeting minutes, “Mr. Abramoff stated that while he was still concerned, that this location is remote and the potential impacts would be minimal.”

Had Worcester residents or Zoning Board members pursued independent research about National Grid’s testifier, they would have been challenged by the fact that in the meeting minutes, Peter Valberg is misidentified as “emissions expert Peter Walberg”, who told the Zoning Board that he had a PhD in Electricity and Magnetism from Harvard”⁴⁴ (See Attachment)

A review of the international exposure limits for several wireless frequency ranges indicates that Peter Valberg/emissions expert Walberg provided the Worcester Zoning Board of Appeals with inaccurate information. The graph below prepared by Dr. Isaac Jamieson for testimony in the European Union clarifies that 44% of the

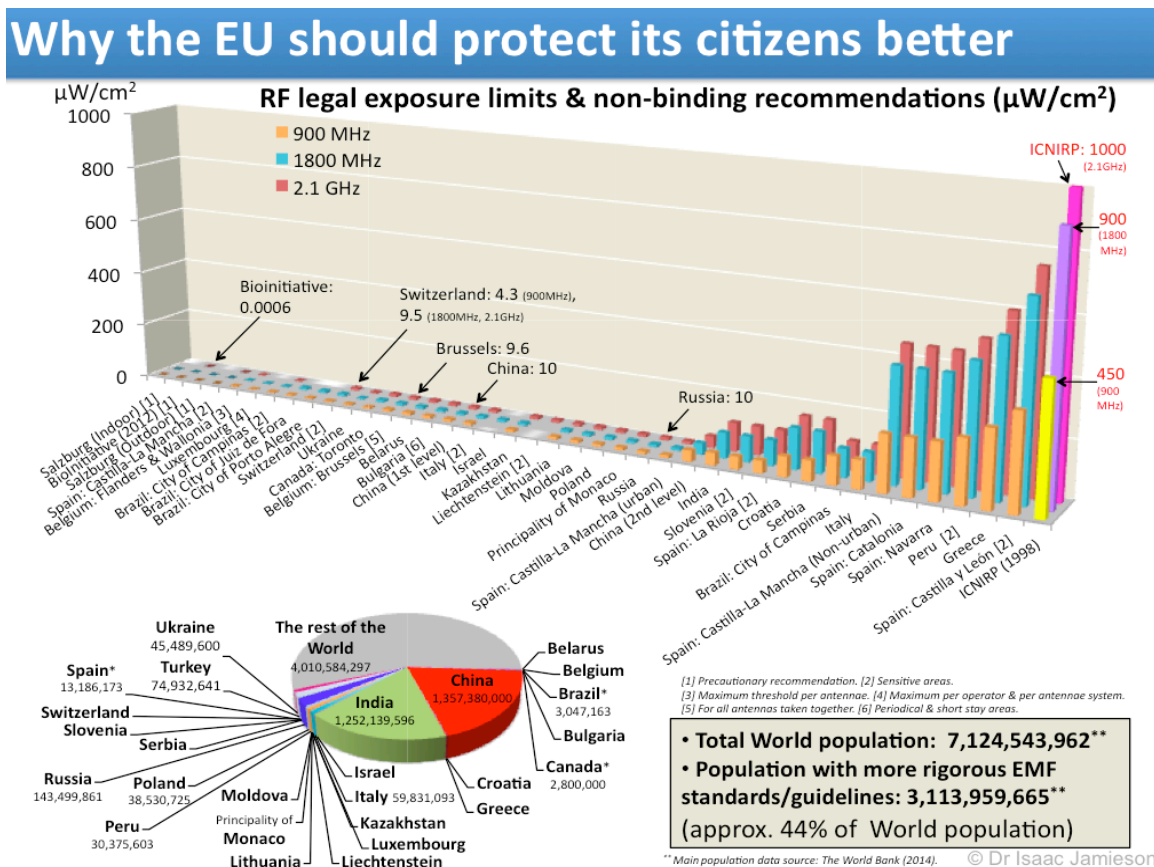
⁴³ <http://www.wccatv.com/video/about-smart-meters/ABOUTSMARTMETERS10> Valberg video at 13:33 On May 5, "tobacco scientist" Peter Valberg testified as an expert on radiofrequencies for National Grid at the Worcester Zoning Board of Appeals on behalf of an application to mount antennas on a water tower on Goddard Memorial Drive.

