



County of Santa Cruz

0549

COUNTY ADMINISTRATIVE OFFICE

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SUSAN MAURIELLO, J.D., COUNTY ADMINISTRATIVE OFFICER

January 15, 2014

Agenda: January 28, 2014

BOARD OF SUPERVISORS

County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

UPDATE ON IMPLEMENTING RECOMMENDED ACTIONS TO EXPAND BROADBAND IN SANTA CRUZ COUNTY

Dear Members of the Board,

On November 5, 2013, your Board directed staff to return on today's agenda with an update on implementing recommended actions to expand broadband in Santa Cruz County. Staff in the Information Services, Planning and Public Works Departments continue to work on administrative and planning initiatives that could lead to greater investment in broadband infrastructure in the County. This letter and the attached report provided an update on their efforts.

Information Services staff has worked with Public Works staff to draft conduit specifications, a template Master Lease Agreement and a "dig once" ordinance to facilitate the deployment of broadband infrastructure. Example specifications, agreements and ordinances from other jurisdictions were used as guides in determining the best approach for the County of Santa Cruz. Information Services and County Counsel were also consulted and provided their input. The attached report further discusses these items and provides drafts and a proposed ordinance for your Board's consideration.

In addition, Planning is working on proposed changes to County regulations to remove any requirement for broadband infrastructure within the public right of way to obtain a discretionary land use permit and to streamline the application process and comply with the 2006 Digital Infrastructure and Video Competition Act. Proposed amendments to the Santa Cruz County Code will require CEQA review and a Planning Commission public hearing and recommendation before they are brought to the Board. Planning intends to provide more information on these amendments in March 2014. At that time, Planning will also report on the status of establishing a Broadband Master Plan and the outcome of meetings with broadband providers to discuss economic vitality and development opportunities in the County.

0550

It is therefore RECOMMENDED that your Board take the following actions:

1. Accept and file this update on implementation of the broadband recommendations.
2. Direct Public Works to finalize and implement the attached conduit specifications for future construction projects in the County of Santa Cruz.
3. Direct Public Works to finalize the attached Master Lease Agreement allowing the installation of telecommunications equipment on County assets and develop a rate structure and Facilities Lease Agreement to use in the implementation of specific installations.
4. Adopt in concept the attached ordinance adding Chapter 12.25 to the Santa Cruz County Code to facilitate the installation and upgrades of telecommunications infrastructure in or adjacent to County rights of way, and direct the Clerk of the Board to place the ordinance on the next available agenda for final consideration.
5. Direct Planning to report on the status of amendments to land use regulations and efforts to establish a Broadband Master Plan, as well as the outcome of meetings with broadband providers, on or before March 18, 2014.

Very truly yours,



SUSAN A. MAURIELLO
County Administrative Officer

Attachments

cc: Information Services Director
Planning Director
Public Works Director

Update on Implementing Recommended Actions to Expand Broadband

Prepared for the Board of Supervisors

1/15/2014

Prior Reports:
September 10, 2013
November 5, 2013

Table of Contents

0552

Section 1: Information Services	2
Rec. 1: Conduit Specifications	2
Rec. 2: Master Lease Agreements	2
Section 2: Planning	3
Rec. 3: Encroachment Permits	3
Rec. 4: Application Process and Costs	3
Rec. 5: County Regulations	4
Rec. 6: Economic Development.....	4
Section 3: Public Works	5
Rec. 7: Utility Companies	5
Rec. 8: Dig Once Ordinance	5
Attachment A: Draft Conduit Specifications	6
Attachment B: Draft Master Lease Agreement	8
Attachment C: Proposed Telecommunications Infrastructure	
Ordinance	36

Section 1: Information Services

0553

Summary: While providers have done extensive build outs of the County's fiber backbone, there is still room for improvement. Many areas of the County are limited to a single provider. To address this issue, the County could make it easier for the Internet Service Providers to work through the regulatory and permitting process, as discussed by Planning.

Rec. 1: Finalize conduit specifications in collaboration with Public Works and broadband providers.

The Information Services Department has worked with the Department of Public Works to develop conduit specifications for future construction projects in the County of Santa Cruz. After review of proposed specifications from other public and private entities, staff determined the best approach is to develop a written specification appropriate for vehicle impacts over the lifetime of the conduit.

In early October, Public Work Directors from the cities of Capitola, Santa Cruz, Scotts Valley and Watsonville and the County met and discussed the topic of conduit specifications and construction with a focus on the need to have a consistent countywide approach. Draft specifications (see Attachment A) were presented and reviewed by the Department of Public Works and Information Services Department. In December 2013, the regional group of Public Works Directors held a follow-up meeting to further this effort.

Rec. 2: Work with County Counsel and Public Works to establish master lease agreements that allow the installation of broadband infrastructure on utility poles, light standards and County assets.

The County currently lacks a template Master Lease Agreement and Facilities Lease Agreement for the installation of broadband infrastructure on utility poles, light standards or property. The Department of Public Works, which includes the County's Real Property Division, took the lead and drafted a Master Lease that addresses appropriate fee structures, agreement duration and renewal terms, access and responsibilities of the County and broadband providers, co-location rights and the legal language to protect County-owned infrastructure (see Attachment B). Several public entities, including the City of San Jose, have developed similar agreements, and they were reviewed as examples. The draft Master Lease has been reviewed by Information Services and County Counsel. Upon approval of the Master Lease by your Board, a rate structure and Facilities Lease to use in the implementation of specific installations will be developed and returned to your Board for approval. The County may find it useful to contract with a consultant as part of this process because it is a specialized area.

Section 2: Planning

Summary: Efforts to expand broadband would benefit businesses, residents and students in Santa Cruz County. To assist providers in deploying new and improved infrastructure, the County could support a number of changes to its regulatory and permitting processes.

Rec. 3: Allow the installation of equipment within public right of ways, subject only to “time, place and manner” of access, through the County’s encroachment permit process.

The Department of Public Works already evaluates projects within the public right of way in this manner through the revocable encroachment permit process. Existing land use regulations require a land use permit for certain broadband facilities (i.e., boxes, cabinets, wireless facilities) within public rights of way, as well as on private property. The Planning Department is working on proposed amendments to the Zoning Ordinance in order to remove any requirement for a discretionary land use permit for facilities within public rights of way. These changes will take into account the Board’s interest in maintaining a public process. In addition, fees for any building permits that are required will remain in place. The Planning Department will provide more information on these amendments in March 2014, and the proposed ordinance, after CEQA review and a Planning Commission public hearing and recommendation, will be ready for Board consideration in June 2014.

Rec. 4: Streamline the application process and ensure permit fees are based on actual costs.

The Planning Department reviewed its fees, as part of the County Unified Fee Schedule update in December 2013, and determined that discretionary planning permits for broadband activity are already charged at cost. This practice will continue per your Board’s direction.

The Planning Department is working on proposed amendments to land use regulations in order to streamline the application process, include new definitions as needed, and reflect compliance with the 2006 Digital Infrastructure and Video Competition Act (DIVCA). The Planning Department will provide more information on these amendments in March 2014, and the proposed ordinance, after CEQA review and a Planning Commission public hearing and recommendation, will be ready for Board consideration in June 2014.

Rec. 5: Draft amendments to County regulations that facilitate the deployment of broadband technology.

The Planning Department is working on proposed amendments to land use regulations in order to remove any requirement for broadband infrastructure within the public right of way to obtain a discretionary land use permit. The proposed amendments to regulations will also streamline the application process, include new definitions as needed, and reflect compliance with DIVCA. The Planning Department will provide more information on these amendments in March 2014, and the proposed ordinance, after CEQA review and a Planning Commission public hearing and recommendation, will be ready for Board consideration in June 2014.

The Planning Department continues to support efforts of the Department of Public Works and the Information Services Department to present new specifications for broadband deployment, including methods and conduit requirements. The Planning Department will also be present, as requested, at quarterly meetings that the Department of Public Works holds with service providers, and will assist Public Works as needed with its efforts to create a yearly coordination letter to all utility companies and service providers.

Rec. 6: Work with broadband providers on economic development opportunities.

The Planning Department's Economic Development division will coordinate meetings three times a year with all service providers to provide education and information regarding new projects and planning efforts that are being undertaken to support economic vitality and development projects. The first meetings are scheduled to take place in February 2014.

The Planning Department will ensure that the proposed Economic Vitality Strategy includes goals, policies and actions supportive of the broad deployment and public access to broadband technology. In addition, areas identified as opportunities in the County's Economic Vitality Strategy planning process will be incorporated into a Broadband Master Plan per your Board's direction. The Planning Department will work with the Information Services Department on establishing this plan and reporting back to the Board in March 2014.

Section 3: Public Works

Summary: Broadband infrastructure could be added to a number of utility improvement projects in the County based on available funding. A coordinated approach to installing a County-wide communication network could be accomplished by establishing a “dig once” ordinance similar to proposed legislation in the City and County of San Francisco.

Rec. 7: Work with utility companies on their financing and installation of conduit as part of County projects.

The Department of Public Works has had a number of meetings with local utility companies on these issues, and progress is being made. We will continue these efforts and keep the Board informed of all developments.

Rec. 8: Draft an ordinance based on the San Francisco “dig once” model for the County of Santa Cruz.

The Department of Public Works carefully reviewed San Francisco's proposed ordinance in addition to a number of others, both within and outside California. We adapted the best of these to meet the County's unique needs and used flexible language to allow our standards to be updated over time without the need for a new ordinance. The Department of Public Works prepared an ordinance to implement your Board's direction to facilitate installation and upgrades of telecommunications infrastructure in or adjacent to County rights of way (see Attachment C).

Attachment A

Draft Conduit Specifications

INSTALLATION REQUIREMENTS - CONDUIT FOR FIBER OPTIC CABLE

Fiber Optic Cable Conduit: Cables shall be run in conduit, except overhead and temporary installations, and where cables are run inside poles. Conduit and conduit fittings shall be Underwriter's Laboratory Inc. (UL) or Electrical Testing Laboratory (ETL) listed, and shall be UV-rated where located aboveground. Conduit shall be used to protect the cable from the top of the conduit riser to the span messenger where the cable is to be lashed. Ensure that the conduit fill ratio (outer cable diameter to inner conduit/duct diameter) does not exceed 50%. Install the conduit system so the fiber optic cable maintains a minimum bend radius of 20 times the cable diameter.

Conduit shall be laid to a depth of not less than 18 inches below grade in concrete sidewalk areas and not less than 30 inches below finished grade in all other areas. Excavation and backfill within the roadway shall conform to Figure EP-1 of the Design Criteria. New conduit shall not pass through foundations for standards. Existing substructure may require fiber placement in roadway.

Installation of conduit shall be as shown in the plans and in conformance with the National Electric Code (NEC). Provide all fittings and incidental materials necessary to construct a complete installation. Use approved methods for connecting inner duct or conduit within or between plowed portions, trenched portions, and bored portions.

Fiber Optic Cable Locate Wire: Locate wire shall be installed in the trench or bore with all underground conduits. Locate wire shall be installed above the conduit but not more than 3 inches. Do not install locate wire within a conduit containing fiber optic cable.

Terminate locate wires at the first and last pull boxes in the conduit run. Ensure that wire termination occurs only at the top of a pull box. Core-drill the access point wall at the conduit diameter and at the location indicated in the plans. After placement, apply a non-shrink grout or other acceptable material around the conduit/locate wire to seal the hole.

Make locate wire splices in a flush grade-level pull box. Ensure that locate wire splices at the pull box meet NEC requirements. Ensure that locate wire splices include a mechanical crimp connection with a butt sleeve, an oxide-preventing aerosol lacquer, mastic electrical splicing tape, and standard electrical tape using methods and materials approved by the Engineer. Perform continuity tests and insulation resistance tests on all locate wires. At the completion of the installation, provide the Engineer with as-built drawings that document all conduit and splice locations.

Payment and Measurement

Payment for conduit placed in the ground or used on bridge decks will be based on the horizontal path of the installed conduit as measured in a straight line between the centers of pull boxes, cabinets, poles, etc. No allowance will be made for sweeps or vertical distances above or below the ground or the bridge deck.