⁴⁴ <http://www.worcesterma.gov/agendas-minutes/boards-commissions/zoning-board-of-appeals/2014/20140505.pdf> 9. 135 Goddard Memorial Drive (ZB-2014-008) Mark Reilly, council for National Grid, introduced Project Engineer, Mike Key, Community & Customer Manager, Kevin Shaughnessy, and Emissions Expert, Dr. Peter Walberg. Mr. Reilly stated that they submitted revisions in response to staff’s memo today and provided copies to the Board. He stated that they are requesting waivers for some of the application requirements and gave an overview of what was included in the revised packet.

world’s population is protected by limits lower than ICNIRP, and that some exposure limits are hundreds of times lower, including Austria. ⁴⁵

In 2007, Dr. Gerd Oberfeld of the Office of Public Health compiled the paper “Environmental Medicine Evaluation of Electromagnetic Fields” for the Austrian Medical Association.⁴⁶ The report includes epidemiological research justifying Austria’s regulations for electric fields, magnetic fields, and microwaves limits. The Russian Commission on Non-Ionizing Radiation Protection has also issued science-based warnings concerning the inadequacy of current FCC/ICNIRP protections, especially for children using cellphones. ⁴⁷

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⁴⁶ <http://www.salzburg.gv.at/Oberfeld-EMF-enviro-med-evaluation-2007.pdf>

⁴⁷ http://www.magdahavas.com/wordpress/wp-content/uploads/2011/06/Russia_20110514-rncnirp_resolution.pdf

Peter Valberg's claim to the Worcester Zoning Board that there is no basis other than precaution for lower exposure limits, or that they are not enforced in other countries, is inaccurate and misleading.

The Worcester Zoning Board of Appeals might have voted differently had they heard testimony from Dr. Gerd Overfeld instead of National Grid's emissions expert Peter Walberg.

XI. Tobacco Science for MA DPU Smart Meters, Doubt is Their Product

The issue of thermal vs. non-thermal protections for non-ionizing radiation is the playing field where a number of individuals who have previously provided false testimony on the safety of cigarettes, asbestos, and air pollution now hang their hats.

The fact that the MA DPU's chosen expert testifier Peter Valberg is a mercenary career tobacco scientist 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 cache⁴⁸, and an additional 422 in an archive of previously confidential documents just released on 2015.⁴⁹

⁴⁸ <http://legacy.library.ucsf.edu/action/search/basic?fd=0&q=peter+valberg>

⁴⁹

<http://beta.industrydocuments.library.ucsf.edu/tobacco/results/#q=peter%2520valberg&h=%27B%22hideDuplicates%22%3Afalse%2C%22hideFolders%22%3Afalse%2C%22hidePrivileged%22%3Afalse%2C%22hideConfidential%22%3Afalse%2C%22hideCopyright%22%3Afalse%7D>

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.⁵⁰

The strategy of manufacturing doubt is the subject of David Michael's book "Doubt is Their Product." In an interview about the book he states, *"Americans have great trust in science. We believe in scientists' integrity, that they are striving for the truth. So if a scientist says that the evidence against a chemical isn't very good, we tend to believe it. Or if there appears to be conflicting science, we think more research is needed. The product-defense industry plays on that trust. Once you produce an equal-yet-opposite study, decision makers tend to throw up their arms and say, "There's nothing we can do." If a mercenary scientist claims that an independent scientist is wrong, the media will give both sides equal weight, often without pointing out that one side has been paid for by industry."*⁵¹

In the book, David Michaels states, *"They profit by helping corporations minimize public health and environmental protection and fight claims of injury and illness. In field after field, year after year, this same handful of individuals and companies comes up again and again... They have on their payrolls (or can bring in on a moment's notice) toxicologists, epidemiologists, biostatisticians, risk assessors, and any other professionally trained, media-savvy experts deemed necessary. They and the larger, wealthier industries for which they work go through the motions we expect of the scientific enterprise, salting the literature with their questionable reports and studies. Nevertheless, it is all a charade. The work has one overriding motivation: advocacy for the sponsor's position in civil court, the court of public opinion, and the regulatory arena [where these studies benefit their sponsors] not because they are good work that the regulatory agencies have to take seriously but because they clog the machinery*

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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

⁵¹ <http://www.fastcompany.com/1139299/manufacturing-doubt-product-defense>

and slow down the process. Public health interests are beside the point. Follow the science wherever it leads? Not quite. This is science for hire, period, and it is extremely lucrative."⁵²

Naomi Oreskes is the author of the book "Merchants of Doubt" and is also featured in the upcoming documentary film by the same name. In a March 21, 2015 Vox interview, she was asked, *JB: In your book Merchants of Doubt, you show that many of the people who attacked the science of smoking also attacked climate change. What was motivating them? NO: Normal scientists don't move to totally different, unrelated issues. You have one area of expertise. No one could be an oncologist and a climate scientist at same time. So that was the key that this wasn't a scientific debate.*⁵³

According to Gradient's website, Peter Valberg's areas of expertise include: Risk Communication, Inhalation Toxicology, Exposure Modeling, Airborne Pollutants & Particulates, Radiation & Radionuclide Risk, and Electromagnetic Fields.⁵⁴ Samples of his work indicate that Peter Valberg defends tobacco, air pollution, hexavalent chromium, arsenic, acid rain, radiofrequencies, and magnetic fields. Peter Valberg's role in the setting of exposure standards internationally and in CT for powerlines is featured in the European documentary film "Microwaves, Science, and Lies."⁵⁵

In the mainstream media, mercenary tobacco science is linked increasingly with climate deniers.^{56, 57}

⁵² Doubt is Their Product, David Michaels

⁵³ <http://www.vox.com/2015/3/21/8267049/merchants-of-doubt>

⁵⁴ <http://gradientcorp.com/bio.html?id=35&staff=Valberg>

⁵⁵ <http://smartgridawareness.org/2014/08/30/microwaves-science-and-lies-documentary-reveals-a-product-defense-strategy/>

⁵⁶

http://www.democracynow.org/blog/2015/1/1/climate_deniers_like_big_tobacco_thrive

The alarming reality is that two leading product defense firms Gradient and Exponent are fraudulently defending the safety of wireless smart meters, increasingly embraced as a sustainability initiative, nationally.

Rather than frustrating tobacco regulators, product defense firms that previously defended air pollution for utilities are now working in collaboration with politically appointed state utility regulators to defend smart meters, with no independent oversight by Legislators, local communities or health experts. There is no premarket safety testing, and no health or environmental monitoring, despite reported harm to a portion of US residents.

Fact Sheet #193

Fact Sheet #193, introduced by Peter Valberg at the end of his testimony for the MA-DPU, is a controversial document that has been used in many proceedings since it was published in 2011.⁵⁸ The Fact Sheet states, “To date, no adverse health effects have been established as being caused by mobile phone use.” One carefully worded sentence inserted into Fact Sheet #193 counteracting the WHO IARC cancer classification has been used by the wireless industry to avoid litigation and to frustrate regulators.

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http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/exxon_report.pdf

⁵⁸ <http://www.who.int/mediacentre/factsheets/fs193/en/>

Are there any health effects? A large number of studies have been performed over the last two decades to assess whether mobile phones pose a potential health risk. To date, no adverse health effects have been established as being caused by mobile phone use.

It is misleading to the public because it fails to acknowledge the 2B classification possible carcinogen based on limited evidence, and it implies that the 2B classification only applies to cellphones. It contradicts the 2011 IARC classification of RF exposure as a class 2B possible human carcinogen.