The contract price paid per foot for furnishing and placing Conduit shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and constructing the fiber optic cable conduit complete in place to the dimensions shown, including hardware, locate wire, testing, trenching, backfilling, and restoration as shown on the plans, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Attachment B

Draft Master Lease Agreement

DRAFT

TELECOMMUNICATIONS EQUIPMENT

MASTER LEASE AGREEMENT

between

COUNTY OF SANTA CRUZ

and

TABLE OF CONTENTS

0561

SECTION	PAGE
1. Master Lease	4
2. Facilities Lease	4
3. Use, Zoning and Access	4
4. Interference	6
5. Term	7
6. Rent	7
7. Telecommunications Equipment	9
8. Acceptance of County Facilities.....	11
9. Electric Service.....	11
10. Safety Requirements Pertaining to Telecommunications Equipment	11
11. Termination	12
12. Condemnation and Casualty.....	13
13. Taxes and Fees.....	13
14. Indemnity and Insurance	13
15. Limitation of Liability	14
16. Notices	14
17. Quiet Enjoyment, Title and Authority.....	15
18. Assignment and Subleasing.....	16
19. Waiver of Landlord's Lien.....	16
20. Default and Remedies.....	17

21. Waiver of Relocation Assistance Benefits.....	18
22. General Provisions	18
23. Signature Page.....	22

EXHIBITS

EXHIBIT A: FACILITY LEASE RATES	23
EXHIBIT B: INSURANCE.....	24

MASTER LEASE AGREEMENT TELECOMMUNICATIONS EQUIPMENT

THIS MASTER LEASE AGREEMENT ("Master Lease") is entered into this _____ day of _____, 20____ ("Commencement Date"), between THE COUNTY OF SANTA CRUZ, a political subdivision of the State of California ("County"), and _____ ("Lessee").

In consideration of the mutual covenants contained in this Master Lease and other good and valuable consideration, the receipt of which is hereby acknowledged, County and Lessee hereby agree as follows:

1. Master Lease

This Master Lease sets forth the general terms and conditions upon which County shall lease to Lessee a portion of certain towers, poles, conduit, buildings, rights of way and related facilities, equipment and structures ("County Facilities") owned by County for the installation, operation and maintenance of Lessee's Telecommunications Equipment, as defined in Section 3. This Master Lease does not provide for the use of any County Facility. The terms and conditions for use of specific County Facilities shall be set forth in a separate Facilities Lease Agreement. This Master Lease is not and shall not be deemed to be an exclusive agreement for the use of the County Facilities.

2. Facilities Lease

Upon the parties' mutual agreement for the use of specific County Facilities, the parties will execute a Facilities Lease Agreement ("Facilities Lease"), which shall be attached to this Master Lease and be deemed a part hereof. The Facilities Lease shall describe: a) the County Facilities and its location; b) the Lessee's Telecommunications Equipment, as defined in Section 3, and the method of installation on the County Facilities, c) the term and rent for use of the County Facilities, and d) other terms and conditions as the parties shall agree. In the event of a discrepancy or inconsistency between the terms and conditions of this Master Lease and the terms and conditions of the Facilities Lease, the terms and conditions of the Facilities Lease shall govern and control. Entering into this Master Lease does not obligate County or Lessee to enter into any Facilities Lease.

3. Use, Permits, Zoning and Access

3.1 Permitted Use

Lessee's use of the County Facilities shall be limited to the installation, operation and maintenance of antennas, cables, utility lines, computer equipment, batteries and emergency

backup generators, equipment cabinets and related equipment ("Telecommunications Equipment") owned by the Lessee for the transmission and reception of telecommunications. Lessee's use shall be lawful and in compliance with all federal, state and local laws, rules, regulations, orders or other governmental requirements applicable to the installation and use of Lessee's Telecommunications Equipment.

3.2 Permits; Zoning

Lessee, at Lessee's expense, shall obtain all necessary licenses, construction permits, encroachment permits, zoning and land use approvals, or similar approvals ("Governmental Approvals") for the installation and operation of the Telecommunications Equipment on the County Facilities. Lessee's use of County Facilities under this Master Lease is entirely at Lessee's own risk. County does not warrant, represent, or guaranty the issuance of any Governmental Approvals. County agrees to reasonably cooperate with Lessee in obtaining such Governmental Approvals. Lessee shall provide to County copies of such licenses, permits, easements, zoning, land use or similar approvals needed for Lessee's installation, operation and maintenance of the Telecommunications Equipment on the County Facilities.

3.3 Access

Where the County may legally convey such rights and for the term of a Facilities Lease, County hereby grants to Lessee a non-exclusive right of entry to access the the County Facilities ("Right of Entry"). The Right of Entry will be adequate to service the County Facilities and the Telecommunications Equipment applicable to any Facilities Lease. County agrees to reasonably cooperate with Lessee's efforts, at Lessee's expense, to obtain such easements and/or rights of entry as are needed for County Facilities where the County may not legally convey such rights.

Lessee shall be entitled access to the County Facilities between the hours of 6:00 a.m. and 6:00 p.m., seven (7) days per week. If an emergency repair is necessary, Lessee may be allowed reasonable access to the County Facilities between the hours of 6:00 p.m. and 6:00 a.m., provided that Lessee obtains the County Public Workers Director's or designee's permission prior to entry. The County shall provide Lessee with the phone number of the County's emergency contact ("Emergency Contact"), which number shall permit contact with the Emergency Contact, or his/her designate, twenty-four (24) hours per day.

Where the public has limited or no access to the County Facilities, Lessee agrees to give County reasonable notice prior to access to such County Facilities. Lessee will be responsible for notifying nearby property owners, users and residents in writing one week advance of any work which might be disruptive. Where the County Facilities are near or adjacent to residential property, Lessee will make reasonable accommodations to minimize disturbance to residents.

To the extent County has knowledge of any limitation or planned limitation on access to the County Facilities, County agrees to provide Lessee with written notice (in advance of such limitation to the extent possible) of any limitation on access, provided that in an emergency County shall not be obligated to provide such notice. County and Lessee agree to reasonably

cooperate with one another and with the other service providers to minimize any restricted access to the County Facilities.

4. Interference

4.1. Interference by Lessee

Lessee and its licensees, employees, invitees, contractors or agents shall not engage in any activity that interferes with access to and use of the County Facilities by County or County's other lessees ("Existing Tenants"). County agrees to notify Lessee of any Existing Tenants who has not yet installed, configured or operated Telecommunications Equipment prior to the date that the Facilities Lease is executed by Lessee. Lessee agrees that even if the Existing Tenant installs facilities to the County Facilities pursuant to its reserved rights under its Facilities Lease, and this occurs after Lessee's installation and interference results, then it is Lessee's responsibility to eliminate the interference in accordance with this Section.

4.2 Interference by County

Except as provided in paragraph 4.3 of this Section, County and its lessees, licensees, employees, invitees, contractors or agents shall not engage in any activity or use the County Facilities in any way that interferes with Lessee's authorized use of and access to the County Facilities.

4.3 Resolving Interference

Lessee agrees that if Lessee's use of the County Facilities causes interference with County's or Existing Tenant's use of the County Facilities, Lessee shall, at its expense, immediately discontinue use of the Telecommunications Equipment and County Facilities, or cease such activities causing such interference, or otherwise take action necessary to eliminate such interference. Lessee shall undertake such modification or other action immediately upon notice of the interference in the case of "Physical Interference" (i.e., materially preventing, hindering or impeding access and/or work by County or Existing Tenants) with County's use of the County Facilities, or within 60 days of notice in the case of any other interference (i.e., signal interference, such as RF or grounding interference) with County's or an Existing Tenant's use of the County Facilities. County shall attempt to notify Lessee of such interference in advance of the need to discontinue use or modify Lessee's activities if reasonably possible and if Lessee clearly identifies its Telecommunications Equipment and other equipment with its name and a telephone number of the appropriate contact person. County shall cooperate with Lessee in a reasonable manner and for a reasonable period of time to resolve such interference, provided such cooperation shall not include any obligation that materially interferes with County's use of the County Facilities. If Lessee is unable to eliminate such interference in a reasonable period of time to the satisfaction of County or such Existing Tenant, County may terminate the applicable Facilities Lease in accordance with Section 11.a herein. Lessee agrees that in the event of any interference with Lessee's use of the County Facilities caused by County or an Existing Tenant, Lessee shall cooperate with County or such Existing Tenant in a reasonable manner and for a reasonable period of time to mutually resolve such interference, provided such cooperation shall

not include any obligation which materially interferes with Lessee's reception and transmission of telecommunications. In the event that such interference cannot be mutually resolved within a reasonable period of time, Lessee may terminate the applicable Facilities Lease as provided in Section 11.a. herein. In the case of an emergency, County shall not be obligated to provide Lessee with any notice of work to be performed. Lessee shall be required to wait until all County's restoration activities have been completed prior to conducting any maintenance, repair, adjustment, or replacement work; such work to be performed in accordance with Section 10 herein.

5. Term

5.1 Initial Term

The term of this Master Lease shall commence on the Commencement Date set forth above, and shall continue for five (5) years, expiring at 11:59 p.m. on the fifth anniversary of said Commencement Date ("Expiration Date"), unless earlier terminated pursuant to the terms of this Master Lease.

5.2 Option to Extend

Lessee shall have the option to extend the term of this Master Lease beyond the initial term described herein for one additional (5) year term on the same terms, covenants and conditions that are contained in this Master Lease; County shall increase the Rent during the option period in the manner provided in Section 6.2 below. Lessee shall exercise its option to extend this Master Lease, if at all, by providing County with written notice that Lessee intends to exercise its option no later than one hundred and eighty (180) days prior to the Expiration Date.

5.3 Holdover

If Lessee shall remain in possession of the County Facilities at the Expiration Date, expiration of any option period, or any renewal term of a Facilities Lease, such possession shall be deemed a month-to-month tenancy under the same terms and conditions as this Master Lease and any Facilities Leases pertaining to such County Facilities, except that the Rent shall be increased as provided in Section 6 herein.

6. Rent

6.1 Payment of Rent

From and after the commencement of the term of each Facilities Lease, Lessee shall pay County, as rent, the agreed amount payable as rent for the County Facilities under such Facilities Lease ("Rent"). Exhibit "A" provides a schedule of Facility Lease Rates. Unless otherwise provided in the Facilities Lease, Rent shall be payable on the first day of each calendar year in advance at County's address specified in paragraph 6.3 of this Section. If the term of a Facilities Lease commences on other than the first day of a year, Rent shall be prorated, on a monthly basis, for

that first year for the number of full and partial months from the date of commencement of the Facilities Lease to the end of the year and such Rent shall be due within 30 days of the commencement date of the Facilities Lease. If a Facilities Lease is terminated on a day other than on the last day of a year, no Rent shall be refunded unless the termination is in accordance with Section 11.a, in which case the Rent shall be prorated as of the date of removal of the interfering Telecommunications Equipment from the County Facilities and the prepaid Rents shall be refunded to Lessee.

6.2 Adjustment of Rent

Rent under a Facilities Lease shall automatically increase by four percent (4%) per year on the first day of each calendar year or as specified in the Facilities Lease.

6.3 Delivery of Rent Payments

Lessee shall make one combined Rent payment for all Rent due under any Facilities Lease. Lessee shall include a schedule of Facilities Leases for which Rent is being paid with each combined Rent payment. Rent shall be made payable to the County of Santa Cruz, and shall be considered paid when delivered to:

COUNTY OF SANTA CRUZ
Department of Public Works
Attn: Real Property
701 Ocean Street, Room 410
Santa Cruz, CA 95060

County may, at any time, by written notice to Lessee, designate a different address to which Lessee shall deliver the Rent payments. Lessee is solely responsible for timely payment of Rent and County will not send rent invoices to Lessee.

6.4 Failure to Pay Rent; Late Charge

- a) If Lessee fails to pay rent due hereunder at the time it is due and payable, such unpaid amounts shall bear interest at the rate of ten percent (10%) per year from the date due to the date of payment, computed on the basis of monthly compounding with actual days elapsed compared to a 360-day year. In addition to such interest, the late payment by Lessee of any rent due hereunder will cause County to incur certain costs and expenses not contemplated under this Lease, the exact amount of which costs being extremely difficult or impracticable to fix. Such costs and expenses will include, without limitation, administrative and collection costs, and processing and accounting expenses. Therefore, if any such rent is not received by County within ten (10) business days following the due date, Lessee shall immediately pay to County a late charge equal to five percent (5%) of such overdue amount. This late charge represents a reasonable estimate of such costs and expenses and is fair compensation to County for its loss caused by Lessee's nonpayment. Should Lessee pay said late charge but fail to pay contemporaneously therewith all

unpaid amounts of rent due hereunder, County's acceptance of this late charge shall not constitute a waiver of Lessee's default with respect to such nonpayment by Lessee nor prevent County from exercising all other rights and remedies available to County under this Lease or under law.