The World Health Organization was rocked by a scandal previously when it was discovered that its ranks had been infiltrated by the tobacco industry. A similar scenario has unfolded in the area of wireless technologies.

Peter Valberg provided mercenary science for the tobacco industry for decades, and now offers this service to the wireless industry and utilities, along with Michael Repacholi.⁵⁹

Gradient also provides testimony on electric and magnetic fields for on-going utility infrastructure projects in the Commonwealth⁶⁰ and in other states, including Connecticut.⁶¹ Gradient ignores the IARC 2001 classification of powerline EMF as a possible human carcinogen, working to ease standards on behalf of industry.⁶²

As stated earlier in this brief, “De-Kin Li, MD, PhD Senior Reproductive and Perinatal Epidemiologist at the Kaiser Foundation Research Institute was asked to comment on the “study” by California Council on Science and Technology. He stated that, **“when it comes to non-thermal effects of RF, which is the most relevant effect for public concerns, FCC guidelines are irrelevant and can not be used for any claims of Smart Meter safety unless we are addressing heat**

⁵⁹ <http://microwavenews.com/CT.html>

⁶⁰ <http://www.env.state.ma.us/dpu/docs/siting/14-03/11614nstptex13.pdf>

<http://www.env.state.ma.us/dpu/docs/siting/11-51/7511nstptex28.pdf>

<http://www.mass.gov/eea/docs/dpu/orders/dpu-13-86-final-order.pdf>

⁶¹ http://www.precaution.org/lib/07/prn_pp_for_leukemia_and_emf.070119.htm

⁶² <http://microwavenews.com/sites/default/files/sites/default/files/backissues/j-a01issue.pdf>

damage.” He concluded, “The bottom line is that the safety level for RF exposure related to non-thermal effect is unknown at present and whoever claims that their device is safe regarding non-thermal effect is either ignorant or misleading.”

It is unlikely that Peter Valberg is ignorant.

XI. Towards a Resolution: Investigation

Wireless smart meters and related infrastructure combine inescapable risks associated with powerline EMF's with inescapable risks of microwave radiofrequency exposures.

As stated earlier, Raymond Richard Neutra MD, Dr. PH, former Director of the California EMF Program characterized the California Council on Science and Technology as perpetuating a **pattern of, “language use, hidden assumptions and making the uncertain seem certain so as to provide cover for policy.”**

The issue of whether or not the FCC's RF limits protect against non-thermal impacts is a circular discussion being perpetuated by mercenary tobacco science in MA DPU 12-76-B:

FCC limits protect against thermal impacts only;

FCC limits do not protect against non-thermal hazards;

FCC limits protect against all known hazards;

Therefore, FCC limits are sufficient to protect against thermal and non-thermal impacts.

The sentence introduced in MA-DPU 12-76-B “Evidence from peer-reviewed studies, determinations by standards bodies, and conclusions from other **jurisdictions do not support a finding that the FCC guidelines are**

inadequate to protect against either thermal or non-thermal effects of RF emissions, has no valid supporting documentation.

The misleading sentence is the tobacco science equivalent of the similar inclusion of one misleading sentence in Fact Sheet 193 discounting the RF cancer classification. If left unchallenged, the misleading statement will impact other proceedings.

Massachusetts residents are not well served if this crucial question of the scope of the protections of FCC limits is left to the interpretation of mercenary science.

Due to the diligence of consumers, the MA DPU was given adequate resources and information to form the basis of an inquiry as to whether the twenty shortcomings of RF research identified by the National Academies of Science have been addressed, and whether the frequencies in use are protective of thermal and non-thermal impacts.

Also, the MA DPU is not a health regulatory agency. The Massachusetts Department of Health was not consulted or involved in the proceedings.⁶³

Instead of scrutinizing safety claims by utilities, the MA DPU has dismissed ratepayers who have already reported harm by wireless infrastructure.⁶⁴ The DPU is driving utilities towards smart meter implementation. Precaution is being applied to protection of political agendas and economic growth, instead of human health and the environment.