- b) In the event of a dispute between the parties as to the correct amount of rent owed by Lessee, County may accept any sum tendered by Lessee in payment thereof, without prejudice to County's claim as to the proper amount of rent owing. If it is later determined that Lessee has not paid the full amount of rent owing, the late charge specified herein shall apply only to that portion of the rent still due and payable from Lessee. Notwithstanding any provision of this Section to the contrary, however, County's Lease Administrator may waive any delinquency payment or late charge upon written application of Lessee.

7. Telecommunications Equipment

7.1 Installation and Material Alteration

Lessee shall have the right, at its cost and expense, to install, construct, operate and maintain the Telecommunications Equipment on the County Facilities. Lessee shall have the right to modify, supplement, replace or upgrade the Telecommunications Equipment as reasonably necessary at any time during the term of a Facilities Lease; provided, however, that Lessee shall not relocate the Telecommunications Equipment or any portion thereof anywhere on the County Facilities without prior written permission from County. Lessee shall ensure that such work does not adversely affect the structural integrity, maintenance, operations or use of the County Facilities or access thereto.

Prior to commencing any installation or material alteration of the County Facilities, Lessee shall provide County with Lessee's plans for installation or alteration for County's review and approval. Such approval shall be in writing and shall indicate County's determination that the proposed installation will meet County of Santa Cruz Design Criteria, and that the reliability, safety and structural integrity of the County Facilities has not been compromised. Lessee shall obtain all necessary permits or other legal authorization for all installations or material alterations.

Lessee's changing-out equipment with equipment of the same size, weight, frequency, and power, in the course of repairs or upgrading of the Telecommunications Equipment, shall not be a material alteration. Material alterations are defined as anything other than changing out equipment with equipment of the same size, weight, frequency, and power, in the course of repairs or upgrading of the Telecommunications Equipment including the co-location of equipment on the County Facilities.

Approval by a licensed engineer of any structural work to facilitate installation of the Lessee's Telecommunications Equipment shall be the responsibility and at the sole cost of the Lessee. All of Lessee's work shall be performed at Lessee's sole cost and expense, in a good and

workmanlike manner, and in accordance with applicable laws and ordinances and Section 10 herein.

For alterations that are deemed not a material alteration, in the event the County does not furnish the Lessee with written response within sixty (60) days of County's receipt of the plans, County will be deemed to have approved them. After completion of any installation or alteration work, Lessee will provide County with as-built drawings of the County Facilities if there has been any change from the plans previously reviewed by County.

7.2 Liens

Lessee is not authorized to contract for or on behalf of County for work on, or the furnishing of materials to, any County Facilities, and Lessee shall keep any County Facilities free from any liens arising from any work performed, materials furnished or obligations incurred by or at the request of Lessee, and Lessee shall discharge of record by payment, bond or otherwise, within ten (10) days subsequent to the date of its receipt of notice thereof from County, any mechanic's, laborer's or similar lien filed against any County Facilities for work or materials claimed to have been furnished to Lessee. If any lien is filed against any County Facilities as a result of the acts or omissions of Lessee, or Lessee's employees, agents, or contractors and Lessee fails to discharge or bond any lien within such period, then, in addition to any other right or remedy, County may, at its election, discharge the lien by either paying the amount claimed to be due or obtaining the discharge by deposit with a court or a title company or by bonding. Lessee shall pay on demand any amount paid by County for the discharge or satisfaction of any lien, and all reasonable attorneys' fees and other legal expenses County incurred in defending any such action or in obtaining the discharge of such lien, together with all necessary disbursements in connection therewith.

7.3 Removal of Property

The Telecommunications Equipment shall remain the exclusive property of Lessee, and Lessee shall have the right to remove all or any portion of the Telecommunications Equipment at any time during the term of this Master Lease or the term of the relevant Facilities Lease and following any termination of the Facilities Lease or of this Master Lease. Upon expiration or termination of each Facilities Lease, Lessee shall remove the Telecommunications Equipment and all property of Lessee from the County Facilities and shall return the County Facilities in good condition, reasonable wear and tear excepted. Lessee's failure to remove the Telecommunications Equipment and other property of Lessee within thirty (30) days after the expiration or earlier termination of the Facilities Lease pertaining to such property shall be considered an abandonment of such property and County may remove or dispose of the Telecommunications Equipment and other property of Lessee at Lessee's sole cost and expense in any lawful manner without liability to County.

8. Acceptance of County Facilities

Taking possession of the County Facilities by Lessee is conclusive evidence that Lessee: (a) accepts the County Facilities as suitable for the purposes for which they are leased, (b) accepts the County Facilities and every part and appurtenance thereof as is, with all faults, except for latent defects, and (c) waives any claims against County in respect to defects in the County Facilities, or their suitability for any particular purposes. Lessee is deemed to take possession of the County Facilities upon commencement of the term of each Facilities Lease.

9. Electric Service

Where electric service is necessary, Lessee shall bear responsibility for arranging with power provider for service. Lessee shall be responsible to provide the necessary connection to electric service and shall pay directly to power provider all charges for electricity provided to Lessee at the County Facilities. If power needs may be met by photovoltaic or other freestanding renewable power source, nothing in this Master Lease shall be construed to prohibit such use so long as all work is done in accordance with current codes and other legal requirements, including any applicable building codes and permit requirements, and is completed in a safe and workmanlike manner.

10. Safety Requirements Pertaining to Telecommunications Equipment

Telecommunications Equipment shall be installed, maintained, repaired, adjusted, and upgraded in accordance with the then-current provisions of the National Electric Safety Code ("NESC") and County of Santa Cruz Pole Attachment Specifications. Upon receiving written notice from County of noncompliance with said requirements ("Noncompliance Notice"), Lessee shall, at its sole expense, within 30 days of the date of the Noncompliance Notice, either bring the Telecommunications Equipment into compliance with said requirements or submit a plan of correction. If Lessee submits such a plan of correction then Lessee shall bring the Telecommunications Equipment into compliance within an additional 30 days, or within such time limits upon which County and Lessee mutually agree. If Lessee fails to bring the Telecommunications Equipment into compliance within the said time limits, Lessee agrees to pay a sanction amount equal to the Rent specified in the Facilities Lease. This sanction amount shall be in addition to the Rent and shall be retroactive from the date of the Noncompliance Notice and shall continue until the Telecommunications Equipment are brought into compliance, as determined by the County. After 60 days from the date of the Noncompliance Notice, County shall have the right, at its sole discretion, to rearrange the Telecommunications Equipment at Lessee's sole expense or to terminate Lessee's Facilities Lease for the applicable Telecommunications Equipment and remove the Telecommunications Equipment.

11. Termination

Except as provided in Section 12 and Section 23 herein, this Master Lease and each Facilities Lease may be terminated only as follows:

- a) By County upon ten (10) days prior written notice from County to Lessee if physical interference has not been remedied to County's satisfaction or if any equipment placed on the County Facilities by Lessee interferes with County's or any Existing Tenant's use of their respective Facilities and Lessee does not cure such interference or its interfering activities have not ceased in accordance with Section 4.3;
- b) By County upon ten (10) days prior written notice if Lessee fails to pay any Rent in accordance with Section 6, provided County has provided Lessee with ten (10) days prior written notice of the failure to pay rent and Lessee has the opportunity to cure;
- c) By County upon sixty (60) days prior written notice if Lessee fails to bring the Telecommunications Equipment into compliance with the safety requirements set forth in Section 10.
- d) By Lessee upon thirty (30) days prior written notice if it is unable to obtain or maintain after reasonable efforts to do so any license, permit or Governmental Approvals necessary for installation, operation and maintenance of the Telecommunications Equipment;
- e) By Lessee upon ninety (90) days prior written notice if Lessee determines, in its reasonable discretion exercised in good faith, that the County Facilities are or have become unacceptable under Lessee's design or engineering specifications for its Telecommunications Equipment, provided that this determination was not and reasonably could not have been made by Lessee prior to Lessee's occupation of the County Facilities, as set forth in Section 8;
- f) By Lessee if a particular restriction contained in a ground lease and not set forth in this Master Lease or the applicable Facilities Lease prevents Lessee from the construction, operation or maintenance of or access to the Telecommunications Equipment;
- g) In the event of termination of a Facilities Lease under this Section 11, no prepaid Rent applicable thereto shall be reimbursed by County to Lessee, except that such prepaid Rent shall be apportioned based on the termination date and refunded to Lessee in the event of termination pursuant to this Section. Upon termination and return of any such Rent, neither County nor Lessee shall have any further obligation or liability with regard to the County Facilities covered by the applicable Facilities Lease, except as otherwise provided herein or in such Facilities Lease.

12. Condemnation and Casualty

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If at any time during the term of any Facilities Lease all or "substantially all" (meaning the remaining portion thereof shall not be of sufficient size or condition to permit the continuation of Lessee's use in a commercially reasonable manner) of the County Facilities applicable to such Facilities Lease shall be taken in the exercise of the power of eminent domain by any governmental or other authority, or by deed in lieu of condemnation, or shall be damaged or destroyed, then such Facilities Lease shall terminate, which termination shall be effective as of the date of the vesting of title in such taking or such damage or destruction. With respect to condemnation, County and Lessee shall each be entitled to pursue their own separate awards with respect to such taking. In the event of any damage, destruction or taking of less than all or substantially all of the County Facilities, such Facilities Lease shall continue and County and Lessee shall be entitled to pursue their own separate awards with respect to any such taking.

13. Taxes and Fees

13.1 Payment of Taxes and Fees

Lessee shall pay any fees, licenses or taxes, including but not limited to any possessory interest tax or property taxes assessed on, or any portion thereof attributable to, the Telecommunications Equipment and Lessee's construction, operation and maintenance thereof.

13.2 Creation of Possessory Interest

Pursuant to the provisions of Revenue and Taxation Code Section 107.6, Lessee is hereby advised that the terms of this Lease may result in the creation of a possessory interest. If such a possessory interest is vested in Lessee, Lessee may be subjected to the payment of real property taxes levied on such interest. Lessee shall be solely responsible for the payment of any such real property taxes. Lessee shall pay all such taxes when due, and shall not allow any such taxes, assessments or fees to become a lien against the County Facilities or any improvement thereon; provided, however, that nothing herein shall be deemed to prevent or prohibit Lessee from contesting the validity of any such tax, assessment or fee in a manner authorized by law.

14. Indemnity and Insurance

14.1 Lessee's Indemnity

County shall not be liable for, and Lessee shall defend and indemnify County and the employees and agents of County (collectively "County Parties"), against any and all claims, demands, liability, judgments, awards, fines, mechanics' liens or other liens, labor disputes, losses, damages, expenses, charges or costs of any kind or character, including attorneys' fees and court costs (hereinafter collectively referred to as "Claims"), related to this Lease and arising either directly or indirectly from any act, error, omission or negligence of Lessee or its contractors, licensees, agents, volunteers, servants or employees, including, without limitation, Claims caused by the concurrent negligent act, error or omission, whether active or passive, of County Parties.

Lessee shall have no obligation, however, to defend or indemnify County Parties from a Claim if it is determined by a court of competent jurisdiction that such Claim was caused by the sole negligence or willful misconduct of County Parties.

14.2 County's Indemnity

County shall defend and indemnify Lessee and hold it harmless from and against any Claims related to this Master Lease that arise solely from any act, omission or negligence of County Parties.

14.3 Lessee's Insurance Obligations

Without limiting Lessee's indemnification obligations to County under this Master Lease, Lessee shall provide and maintain, during the term and for such other period as may be required herein, at its sole expense, insurance in the amounts and form specified in Exhibit "B", attached hereto.

14.4 County's Insurance Obligations

County maintains a policy of All-Risk Insurance covering the County's personal property in the County Facilities, including any fixtures or equipment in the County Facilities owned by County. The County utilizes a program of self-funding with regard to any liability it may incur for personal injury or property damage arising out of its use or occupancy of the County Facilities.

15. Limitation of Liability

In no event shall County be liable to Lessee for any lost or prospective profits or any other special, punitive, exemplary, consequential, incidental or indirect losses or damages (in tort, contract or otherwise) under or in respect of this Master Lease or for any failure of performance related hereto howsoever caused, whether or not arising from County's sole, joint or concurrent negligence. To the extent any payment required to be made under this Master Lease is agreed by the parties to constitute liquidated damages, the parties acknowledge that the damages are difficult or impossible to determine and that such payment constitutes a reasonable approximation of such damages, and not a penalty.

16. Notices

All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed given if personally delivered or mailed to the following addresses:

If to County, to:
 COUNTY OF SANTA CRUZ
 Department of Public Works
 Attn: Real Property
 701 Ocean St, Room 410
 Santa Cruz, CA 95060

If to Lessee, to:

With a copy to:

17. Quiet Enjoyment, Title and Authority

17.1 County's Authority

County covenants and warrants to Lessee that (i) it has full right, power and authority to execute this Master Lease and each Facilities Lease and has the power to grant all rights hereunder, (ii) its execution and performance of this Master Lease and each Facilities Lease will not violate any laws, ordinances or covenants, or the provisions of any mortgage, lease or other agreement binding on County, and (iii) Lessee shall have the quiet enjoyment of the County Facilities, and Lessee shall not be disturbed as long as Lessee is not in default beyond any applicable grace or cure period.

17.2 Lessee's Authority

Lessee covenants and warrants to County that Lessee has full right, power and authority to execute this Master Lease and each Facilities Lease and that the execution and performance thereof will not violate any laws, ordinances or covenants, or the provisions of any agreement binding on Lessee. Lessee acknowledges and agrees that this Master Lease and each Facilities Lease is subject and subordinate at all times to (i) the lien of all mortgages and deeds of trust securing any amount or amounts whatsoever which may now exist or hereafter be placed on or against any County Facilities, or on or against County's interest or estate therein, and (ii) any underlying ground lease, all without the necessity of having further instruments executed by Lessee to effect such subordination, but, only upon the condition that any such mortgagee, beneficiary or trustee expressly agrees not to disturb the rights of Lessee under this Master Lease and each Facilities Lease.

17.3 Ground Lease

This Master Lease and each Facilities Lease is subject to any restrictions or other terms or conditions contained in any underlying ground lease, and Lessee acknowledges and agrees to commit no act or omission which would constitute a default under any ground lease that County has provided a copy to Lessee prior to the execution of the applicable Facilities Lease. County covenants and warrants to Lessee that County has acquired any consent required under any

ground lease to be obtained from the landlord thereunder in order for Lessee to construct, operate, maintain or access the Telecommunications Equipment, except as expressly set forth in this Master Lease or the applicable Facilities Lease, and that the terms of this Master Lease and the applicable Facilities Lease do not conflict with or are not prohibited by any ground leases. If a particular restriction contained in a ground lease and not set forth in this Master Lease or the applicable Facilities Lease prevents Lessee from the construction, operation or maintenance of or access to the Telecommunications Equipment, Lessee may terminate the applicable Facilities Lease, as provided in Section 11.f.

18. Assignment and Subleasing

18.1 Assignment

Lessee shall not assign this Master Lease, any Facilities Lease, any County Facilities or any of its rights with respect thereto, or relinquish possession of the County Facilities or any part thereof, or permit any other person to use the County Facilities or any part thereof, except Lessee may assign this Master Lease and any Facilities Lease and its rights hereunder and thereunder to any entity which is a parent, subsidiary or affiliate of Lessee; is merged or consolidated with Lessee; or purchases a majority or controlling interest in the ownership or assets of Lessee; provided that such entity is properly licensed to operate a telecommunications business and shall, in a writing satisfactory to County, assume without limitation this Master Lease and each applicable Facilities Lease.

18.2 Notices

County may assign this Master Lease, any Facilities Lease, any County Facilities or any of its rights with respect thereto with notice to, but not approval or consent of Lessee upon proper notice as specified herein.

19. Waiver of Landlord's Lien

County hereby waives any and all lien rights it may have, statutory or otherwise, concerning any Telecommunications Equipment or any portion thereof. The Telecommunications Equipment shall be deemed personal property for purposes of this Master Lease and each Facilities Lease, regardless of whether any portion thereof is deemed real or personal property under applicable law, and except as otherwise provided in this Master Lease or in any Facilities Lease, County hereby consents to Lessee's right to remove all or any portion of any Telecommunications Equipment from time to time in Lessee's sole discretion.

20. Default and Remedies

20.1 Event of Default

The occurrence of any one or more of the following events constitutes an “Event of Default” by Lessee:

- i. Lessee fails to pay Rent or any amounts due under this Master Lease or any Facilities Lease within ten (10) days after written notice of such failure from County;
- ii. Lessee deserts, abandons, or vacates any County Facilities;
- iii. A petition is filed by or against Lessee under the Federal Bankruptcy Code or any similar law or statute of the United States or any state (and with respect to any petition filed against Lessee, such petition is not dismissed within sixty (60) days after the filing thereof) or Lessee is adjudged a bankrupt or insolvent, or a receiver, custodian or trustee is appointed for Lessee or for any of the assets of Lessee which appointment is not vacated within thirty (30) days of the date of the appointment, or Lessee becomes insolvent, is unable to pay its debts and they become due, or makes a transfer in fraud of creditors; and
- iv. Lessee fails to perform or observe any other term or condition of this Master Lease or a Facilities Lease and such failure continues beyond the notice periods specified in Section 11, if any of these are applicable, or for thirty (30) days after written notice from County if such Sections are not applicable; provided, however, that if such failure is capable of being cured, but not within such 30-day period, such period shall be extended so long as Lessee commences appropriate curative action within such 30-day period and thereafter diligently prosecutes such cure to completion as promptly as possible.

20.2 Remedies

A default under Section 23.1i, with respect to payments due under the Master Lease, or Section 23.1.iii shall be a default under this Master Lease. A default under Section 23.1.i, with respect to payments due under any Facilities Lease, or any other clause of Section 23.1 shall be a default under the applicable Facilities Lease. If an Event of Default with respect to a Facilities Lease has occurred and is continuing, County may, without notice or demand except as expressly required above, in addition to any other remedy it may have under applicable law, terminate the applicable Facilities Lease. In either event Lessee shall immediately surrender the applicable County Facilities. If at any time during this Master Lease an Event of Default has occurred and is continuing beyond the applicable cure periods provided with respect to 50% or more of the Facilities Leases, County, in its sole discretion, may at any time upon thirty (30) days’ notice to Lessee terminate this Master Lease and all Facilities Leases, in which event Lessee shall immediately surrender all of the County Facilities.

21. Waiver of Relocation Assistance Benefits

21.1 Relocation Assistance Benefits

Lessee is hereby informed and acknowledges the following:

- a) By entering into this Lease and becoming a tenant of County, Lessee may become entitled to receipt of "relocation assistance benefits" ("Relocation Benefits") pursuant to the Federal Uniform Relocation Assistance Act (42 U.S.C. § 4601 et seq.) and/or the California Relocation Assistance Law (Cal. Gov. Code § 7270 et seq.) (collectively, the "Relocation Statutes"), should County at some time make use of the Premises in such a way as to "displace" Lessee from the Premises. Pursuant to the Relocation Statutes, County may then become obligated to make such payments to Lessee even where such displacement of Lessee does not otherwise constitute a breach or default by County of its obligations pursuant to this Lease.
- b) Under the Relocation Statutes in effect as of the Date of Commencement of this Lease, Relocation Benefits may include payment to such a "displaced person" of (i) the actual and reasonable expense of moving himself or herself and a family, business, or farm operation, including personal property, (ii) the actual direct loss of reestablishing a business or farm operation, but not to exceed Ten Thousand Dollars (\$10,000), or (iii) payment in lieu of moving expenses of not less than One Thousand Dollars (\$1,000) or more than Twenty Thousand Dollars (\$20,000).

21.2 Lessee's Waiver and Release of Relocation Benefits

In consideration of County's agreement to enter into this Lease, Lessee hereby waives any and all rights it may now have, or may hereafter obtain, to Relocation Benefits arising out of the County's assertion or exercise of its contractual rights to terminate this Lease pursuant to its terms, whether or not such rights are contested by Lessee or any other entity, and releases County from any liability for payment of such Relocation Benefits; provided, however, that Lessee does not waive its rights to Relocation Benefits to the extent that Lessee's entitlement thereto may arise out of any condemnation or pre-condemnation actions taken by the County or any other public agency with respect to the Premises. Lessee shall in the future execute any further documentation of the release and waiver provided hereby as County may reasonably require.

22. General Provisions

22.1 Entire Agreement

This Master Lease and each Facilities Lease shall constitute the entire agreement and understanding of the parties with respect to the County Facilities that are the subject matters of the Facilities Lease and supersedes all offers, negotiations and other agreements with respect thereto. Each Facilities Lease shall be a related agreement and, except as otherwise provided

herein the occurrence of any default under one Facilities Lease shall not be deemed to constitute a default under any other Facilities Lease. There are no representations or understandings of any kind not set forth in this Master Lease or in the Facilities Leases, nor shall they create any right in the Lessee except as provided herein. Any amendment or modification to this Master Lease or any Facilities Lease must be in writing and executed by both parties.

22.2 Rights

No use of County Facilities under this Master Lease or otherwise shall create any right in the Lessee except as provided herein.

22.3 Brokers

Either party hereto that is represented in this transaction by a broker, agent or commission salesperson (a "Representative") shall be fully and exclusively responsible for the payment of any fee, commission or other compensation owing to such Representative, and shall indemnify and hold the other party harmless from and against any claim to a Fee, commission or other compensation asserted by such Representative.

22.4 Execution

Each party agrees to cooperate with the other in executing any documents (including a Memorandum of Lease) necessary to protect its rights under this Master Lease and any Facilities Lease. Neither party shall record this Master Lease or any Facilities Lease pertaining thereto, but may record, in lieu thereof, the aforementioned Memorandum of Lease.

22.5 Force Majeure

If a party is delayed or hindered in, or prevented from the performance required under this Master Lease or any Facilities Lease, other than the payment of money, by reason of strikes, lockouts, labor troubles, failure of power, riots, insurrection, war, acts of God or other reason of like nature not the fault of the party ("Force Majeure Event") delayed in performing work or doing acts, such party is excused from such performance for the period of delay, providing that the party claiming Force Majeure has notified the other party of the delay as soon as is reasonably possible. In such event, the period for the performance shall be extended for the period of such delay, provided that the party that has suffered the Force Majeure Event takes all reasonable action necessary to overcome or mitigate the effects of the Force Majeure Event.

22.6 Governing Law

This Master Lease and any Facilities Lease shall be construed in accordance with the laws of the State of California. With respect to any suit, action or proceedings relating to this Master Lease and any Facilities Lease (the "Proceedings"), each party irrevocably consents to the exclusive jurisdiction of the courts of the State of California and the United States District Court for the Northern District of California, and irrevocably waives any objection which it may have at any

time to the laying of venue of any Proceedings brought in any such court, waives any claim that such Proceedings have been brought in an inconvenient forum and further waives the right to object, with respect to such Proceedings, that such court does not have jurisdiction over such party. Nothing in this Master Lease precludes either party from enforcing in any jurisdiction any judgment, order or award obtained in any such court.

22.7 Lease Administration

This Lease shall be administered on behalf of County by the Department of Public Works – Real Property, County of Santa Cruz, or by such person's duly-authorized designee (referred to collectively herein as "County's Lease Administrator"), and on behalf of Lessee by: [ADD LESSEES ADMINISTRATOR HERE] or by such other person as may be designated in writing by Lessee (referred to collectively herein as "Lessee's Lease Administrator").

22.8 Lessee's Lease Administration

Lessee confirms that Lessee's Lease Administrator has been given full operational responsibility for compliance with the terms of this Lease. Lessee shall provide County with a written schedule of its normal hours of business operation, and Lessee's Lease Administrator or a representative designated thereby shall be (i) available to County on a twenty-four (24) hour a day, seven (7) days a week, basis, and (ii) present at the Lessee's place of business during Lessee's normal business hours, to resolve problems or answer question pertaining to this Lease and Lessee's operations of the Telecommunications Facilities.

22.9 Partial Invalidity

If any term of this Master Lease or any Facilities Lease is found to be void or invalid, such invalidity shall not affect the remaining terms of this Master Lease or such Facilities Lease, which shall continue in full force and effect.

22.10 Successors and Assigns

This Master Lease shall run with the County Facilities and shall be binding upon and inure to the benefit of the parties, their respective successors, personal representatives and, to the extent assignable, their assigns.