⁶³ An anonymous department employee indicated confidentially that even if the Department of Health had been consulted, they would have been instructed to support the Patrick administration's agenda.

⁶⁴ The DPU heard testimony from residents opposed to opt out tariffs for AMR meters, and ruled in favor of utilities.
http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=13-83%2FDPU1383A_FinalOrder.pdf

Proposed Resolution A: Obtain Clarification Directly From FCC re: Thermal and Non-Thermal Impact Protections (including designating future liability)

The FCC, as a regulatory body either is, or is not, providing guidelines that recognize and protect citizens from non-thermal impacts in each of the frequency ranges in use or proposed for use by MA utilities and telecommunications companies.

The FCC itself can provide the necessary clarification, without the need for translation through mercenary scientists paid by industries.

Clarification can be obtained directly from the FCC on the microwave radiofrequencies in use by MA utilities for gas, water and electric meters to determine which frequencies are licensed or unlicensed, and whether each specific frequency exposure guideline is protective for both thermal non-thermal impacts, with assignment of liability.

Ultra-low frequency (ULF) -- 0-3 Hz
 Extremely low frequency (ELF) -- 3 Hz - 3 kHz
 Very low frequency (VLF) -- 3kHz - 30 kHz
 Low frequency (LF) -- 30 kHz - 300 kHz
 Medium frequency (MF) -- 300 kHz - 3 MHz
 High frequency (HF) -- 3MHz - 30 MHz
 Very high frequency (VHF) -- 30 MHz - 300 MHz
 Ultra-high frequency (UHF)-- 300MHz - 3 GHz
 Super high frequency (SHF) -- 3GHz - 30 GHz
 Extremely high frequency (EHF) -- 30GHz - 300 GHz

Proposed Resolution B: Obtain Clarification Directly From MA DPU re: Inadequacies Outlined in the National Academies of Science 2008 Report, Including Designating Future Liability

The scientific consensus that informs policies in other countries including Austria, Italy, China, Russia, and India implies that US guidelines may be based on political and economic goals rather than health and environmental protections. The National Academies of Science outlined 20 deficiencies of FCC limits in 2008. If the MA DPU reviewed the NAS document and gave the green light to smart meters, the MA DPU should be able to provide justification for how the deficiencies in research listed by NAS have been addressed to protect MA ratepayers, with clarification on assignment on future liability if there is any doubt as to the safety of the technology for all populations.

Proposed Resolution C: Investigate the National Grid Worcester Smart Meter Pilot Program

The book “Bending Science, How Special Interests Corrupt Public Health Research” by Thomas McGarity and Wendy Wagner outlines how outcome-oriented research, also known as decision-based evidence making, is conducted. Strategies include manufactured consent, creating research to fit one’s needs, concealing unwelcomed information, assembling an expert group to advance a favored outcome, and manipulating public perception about credible science. Decision-based evidence making becomes policy-based evidence making when the political process is corrupted. A portion of residents of Worcester who were enrolled in a biological experiment without knowledge or consent, whether or not they have a meter installed on their home or business, that has no monitoring for health or environmental impact, have received little support or advocacy from City or State agencies. A growing list of concerns is outlined in the petition attached to this document. The \$48M pilot is behind schedule, and most likely over budget. The pilot is 5 times larger than mandated by the Green Communities Act, and is testing equipment and protocols that will not be part of a future deployment. An audit and investigation as to the transparency and legitimacy of the program on behalf of ratepayers could provide necessary clarity, before any statewide deployment would be considered.

Proposed Resolution D: Investigate the MA DPU Mandate

The California Public Utilities Commission is under federal and state investigation. 65,000 emails have been released that encompass the smart meter deployment that began in 2009, which has already caused harm to a portion of the population.