22.11 Waiver

Any waiver by any party of its rights with respect to a default under this Master Lease or any Facilities Lease shall not be deemed a waiver with respect to any subsequent default or other matter.

22.12 Benefit of the Parties

This Master Lease and any Facilities Lease is intended solely for the benefit of the parties hereto and nothing in this Master Lease or Facilities Lease is intended to create any benefit for any other person.

22.13 Counterparts

This Master Lease and any Facilities Lease may be executed in counterparts, each of which shall be an original and which together shall constitute but one and the same instrument.

[Signature page follows.]

In WITNESS WHEREOF,

0581

Lessor has executed this Agreement as of the ____ day of _____, 20____.

Lessee has executed this Agreement as of the ____ day of _____, 20____.

LESSEE	COUNTY OF SANTA CRUZ
	John Presleigh, Director Department of Public Works
_____	_____
Date	Date
	APPROVED AS TO FORM:
_____	_____
Date	Office of County Counsel Date
	APPROVED AS TO INSURANCE:

	Risk Management Date
	RECOMMENDED FOR APPROVAL:

	Real Property Date

EXHIBIT A
FACILITY LEASE RATES

EXHIBIT B

INSURANCE

B.1 Minimum Scope of Insurance

Coverage shall be at least as broad as:

- a) Insurance Services Office Commercial General Liability coverage.
 - 1. Personal injury
 - 2. Contractual liability
- b) Insurance Services Office covering Automobile Liability, code 1 “any auto”.
- c) Worker’s Compensation insurance as required by the Labor Code of the State of California and Employers Liability insurance.
- d) Such other insurance coverage and limits as may be required by the COUNTY.

B.2 Minimum Limits of Insurance

Lessee shall maintain limits no less than:

- a) General Liability: \$1,000,000 each occurrence for bodily injury and property damage; \$1,000,000 for personal and advertising injury; \$2,000,000 products and completed operations aggregate, and \$2,000,000 general aggregate. If Commercial General Liability insurance or other form with a general aggregate liability is used, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
- b) Automobile Liability: \$1,000,000 per accident for bodily injury and property damage.
- c) Workers’ Compensation: Workers’ compensation limits as required by the Labor Code of the State of California.
- d) Employer’s Liability: \$1,000,000 each accident for bodily injury.
 \$1,000,000 disease each employee.
 \$1,000,000 disease policy limit.
- e) Pollution Legal Liability: \$1,000,000 per claim/occurrence and \$2,000,000 aggregate for bodily injury, property damage, and remediation of contaminated County Facilities.

B.3 Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer shall reduce or eliminate such deductibles or self-

insured retentions as respects the County, its officials and employees; or the Lessee shall procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

B.4 County as Additional Insured

The policies are to contain, or be endorsed to contain, the following provisions:

- a) General Liability and Automobile Liability Coverage
 1. The County, its officers, officials, employees, agents and volunteers are to be covered as additional insureds as respects: liability arising out of activities performed by or on behalf of the Lessee; products and completed operations of the Lessee; County Facilities owned, leased or used by the Lessee; or automobiles owned, leased, hired or borrowed by the Lessee. The coverage shall contain no special limitations on the scope of protection afforded to the County, its officials, employees, or volunteers. The automobile liability is endorsed to contain MCA-90 coverage.
 2. Lessee's insurance coverage shall be primary insurance as respects the County, its officials, employees, and volunteers. Any insurance or self-insurance maintained by the County, its officials, employees, or volunteers shall be excess of the Lessee's insurance and shall not contribute with it.
 3. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the County, its officials, employees, or volunteers.
 4. Coverage shall state that the Lessee's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.
- b) Workers' Compensation and Employers Liability Coverage. The insurer shall agree to waive all rights of subrogation against the County, its officers, employees, and volunteers for losses arising from work performed by the Lessee for the County.
- c) All Coverage. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after 30 calendar days' prior written notice by certified mail, return receipt requested, has been given to the County.

B.5 Acceptability of Insurers

The insurance policies required by this Exhibit shall be issued by an insurance company or companies authorized to do business in the State of California and with a rating in the most recent edition of Best's Insurance Reports of size category VII or larger and a rating classification of A or better.

B.6 Verification of Coverage

Lessee shall furnish Lessee's insurance agent a copy of these specifications, and direct the agent to provide the County with certificates of insurance and with original endorsements affecting coverage required by this clause. Issuance of documentation indicates the Lessee's insurance complies with these provisions. The certificates and endorsements for each insurance policy are to be signed by a Person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements are to be received and approved by the County before work commences. The County may require complete, certified copies of all required insurance policies, at any time.

B.7 Required Endorsements

- a) The Workers' Compensation policy shall contain an endorsement in substantially the following form:

"Thirty calendar days' prior written notice shall be given to the County of Santa Cruz in the event of cancellation, reduction in coverage, or non-renewal of this policy."

Director of Public Works
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

- b) The Commercial General Liability, Business and Automobile Liability, and Pollution Legal Liability policies shall contain endorsements in substantially the following form:

1. "Thirty calendar days' prior written notice shall be given to the County of Santa Cruz in the event of cancellation, reduction in coverage, or non-renewal of this policy."

Director of Public Works
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

2. "The County of Santa Cruz, its officers, employees, and agents are additional insureds on this policy."
3. "This policy shall be considered primary insurance as respects any other valid and collectible insurance maintained by the County of Santa Cruz, including any self-insured retention or program of self-insurance, and any other such insurance shall be considered excess insurance only."
4. "Inclusion of the County of Santa Cruz as an insured shall not affect the County's rights as respects any claim, demand, suit or judgment brought or recovered against the Lessee. This policy shall protect Lessee and the County in the same manner as though a separate policy had been issued to each, but this shall not operate to increase

the Lessee's liability as set forth in the policy beyond the amount shown or to which the Lessee would have been liable if only one party had been named as an insured."

B.8 Delivery of Proof of Coverage

Simultaneously with the execution of this Master Lease, Lessee shall furnish the County certificates of each policy of insurance required hereunder, in form and substance satisfactory to County. Such certificates shall show the type and amount of coverage, effective dates and dates of expiration of policies and shall have all required endorsements. If the County requests, copies of each policy, together with all endorsements, shall also be promptly delivered to County.

Renewal certificates will be furnished annually to County to demonstrate maintenance of the required coverage throughout the Term.

B.9 Other Insurance Requirements

- a) If any services are delegated to a Subcontractor, the Lessee shall require such Subcontractor to provide statutory Workers' Compensation insurance and employer's liability insurance for all of the Subcontractor's employees engaged in the work in accordance with Sections B.2.c and B.2.d and B.4.b. The liability insurance required by Section B.2.a shall cover all Subcontractors or the Subcontractor must furnish evidence of insurance provided by it meeting all of the requirements of this Exhibit.
- b) If at any time during the life of the Master Lease or any extension, Lessee or any of its subcontractors fail to maintain any required insurance in full force and effect, Lessee shall be in breach of the Master Lease until notice is received by County that the required insurance has been restored to full force and effect and that the premiums therefore have been paid for a period satisfactory to County. Any failure to maintain the required insurance shall be sufficient cause for County to terminate this Master Lease. No action taken by County pursuant to this Exhibit shall in any way relieve Lessee of its responsibilities under this Master Lease.
- c) The Lessee shall comply with all requirements of the insurers issuing policies. The carrying of insurance shall not relieve Lessee from any obligation under this Master Lease. If any claim exceeding the amount of any deductibles or self-insured reserves is made by any third person against the Lessee or any Subcontractor because of any occurrence related to this Master Lease, the Lessee shall promptly report the facts in writing to the insurance carrier and to the County.
- d) The Commercial General Liability and Automobile Liability insurance policies shall be written on an "occurrence," rather than a "claims made" basis.
 1. The "Retro Date" must be shown, and must be before the effective date of the Master Lease or the commencement of work by Lessee.
 2. The policy shall be endorsed to provide not less than a five (5) year discovery period. This requirement shall survive expiration or termination of the Master Lease.

3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a "Retro Date" prior to the effective date of the Master Lease, Lessee must purchase "extended reporting" coverage for a minimum of five (5) years following the expiration or termination of the Master Lease.
4. A copy of the claims reporting requirements must be submitted to County for review.
5. These requirements shall survive expiration or termination of this Master Lease.

Attachment C

Proposed Telecommunications Infrastructure Ordinance

**ORDINANCE ADDING CHAPTER 12.25 TO SANTA CRUZ COUNTY CODE
RELATING TO TELECOMMUNICATIONS INFRASTRUCTURE IMPROVEMENTS**

The Board of Supervisors of the County of Santa Cruz ordains as follows:

SECTION I

Chapter 12.25 of the Santa Cruz County Code is enacted to read as follows:

TELECOMMUNICATIONS INFRASTRUCTURE IMPROVEMENT ORDINANCE

Sections:

12.25.010 Purpose and Findings.

12.25.015 Definitions.

12.25.020 Telecommunications Infrastructure Improvement.

12.25.025 Implementation.

12.25.030 Exemptions.

12.25.035 Enforcement.

12.25.040 Violations.

12.25.045 Severability.

12.25.050 Effective Date.

12.25.055 No Conflict with Federal or State Law.

12.25.060 Preemption.

12.25.010 Findings and intent.

A. It is the intent of the County of Santa Cruz, in enacting Chapter 12.25, to streamline and simplify the process of installing and upgrading telecommunications equipment throughout the County, and to encourage improvement and modernization of telecommunications infrastructure.

B. Access to modern telecommunications infrastructure is vital for communication, education and economic development.

C. It is the desire of the County to foster a fair and level playing field for all market competitors that does not disadvantage or advantage one service provider or technology over another.

D. The County seeks to promote widespread access to the most technologically advanced telecommunications services for all County residents and businesses in a nondiscriminatory manner regardless of socioeconomic status.

E. It is the responsibility of the County to protect and control access to public rights-of-way.

F. The County has a duty to ensure that all service providers utilizing County property, facilities or rights-of-way comply with all applicable state and local health, safety and other laws.

G. It is consistent with the County's goals and values to encourage investment in telecommunications infrastructure to help close the digital divide.

0590

H. It is necessary to update County policies and practices to recognize the authority of the California Public Utilities Commission as established in state and federal statutes.

I. It is the desire of the County to assess fees sufficient to recover the actual costs of providing services but not to discourage improvement of necessary infrastructure.

12.25.015 Definitions.

A. For the purposes of this Chapter, the following definitions apply:

1. "Telecommunications" refers to data, voice, video or other information provided by wire, fiber optic cable or other technology.
2. "Facilities" and "Infrastructure" refers to wires, cables, conduit, switches, transmission equipment or other equipment for use in transmitting or processing telecommunications services or for providing support or connection to such equipment.
3. "Rights-of-way" refers to the area upon or adjacent to any County-owned road, highway or rail line or along or across any of the waters or lands owned or controlled by the County.
4. "Service providers" refers to any person, company, corporation or other entity providing data, voice, cable, video or other information services by wire, fiber optic cable or other technology.
5. "Excavation" refers to any process which removes material from the ground through digging, drilling, boring or other activity for the purpose of installing utilities, infrastructure or other structures or equipment.
6. "Conduit" refers to a tube, duct or other device or structure designed for enclosing telecommunication wires or cables.
7. "Reconstruction" refers to any project which repairs or replaces fifty percent or more of an existing road, highway or rail line.

12.25.020 Telecommunications Infrastructure Improvement

In recognition of the need to provide local residents and businesses within the community with the infrastructure required to meet their telecommunications needs, all construction, reconstruction or repaving of a County right-of-way will include provisions for the installation of telecommunications cable, conduit and other related equipment wherever practical and feasible. Where appropriate, telecommunications infrastructure shall be installed in or adjacent to County rights-of-way in conformance with current County standards. County staff will work with contractors to identify most cost-effective approach consistent with County requirements. If a project includes excavation in or adjacent to a County right-of-way, installation of or upgrades to telecommunications cable, conduit or other infrastructure will be included as needed. All installations shall conform to the size, shape, location and other specifications as determined by the Director of Public Works.

12.25.025 Implementation.

No less than 60 days before this ordinance takes effect, the County of Santa Cruz shall e-0591 mail, fax, mail or deliver a copy of it to all telecommunications service providers and other affected entities doing business within the unincorporated County of Santa Cruz.

12.25.030 Exemptions.

A. The Director of Public Works, or the director's designee, may exempt projects from the requirements of this chapter where compliance is found to be not practical or feasible. Requests for an exemption shall be in writing, and the Director's or the director's designee's decision shall be final.

B. An exemption application shall include all information necessary for the Director of Public Works or the director's designee to make a decision, including but not limited to documentation showing factual support for the requested exemption.

C. The Director of Public Works or director's designee may approve the exemption application in whole or in part, with or without conditions.

12.25.035 Enforcement.

Enforcement of this ordinance shall be as follows:

A. The Director of Public Works, or designee, shall have primary responsibility for enforcement of this ordinance and shall have authority to issue citations for violation of this chapter. The Director, or designee, is authorized to establish regulations or administrative procedures to ensure compliance with this chapter.

B. A person or entity violating or failing to comply with any of the requirements of this chapter shall be guilty of an infraction.

C. The County of Santa Cruz may seek legal, injunctive, or any other relief to enforce the provisions of this chapter and any regulation or administrative procedure authorized by it.

D. The remedies and penalties provided in this chapter are cumulative and not exclusive of one another.

E. The Director of Public Works or designee may inspect the premises of any construction, reconstruction, repaving or excavation project to verify compliance with this ordinance.

12.25.040 Violations.

Violations of this ordinance shall be enforced as follows:

Violation of this chapter is hereby declared to be a public nuisance. Any violation described in the preceding paragraph shall be subject to abatement by the County of Santa Cruz, as well as any other remedies that may be permitted by law for public nuisances, and may be enforced by injunction, upon a showing of violation.

12.25.045 Severability.

If any word, phrase, sentence, part, section, subsection, or other portion of this chapter, or any application thereof to any person or circumstance is declared void, unconstitutional, or invalid for any reason, then such word, phrase, sentence, part, section, subsection, or other portion, or the proscribed application thereof, shall be severable, and the remaining provisions of this chapter, and all applications thereof, not having been declared void, unconstitutional or invalid, shall remain in full force and effect. The County of Santa

Cruz hereby declares that it would have passed this title, and each section, subsection, sentence, clause, and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, or phrases had been declared invalid or unconstitutional.

0592

12.25.050 Effective Date.

This ordinance shall become effective three (3) months after the date of final passage by the County of Santa Cruz Board of Supervisors.

12.25.055 No Conflict with Federal or State Law.

Nothing in this ordinance shall be interpreted or applied so as to create any requirement, power, or duty in conflict with any Federal or State law.

12.25.060 Preemption.

The provisions of this chapter shall be null and void if State or Federal legislation, or administrative regulation, takes effect with the same or substantially similar provisions as contained in this chapter. The Board of Supervisors shall determine whether or not identical or substantially similar statewide legislation has been enacted or regulations issued.

SECTION II

This ordinance shall take effect and be in force six months from the date of adoption.


PASSED AND ADOPTED this ____ of _____ 20____, by the Board of Supervisors of the County of Santa Cruz by the following vote:

AYES: SUPERVISORS
NOES: SUPERVISORS
ABSENT: SUPERVISORS
ABSTAIN: SUPERVISORS

Chairperson of the Board of Supervisors

Attest: _____
Clerk of the Board

APPROVED AS TO FORM:



Office of County Counsel

Alicia Murillo

From: cdbosmail@co.santa-cruz.ca.us
Sent: Saturday, January 25, 2014 9:32 AM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Nicholas Meltzer

Email : ana8lucila@gmail.com

Address : 158 McKay Road
Aptos, CA 95003

Phone : 831-684-0846

Comments :

As a business person, I fully support additional cell and broadband coverage in the Day Valley area. Presently, I often have to drive away from my home in order to conduct business on my phone. This is a deterrent to business development in this area.

Thank you.

Terry Dorsey

From: Zach Friend
Sent: Sunday, January 26, 2014 11:09 AM
To: Terry Dorsey
Subject: FW: Broadband policy in Santa Cruz County

Item 59 correspondence for the Board

From: Bud Colligan [bud@colligans.com]
Sent: Saturday, January 25, 2014 7:34 PM
To: Zach Friend
Subject: Broadband policy in Santa Cruz County

Dear Zach,

I am writing to you in support of the proposal before the Council this week regarding the expansion of broadband in Santa Cruz County. Please count me as a strong proponent of the policies being recommended by the County Administrator.

Larry Samuels and I spent many months investigating broadband availability in Santa Cruz County during 2013. The conclusions from our work are summarized in two papers we wrote (found here: <http://www.tellusventure.com/blog/partnership-of-public-and-private-interests-floated-for-comprehensive-fiber-plan-on-californais-central-coast/>).

The broadband policy recommendations being considered by the County are exactly the sort of policy we are supporting. As a community, if we hope to develop the long-term high wage jobs the people want, higher speed bandwidth is one of the critical missing elements.

Sincerely,

Bud Colligan
Founder and CEO
South Swell Ventures

59

Terry Dorsey

From: Zach Friend
Sent: Saturday, January 25, 2014 3:03 PM
To: Terry Dorsey
Subject: Fwd: Santa Cruz County Broadband

Item 59

Begin forwarded message:

From: "larry@samuelsassociates.com" <larry@samuelsassociates.com>
Date: January 25, 2014 at 2:59:22 PM PST
To: Zach Friend <Zach.Friend@santacruzcounty.us>
Subject: Santa Cruz County Broadband

Supervisor Friend,

I would appreciate it if you would forward the following email to your fellow supervisors and/or make sure that it gets into the public record.

The support of the Santa Cruz County Board of Supervisors for implementing the broadband oriented recommendations of Supervisor Friend and the SC County IT staff (see Jan. 28th Board Agenda) is critical to the citizenry of Santa Cruz County. Creating the conditions for the competitive deployment of 21st century infrastructure is an important step in creating environmentally friendly, high wage employment that will increase the local tax base, reduce commuting based traffic and pollution, and stop the retail leakage that has caused countless Santa Cruz County merchants to close their doors. The CPUC and countless other counties are watching this vote. Please support the full set of broadband recommendations made by Zach Friend and the Santa Cruz County IT staff.

Larry Samuels

59

Alicia Murillo

From: cbdbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 11:18 AM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Joe Foster

Email : joe.foster@sccbbusinesscouncil.com

Address : Santa Cruz County Business
Council
P.O. Box 1267
Freedom, CA 95019

Phone : 831-515-2118

Comments :

January 27, 2014

Santa Cruz County Board of Supervisors
701 Ocean Street, Room 500
Santa Cruz, CA 95060

Re: January 28, 2014, Meeting Agenda Item #59

Chairperson Friend and Supervisors:

The Santa Cruz County Business Council (SCCBC) recognizes the need for improved broadband in our area. High speed Internet is necessary to economic vitality, both now and in the future, and we applaud the Santa Cruz County Board of Supervisors for proposing improvements to policies and procedures that will aid expansion of local infrastructure.

The Broadband recommendations include several well-conceived steps which would lower barriers, and best of all takes an approach which considers the County's needs and resources as a whole -- rather than piecemeal, vendor by vendor and project by project. Considering broadband whenever planning to repave a street or construct or upgrade a facility is certainly a good idea which will save time, effort and money.

SCCBC wants to express our support for this proposal.

Sincerely,

Joe Foster
Executive Director

cc
Santa Cruz County Business Council membership

Alicia Murillo

From: cbdbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 2:36 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : John and Karen Hibble

Email : john@aptoschamber.com

Address : 7605 Old Dominion Court
Aptos, CA 95003

Phone : 688-1467

Comments :

Dear Supervisors,

We support the implementation of broadband recommendations as proposed in regular agenda item #59 for improvements to the telecommunications infrastructure.

John and Karen Hibble
Executive Directors.
Aptos Chamber of Commerce

Also submitted to
Zoning Administrator 10/25/13
agenda opposing 13 DAS cell
towers in Aptos area.

9/24/13
351 Redwood/Hk. Rd.
Aptos, CA 95003

To Santa Cruz Co. Board of Supervisors,
Re: Item 32 9/10/13 agenda rescheduled
for 10/11/13 agenda 'Report on Broadband
Connectivity and Expansion'

This falsely alluring title disguises
some problems: ① these are radiation
emitting antennas likened to cell
towers on utility poles with documented
health impacts due to proximity to
cell towers (see next paper) ② evidence
of environmental plant and
wildlife damage, ③ violation of our
rights to be safe in our person and
property, ④ The "report" omits
disclosure of "microwave radiation"
negative biological effects —
including cancer clusters in
the vicinity of cell towers, ⑤
property devaluation, ⑥ Coastal bird migration.

The County should Mandate an
independent CEQUA impact report.

① Without such a scientifically
based analysis, Planner Frank
Barron's "negative declaration" is
without foundation.

1/28/14
59

While a CEQUA investigation ⁽²⁾ is in process, it's imperative to impose a moratorium on issuing permits (submitted request of 5/21/13 attached). It seems to me both unethical & possibly illegal to proceed proliferating Verizon's wireless microwave radiation 4G cell towers on poles without proof that safety, health, and environmental impacts will not occur. Furthermore, the County is listed as the property owner.

(3) The County, as property owner, can refuse such a property "taking" from the public by Verizon for whatever reason. "Property owner" is not a "regulatory agency category."

(4) Please include these attached materials with the continued Item 32 on 10/1/13.

(5) Project Takebackyourpower: an investigation of the smart grid as part of the power point scheduled presentation 10/1/13

③ especially the section on
the cancer clusters at SDSU adjacent
to a campus cell tower.
As the County plans to "streamline"
enhancing Verizon's take over of
our public-right-of-way on our
public land, such "cancer clusters"
are an anticipated consequence.

The County should not be in
the business of cancer promotion.

Enclosed materials to be
included as part of item 32 (From
9-10-13 agenda) PLEASE

① Arthur Firstenberg 4G article w/

② "Let's stop property devaluating
& carcinogenic cell towers
on utility poles in aptos/
Seacliff area, where residents
did not receive the "Notice of
Public Hearing" usually sent to
those within 1,000 feet of
a proposed cell tower,

③ May, 2013 request for a
moratorium of issuing
permits & Chair County's
acknowledgment,

(4) Scorched trees from 4G radiation (South Africa)

(5) Carcasses of dead migrating birds (photos) by cell towers

(6) Excerpt Bees, Birds, & Mankind; Destroying Nature by Electrosmog.

(7) Health Impacts due to Proximity to Cell Towers

(8) "Pushback Against Cell Towers," on property devaluation.

(9) SE County Health Officers 1-24-12 Report recommending minimizing exposure to RF/MW. On the basis of Dr. Nankung's report, item 32 is contrary and therefore should be rejected.

(10) Looming Health Crisis: Wireless Technology & the Toxicification of America

(11) Nationwide Violations of FCC Radiation Limits at Wireless Radiation Sites

(12) Why our World is electro-polluted.

Please inform me ASAP of actions taken in response to these requests
Thank You. Mark Garrett 684-1401



Let's stop property devaluating and carcinogenic 4G cell towers on utility poles in Aptos/Seacliff area.

4G is smart meters on steroids! Zoning meeting this Friday, 9/20/13!

Proposed by Verizon to be located on utility poles in the public right-of-way: 1) on Searidge, about a block from 76 station, 2) on McGregor at Mar Vista, with 13 more planned for Freedom/Day Valley/McDonald and throughout the county (presently on October 18th ZA agenda).

In a departure from normal procedure, you did **not** receive a "Notice of Public Hearing" usually sent to property owners and those who live or work within 1000 feet of a proposed cell tower. Even if you had been notified, the County omits disclosure of documented health impacts due to cell tower proximity*:

Sleeping disorders	Increased cancer incidence	Cardiovascular problems
Depressive tendencies	Chronic fatigue/ headaches	Concentration difficulties

*"Five Studies showing Ill-Health Effects from Masts" (i.e. cell towers) Document produced by Dr. Grahame Blackwell 21 Feb. 2005.

No resident and/or child has given informed consent to 24/7 involuntary bodily microwave radiation trespass. Children are especially vulnerable.

Science from 1932 to the present has demonstrated conclusively the harmful effects of "wireless" microwave radiation. Hundreds of oral and written health complaints followed the installation of PG&E's microwave "Smart" Meters. These emit biologically damaging pulsed modulated microwave radiation similar to 4G technologies. These testimonies prompted our County Health Officer to issue a report (as part of Item 41) "Health Risks Associated with Smart Meters" [and Other Wireless Technologies Such as Cell Towers] to the Santa Cruz County Board of Supervisors on 1/24/12 (available at www.co.santa-cruz.ca.us). Also see 4G letter from researcher Arthur Firstenberg (reverse).