The MA DPU is proceeding with its agenda to mandate smart meters as the cornerstone to grid modernization, despite the fact the Worcester pilot program only enrolled participants in experimental pricing plans in January of 2015. Justifying a potential \$7B expense to be foisted on ratepayers for meters and related infrastructure without independently validated pilot program results is questionable.

Canadian resident Ron McNutt wrote, "The smart meter project, born and bred in secrecy and exempted from all levels of normal oversight, represents a range of concerns, including fire safety, elevated costs, time-of-use billing, electrical grid security, invasion of personal privacy, and most importantly, adverse long-term health effects. The technology, which envelops entire cities in microwave radiation to send information wirelessly, is not, and cannot be proven safe."

MA ratepayers deserve assurance that the DPU smart meter mandate is not a politically driven agenda unsubstantiated by valid science, cost-benefit analysis, and definitive proof of safety, security, and environmental stewardship.

Proposed Resolution E: Investigate the MA DPU Relationship with the Product Defense Firm Gradient for Electric Field, Magnetic Field, and RF Safety Claims

Gradient Corporation has provided the MA DPU with safety documentation for many large infrastructure projects. A review of the standards that Gradient has

relied on would clarify the extent to which MA residents are protected by DPU decisions. Verification of how any future liability would be assigned would be a useful strategy for ensuring that the agency responsible for safe and reliable electricity has ensured safety, and to distinguish responsible environmental stewardship from racketeering.

Proposed Resolution F: Provide full transparency and disclosure to MA residents and communities of the history of installation and upgrades in RF transmission or use of powerline technologies for gas, water and electricity

The number of residents who may be adversely impacted by the undisclosed installation, activation, and upgrade of biologically experimental meters or their equivalent over the last decade is **unknown**.

Consumers believing that the meters only transmit once a month for billing purposes have not been informed that meters have been installed that transmit continually, or that meters have been replaced or upgraded in functionality.

Residents who experienced the onset of documented health concerns over the last decade, including the onset of Multiple Chemical Sensitivity, tinnitus, sleep disorders, fatigue, headaches, and other symptoms of stress may be able to associate adverse health impacts to radiofrequency or powerline technology exposures, in collaboration with informed health care providers if they are informed.

Transparency and informed consent for communities and individuals will enable valuable insights to emerge that support appropriate decision-making.

Proposed Resolution G: Investigate Peter Valberg

Bernie Maddoff embodies the damage that one sociopath can manifest in the absence of an adequate system of checks and balances.

The suffering unleashed by one opportunistic mercenary scientist still benefitting from the tobacco wars is immeasurable; the damage unfolding due to inadequate monitoring and regulation of the wireless industry in partnership with utilities is unfathomable.

Proposed Resolution H: Question the Inadequacy of FCC limits

The debate about safe radiofrequency exposure limits has a long history. In March 1976, the US Defense Intelligence Agency published an astounding report titled “Biological Effects of Electromagnetic Radiation (Radiowaves and Microwaves) – Eurasian Communist Countries.”⁶⁵ The 34-page report analyzes numerous Soviet and Eastern bloc research studies that demonstrate a wide range of adverse biological effects caused by exposure to radio frequency radiation and microwaves.

In its Summary on page vii, the report states:

“If the more advanced nations of the West are strict in the enforcement of stringent exposure standards, there could be unfavorable effects on industrial output and military functions.”

A century of falsehood about tobacco harmed millions.

More than forty years of falsehood about non-ionizing radiation can end now.

65

http://www.ehsfri.dk/artikler/BIOLOGICAL_EFFECTS_OF_ELECTROMAGNETIC_RADIATION-RADIOWAVES_AND_MICROWAVES-EURASIAN_COMMUNIST_COUNTRIES.pdf

Appendix

Glossary of Terms

Fraud, Legal Definition: Fraud must be proved by showing that the defendant's actions involved five separate elements:

- (1) a false statement of a material fact,
- (2) knowledge on the part of the defendant that the statement is untrue,
- (3) intent on the part of the defendant to deceive the alleged victim,
- (4) justifiable reliance by the alleged victim on the statement, and
- (5) injury to the alleged victim as a result.