Attend **Zoning Administrator meeting Friday, September 20th, 2013**, 701 Ocean Street (at Water), at 9:00 a.m. Submit written comments to project planner Frank Barron pln782@co.santa-cruz.ca.us or phone (831) 454-2530. Urge denial of the project and/or request that the item be continued in order to properly notify residents and allow time for the public to review staff report. Help protect our community. Also on this agenda is a continued hearing on the Boulder Creek 4G Verizon cell tower on Mountain Mechanic property. View the July 21, 2012 demonstration at S.C. Verizon store opposing their North Coast 4G rollout: <http://www.indybay.org/newsitems/2012/07/22/18718032.php>.

Get the independent science, not the industry spin:

takebackyourpower.net

emfsafetynetwork.org

wirelesswatchblog.org

cellphonetaskforce.org

emfacts.com

radiationeducation.com

emrpolicy.org

stopsmartmeters.org

**We do not consent to violation of our privacy, health, and property rights.
Register your opposition with our elected Supervisors:**

Santa Cruz County Board of Supervisors: (831) 454-2200

This material is provided by community volunteer labor and donations. *Speak @ 9:00 a.m. ⁿ Oral
Communications @ B.O.S. meetings: 10/1, 10/22, + 10/29/13.*

Subject: From Arthur Firstenberg

Date: Sat, 17 Jul 2010 10:40:09 -0700 (PDT)

To All Concerned,

The iPhone 4 went on sale April 20. The Droid X went on sale today. These are the gadgets that are driving the push to build hundreds of new cell towers in Santa Fe and hundreds of thousands throughout the United States. It's called 4G wireless technology. The increases in speed and bandwidth are phenomenal. With 2G phones people could only talk and text, and not at the same time. 4G phones can handle any combination of voice, Internet access, music, video games, TV reception and video streaming simultaneously. And they can do everything about 3,000 times as fast as 2G phones. All this uses hundreds of times more bandwidth. As if this weren't enough, most people leave their 4G phones on all the time, using up bandwidth even when they're not using their phones. All this means that existing networks of cell towers that provide complete coverage for ordinary cell phones are totally inadequate for 3G and 4G "Smart Phones." So where a company used to need five towers to serve its customers it now needs a hundred, and it needs to build them as fast as possible because people are buying up the new 4G phones as fast as the companies can sell them.

There are two tracks going on at City Hall with regard to this technology. One track began a couple of years ago when AT&T applied to the city to build four new high power cell towers, two at PNM substations, one on the roof the Hotel Santa Fe, and one in the chimney of the St. John's Methodist Church. The one at the Hotel has been dropped because of conflicts with the management of the Hotel. The other three are still in the works. In addition, both AT&T and Verizon are about to upgrade all of their existing cell towers to accommodate 4G technology, which means both more radiation and more bandwidth (both cause health effects) just from the towers that already exist. Applications will be submitted this week to upgrade antennas on the Marcy Street tower; the tower by the landfill; the tower at Cerrillos and Airport Road; and the tower on Camino Carlos Rey behind Pep Boys (hidden in a false chimney). A flurry of other applications are expected in the coming weeks and months.

The second track has to do with the new telecommunications ordinance that was just passed by the City Council. This will give franchises to a new kind of company that will come in and build small cell towers every half mile everywhere in Santa Fe. I am calling antennas on existing utility poles towers. These will be small in size but not in power. Although they will be less powerful than, say, the antennas on the Marcy Street tower, they will be much closer to where people live and work, and the net effect will be to increase radiation levels throughout Santa Fe tens to hundreds of times, depending on where you live. These "distributed antenna system" companies will lease their towers, in turn, to AT&T, Verizon, Sprint-Nextel, and T-Mobile so that all their customers who are buying Smart Phones will be able to use them.

4G technology will also soon turn every cell phone into a mobile WiFi hotspot. Verizon's Droid X already has this capability (it rebroadcasts what it receives from any nearby hotspot), and other Smart Phones are sure to copy this feature.

The result of all this is that Santa Fe will soon be swimming in levels of radiation that no one is prepared for.

Arthur Firstenberg
PO Box 6216
Santa Fe, NM 87502
(505) 471-0129

Arthur Firstenberg is an author and consultant on the health and environmental effects of electromagnetic energy. He is a founder and president of the Cellular Phone Task Force, a nonprofit organization. He is the author of *Microwaving Our Planet: The Environmental Impact of the Wireless Revolution* (1997), and he edited and published the journal *No Place To Hide* from 1997 to 2002. He can be contacted at (505) 471-0129 or (707) 937-3990.

To Board of Supervisors, S.C. Co. 5/21/13

We petition the S.C.B. of S
to impose a 9 mo. moratorium on issuing permits for telecom antennas & towers, this would give staff time to examine how other counties & cities are responding to applications for DAS, & to carefully craft a Telecom Ordinance that best serves our community.

Marilyn Garrett
351 Redwood Hts. Rd.
Aptos, CA 95003

* Distributed Antenna Systems



County of Santa Cruz

BOARD OF SUPERVISORS

701 OCEAN STREET, SUITE 500, SANTA CRUZ, CA 95060-4069
(831) 454-2200 • FAX: (831) 454-3262 TDD: (831) 454-2123

JOHN LEOPOLD
FIRST DISTRICT

ZACH FRIEND
SECOND DISTRICT

NEAL COONERTY
THIRD DISTRICT

GREG CAPUT
FOURTH DISTRICT

BRUCE MCPHERSON
FIFTH DISTRICT

May 23, 2013

Marilyn Garrett
351 Redwood Heights Road
Aptos, CA 95003

Dear Mrs. Garrett:

I am writing to acknowledge receipt of your letter requesting that the Board impose a nine month moratorium on issuing permits for telecom antennas and towers. A copy of your letter will be circulated to each member of the Board for their individual consideration.

Sincerely,



NEAL COONERTY, Chairperson
Board of Supervisors

NC:ted

cc: Clerk of the Board

1889A6

Scorched tree poser for cellphone giant

[javascript::javascript::javascript::javascript::http://thestar.newspaperdirect.com/epaper/showarticle.aspx?article=0c6183a8-65bf-4f4d-9de8-a7a10fedda49&key=z8vPWaXiTYww7W91fNXT1Q%3d%3d&issue=6988201201280000000001001](http://thestar.newspaperdirect.com/epaper/showarticle.aspx?article=0c6183a8-65bf-4f4d-9de8-a7a10fedda49&key=z8vPWaXiTYww7W91fNXT1Q%3d%3d&issue=6988201201280000000001001)javascript::

Woman in solo crusade to end 4G roll-out across SA

JOBURG woman believes the imminent roll-out of 4G cellular telephony could have massive health implications for anyone in the path of the signal.



PICTURES: PABALLO THEKISO BLACKENED: This tree looks burnt, but it's not. According to Tracey-lee Dorny, the blackening is caused by a cellphone tower's radiation slowly damaging the trees and plants – and it could also be affecting us.

The government disagrees. So does cellphone giant MTN, which is doing 4G/LTE testing in the north of Joburg.

Tracey-lee Dorny has 60 pine trees in her garden. They have all been burnt and blackened – in the last five months. Her neighbours also report blackened trees.

"I first noticed these big scorch marks on my pines, and then some of the eucalyptus and the fir trees around Fourways," says Dorny, chairman of the Electromagnetic Research Foundation of SA, from her Craigavon home. "It's like very focused beams are coming through here and hitting some of

the trees and plants. The signals are fairly high-powered and they're transmitting long distances... The resin just bursts open."

4G is the fourth generation of wireless communication standards, converging cellphones wirelessly in an era of ultra-fast broadband internet access.

Dorny suspects the sudden firestorm in her garden is MTN'S testing of its new technology in her area, which she believes corresponds with reports of illnesses in Fourways, Dainfern, Sunninghill and further afield.

The trees are an indicator of what is to come, she believes. "We're receiving more reports of headaches, blurry vision, tinnitus and nausea and problems with breathing and hair loss in the area. Children are experiencing severe shooting pains in their muscles and joints."

Last year she won an epic battle against iburst when it removed a wi-fi mast it had erected A30m from her bedroom window, which had caused her family to fall ill. She has since been diagnosed as electrosensitive, becoming physically ill when exposed to electromagnetic radiation.

This month Dorny wrote to the Ministers of Communication, Health, Water and Environmental Affairs about her foundation's concerns. She told them the MTN testing was the cusp of the next technological revolution with digital TV being next.

"The number of service providers in South Africa wanting to roll out the service, if it is allowed, will result in a bigger impact on health and environment and the deployment of even more towers."

Israel, she said, had forbidden a 4G/LTE roll-out until a proper study was done but in SA the government had not acted on an industry that was self-regulating, unmonitored and out of control. "We want an investigation to find out who is doing what and who is testing... but Icasa have told us that once people are licensed, they have no idea what they roll out, when and where and how."

This week Amanda Britz of the Department of Environmental Affairs wrote that the Department of Health was "satisfied that, based on the current research and guidelines, which are endorsed by the World Health Organisation (WHO), the health of the general public is not being compromised (by) their exposure to the microwave emissions of cellular base stations".

However, says Dorny, there are areas in Joburg where the levels are high and uncontrolled.

"But the companies will tell you they're perfectly safe, but nobody is monitoring... Our levels compared with what other countries define as safe levels are two totally different things. It just takes that one extra signal, frequency, or a Wimax, then you find a lot of people start to get ill. They get headaches and rashes, but the minute they switch it off, or remove it from their office, their symptoms go away."

Last year the WHO revealed that the International Agency for Research on Cancer had declared that the electromagnetic fields produced by cellphones are possibly cancer-causing.

Kanagaratnam Lambotharan, MTN chief technology officer, disputes the claims. "LTE is a standard that is part of the evolution of 3G, which incorporates significantly increased data rates and better performance to enhance the mobile broadband experience."

MTN, he says, ensures that everything from 2G to 3G and 4G/LTE adheres to all world safety benchmarks. "There's no evidence to convince experts that exposure below the guidelines set carries any health risks, for adults or children."

The WHO found no evidence that "the weak RF signals from base stations and wireless networks" cause adverse health effects, he says.

South Africa

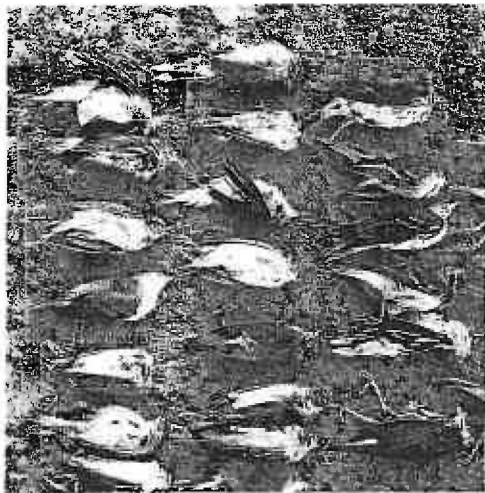
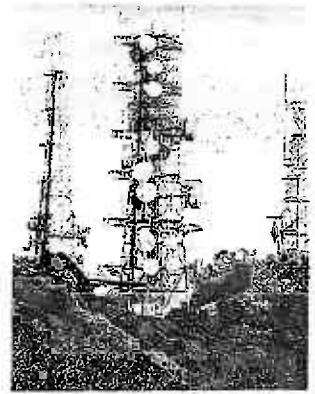
<http://thestar.newspaperdirect.com/epaper/viewer.aspx>

Press Release

Conservationists Fight in Court to Enforce Protections for Migrating and Endangered Birds