Gradient – A product defense firm based in Cambridge Massachusetts specializing in the defense of problem industries by casting doubt on legitimate science. According to David Michaels, Assistant Secretary of Labor for the Occupational Safety and Health Administration, and author of *Doubt is Their Product*, “Some of the big ones are Exponent, Gradient, ChemRisk, and the Weinberg Group. There are many small ones. Any scientist can hang out a shingle and hope to attract the interests of a polluter. There are a lot of academics who do this work.”

Outcome - Oriented Research In the book, *Bending Science*, Thomas O. McGarity and Wendy Wagner reveal the range of sophisticated legal and financial tactics political and corporate advocates use to discredit or suppress research on potential human health hazards. Strategies include:

Manufactured consent;

Creating research to fit one's needs;

Concealing unwelcomed information;

Assembling an expert group to advance a favored outcome, "blue ribbon panel";

Manipulating public perception about credible science

Peter Valberg – a career mercenary tobacco scientist listed in the Legacy Tobacco Archives who defended R.J. Reynolds and Phillip Morris cigarettes and air pollution for utilities, and who provided "expert" safety testimony for the Worcester smart meter pilot program and the MA DPU smart meter mandate. In January 2014, Peter Valberg testified for Phillips Morris Light Cigarettes; in February 2014 Peter Valberg testified for the MA DPU regarding the safety of smart meters

Smart Meter - This terminology is often used interchangeably with AMI, especially for electric utilities. Most smart metering also includes advanced functionality in the meter such as (1) net metering (the ability to measure energy used by the customer as well as measure energy delivered by the customer back to the utility), (2) remote disconnect (the ability to remotely shut off and re-establish service), (3) two-way communications (the ability to both read the meter and send information to the meter, including programming updates), (4) microprocessor control (a meter-based microprocessor controls the operation of the meter and its communication), (5) time stamp of usage (associating the meter read with the actual time when it was read) and (6) the ability to collect meter readings in multiple categories (e.g., supporting Time-of-Use (TOU) applications).
<http://www.thescottreport.com/faq.html>

Tobacco Scientist - "Science" done on behalf of an interest defending its cash cow from overwhelming credible science that shows it is harmful or detrimental to public benefit in some way. Science conducted by a cigarette company showing that cigarettes are safe would be "tobacco science". Another example: Science conducted on behalf of the plastic manufacturing industry showing that BPA is a safe chemical for human consumption, when a wealth of credible independent scientific research shows otherwise.

<http://www.urbandictionary.com/define.php?term=tobacco+science>

The Legacy Tobacco Archives at the University of California, San Francisco, maintains a database of "tobacco science" documents, with hundreds of links to the MA DPU's health expert Peter Valberg.

Appendix 2: Ed Friedman Correspondence

Hi Ed, In our DPU order 12-76-B,

Peter Valberg claims that the Maine examiner's report stated:

Maine Examiners Report 44 (there is no basis for finding that the FCC limits inadequate for both thermal and non-thermal effects);

Did the Maine examiner's report say that FCC protects against non-thermal impacts?

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

bottom of page 43

Patricia Burke

Response from Ed Friedman:

(sic) Here it is in context but the important thing to remember is that this was a staff recommendation to the Commissioners. This was not the final report and it was very different than that.

Mr. Friedman, Ms. Wilkins, and Ms. Foley-Ferguson are also correct that the FCC standards were specifically designed to prevent harm associated with thermal effects of RF, and do not explicitly address other, *i.e.*, non-thermal, potentially harmful effects. However, on this point, we generally agree with the proposition that, with respect to non-thermal effects, there is currently insufficient conclusive scientific evidence to would support a causal relationship between RF emissions and negative health effects. For example, according to the PUC TX Study "Governmental health agencies from around the world, including but not limited to the U.S, Canada, the UK, and Australia, as well as academic institutions and other researchers, have stated that there are no known *non-thermal* effects from exposure to RF EMF." TX PUC Study at 62. Given this lack of scientific evidence on causal relationship, there is no basis to determine that additional standards should be applied, nor that the absence of standards related to non-thermal effects renders the FCC standards inadequate.

So they are saying the FCC standards don't cover non-thermal but since no causal [a legal term] relationships between low-level RF and harm have been demonstrated by a subset of reports, the lack of coverage by the FCC should not be considered inadequate.

From pg. 15 of our response [Exceptions to HE Report]:

III. The Examiners' findings related to evidence of potential harm from RF radiation at smart meter levels of exposure are not supported by the record evidence.

Most of the evidence in this case pertains to the threat of non-thermal effects of RF radiation, yet the Examiners and the reports they rely upon, focus most of their analysis on compliance with standards governing thermal effects. The Examiners correctly conclude the Federal Communication Commission (“FCC”) guidelines do not protect CMP’s customers from non-thermal effects. *Exm. Rept.*, p. 44. It necessarily follows that compliance with the FCC guidelines is not material to the question of whether there is a credible threat of harm from non-thermal effects.

From Pg. 40 of Commissioner’s Report: [Commissioner Littell] The other Commissioner on pg 77 I think parrots the language from staff report.

H. The FCC Guidelines may be valid but are out date and should be reexamine

CMP's expert, Exponent, urges the Commission to adopt or follow the FCC's

1996 guidelines for RF exposure developed for cellular telephones. However, in an area of active scientific inquiry, the FCC's exposure standard established in 1996 is too outdated to rely upon. The FCC standard is somewhat consistent with the Institute of Electrical and Electronics Engineers' (IEEE) standard but less stringent than the International Commission on Non-ionizing Radiation Protection (ICNIRP) and Canadian standards by averaging peaks over a longer period. The FCC standard should be examined in light of the science that motivated the WHO/IARC to reclassify RF radiation and more than a decade of scientific studies. Moreover, the U.S. EPA indicated that the FCC guidelines are not set to protect from non-thermal effects.

In the 18 years since the FCC established its guidelines, the safety of RF radiation exposure has continued to be a significant area of scientific study with substantial research developments. The FCC standard does not take into account almost two decades of research. Quite notably, the FCC standard does not consider the growing body of research on potential non-thermal effects of RF radiation. This scientific research led to WHO/IARC reclassifying RF radiation as a possible carcinogen among other notable developments. The WHO/IARC reclassification of RF/EMF includes parts of the electromagnetic spectrum used by smartmeters as well as Wi-Fi, radio and TV towers as well as wireless phones. Good Section *Hardell Test.* at 16 (citing email from Dr. Baan at IARC dated Aug. 29, 2011).

For this reason, the FCC's safety standard for RF radiation exposure is out

of date. The public would benefit if the FCC were to examine whether its current standard is sufficiently protective for thermal and non-thermal effects on the human body in light of both substantial changes in public exposure and more than a decade of scientific examination of the potential consequences of that exposure. Exponential growth in use of cellular telephones and smart phones, cordless telephones, home and work-based Wi-Fi systems, and other wireless communications have made exposure to RF radiation synonymous with modern life in developed countries. RF radiation exposure in modern society is omnipresent. Our knowledge is advancing concomitantly with the significant rise in use of these devices in addition to older devices such as telephones, radios, pagers and other forms of RF radiations from large, high-powered base station transmitting towers.

The Complainants note that the FCC does not set a safe peak exposure level. That is an issue the FCC may find appropriate to further examine. Nor does the FCC set a maximum instantaneous peak emissions level other than the power of the device; the FCC views the relevant power levels as the "maximum time-averaged power that takes into account the burst nature of transmission."

Accordingly, I am encouraged that the FCC and other federal agencies are now moving to consider whether the FCC's standard as well as the U.S. Food and Drug Administration's (FDA) standards provide adequate protection. The FCC initiated a

Original document is attached.