Millions of birds die annually in collisions with cellular and television towers

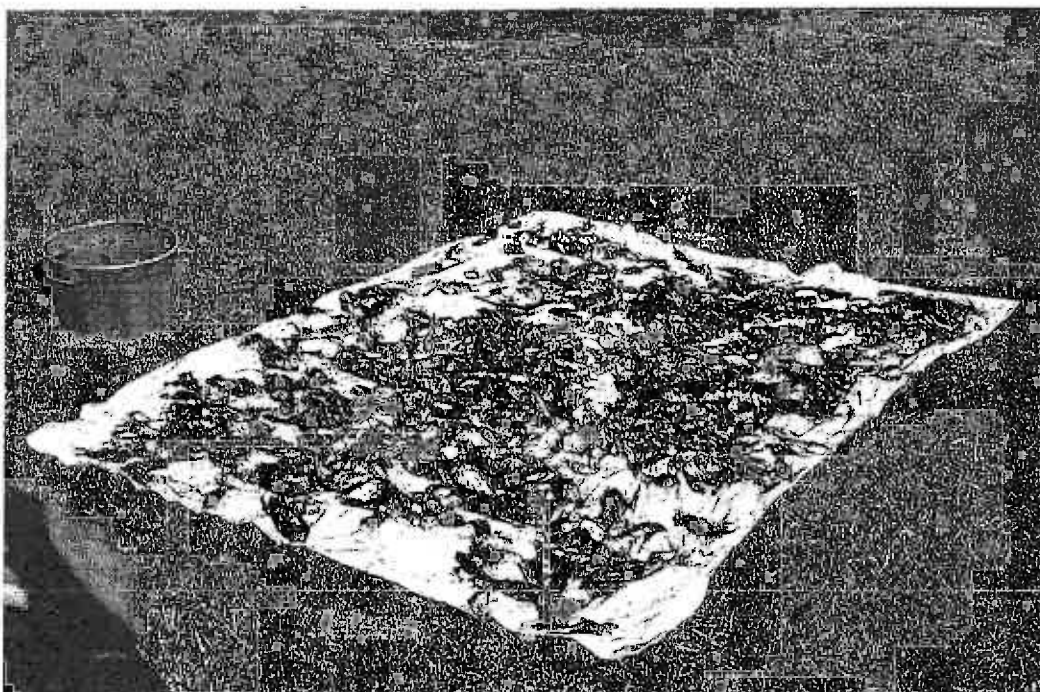
April 8, 2005



Birds found dead under a communications tower in Madison, WI, Sept. 2005. Photo by Andy T. Paulios.

Washington, D.C. -- Conservation groups today filed a petition in federal court to see action from the Federal Communications Commission (FCC) to protect millions of birds killed annually in collisions with telephone, radio, cellular and other communications towers nationwide. FCC has refused to implement guidelines that will protect bird populations and limit needless killings occurring every day.

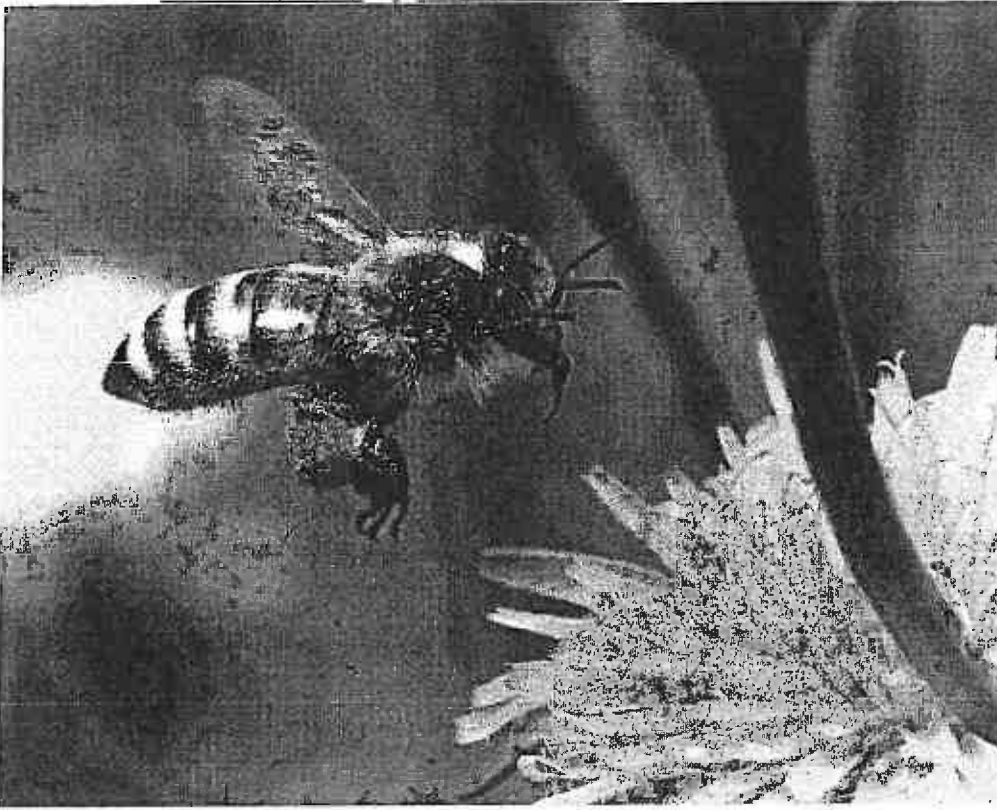
Earthjustice, on behalf of American Bird Conservancy and Forest Conservation Council, filed a petition in the United States Court of Appeals for District of Columbia Circuit that seeks a court order directing FCC to respond to this problem. In August 2002, American Bird Conservancy and Forest Conservation Council filed a request with FCC to comply with applicable federal laws when licensing these towers for construction. FCC has since offered no response, and millions of birds have died as a result.



976 birds killed in a single night at a Florida TV tower. Photo by Robert Crawford.

SmartMeters are Hurting Bees

Posted on June 24, 2011 by onthelevelblog



Scientific- as well as anecdotal -evidence is emerging that electromagnetic fields from cell phones, wifi, and "smart" meters can negatively impact bees, and may be behind much of the recent "colony collapse disorder."

Stop Smart Meters! received this report yesterday via e-mail:

From Susan Morin, Red Wolf Ranch, Grass Valley CA:

We had three bee hives that were healthy and had no other reason to leave—when bees are uncomfortable, threatened, or lack food sources, they leave. Now, a colony will leave individually, yet these hives, all on completely different areas of the property left with in three days of the installation of a PG&E smart meter. We also called PG&E and asked them not to install, and they did when we were off the property.

I have read reports on the smart meters and was not enrolled that they were/are safe and now have evidence that they effected our personal livelihood and lost three hives which equates to \$250/hive loss, pollination loss to fruit tress (bees pollinate 80% of all fruits and vegetables) \$5k+/-, and honey as a source of medicine and food \$4k.

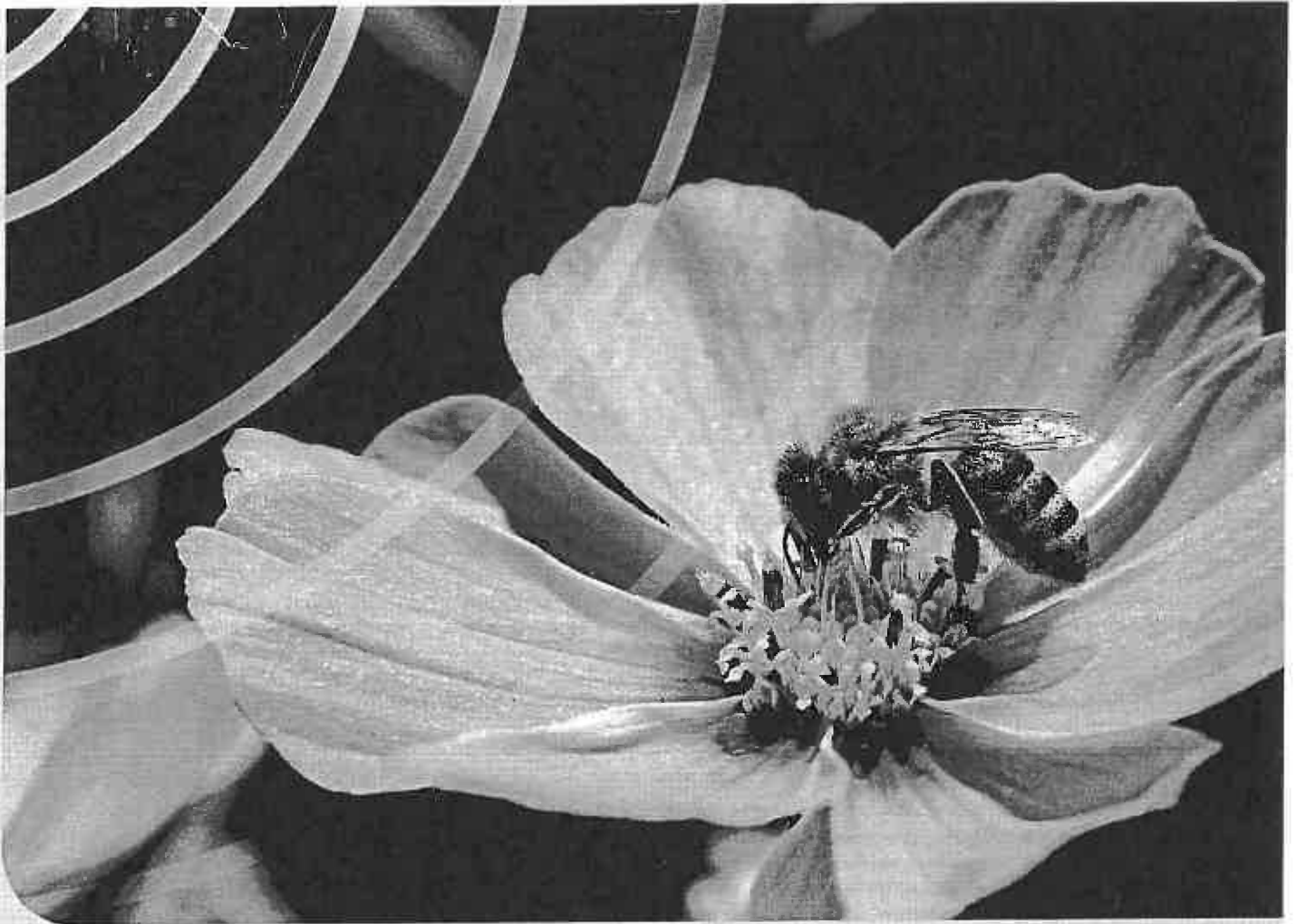
The math does not equate, the loss of pollination does not equate, and the rapid push of PG&E to do this just because they may be at a financial loss—does not equate when it DOES in FACT harmfully affect our community, livelihoods, and food stuffs.

I have experienced this personally and documented it. Call and email if you need further documentation.

Thank you for listening and doing the right thing.



1



BEES, BIRDS AND MANKIND

Destroying Nature by 'Electrosmog'

Ulrich Warnke

Effects of Wireless Communication Technologies

**A Brochure Series by the
Competence Initiative for the Protection of Humanity,
Environment and Democracy**

Brochure 1

Electromagnetic fields as prerequisite and hazard to life

Author's introduction to this paper

The question of causal effects and biological relevance of electrical and magnetic parameters is generally posed without simultaneous reference to their relevance to life's organisation. These questions cannot, however, be considered in isolation of each other. What role have the electrical and magnetic fields played in the evolution of life on earth? What role are they playing in the individual development and physiological capacities of an organism? Whoever investigates these questions must sooner or later conclude: Not only did the electrical and magnetic fields of our planet exist before all life, but they have had a decisive hand in the evolution of the species – in water, on land and in the near-earth atmosphere. Living creatures adapted to it in the development of their kind.

Biological experience teaches us that life will use the energy pool in which it finds itself to its best advantage. Advantageous not only because the absorbed energy is a carrier of information, useful for orientation in the environment (see glossary; hereinafter GL). But advantageous also because the organism developed to make use of gravitational and electromagnetic interactions, creating decisive functionalities of life. The biological system expresses itself just as the environment does and unity and coordination with its environment is its guiding principle.

But if bees and other insects disappear, if birds are no longer present in their traditional territories and humans suffer from inexplicable functional deficiencies, then each on its own may appear puzzling at first. The apparently unrelated and puzzling phe-

nomena actually have a common trigger, however. Man-made technology created magnetic, electrical and electromagnetic transmitters which fundamentally changed the natural electromagnetic energies and forces on earth's surface – radically changing million-year-old pivotal controlling factors in biological evolution.

This destruction of the foundations of life has already wiped out many species for ever. Since this extinction of species mostly affected ecological niches and hardly ever own life, most of us were not interested. But now, the endangerment of animals is also threatening the survival of man in a new and unexpected way.

Animals that depend on the natural electrical, magnetic and electromagnetic fields for their orientation and navigation through earth's atmosphere are confused by the much stronger and constantly changing artificial fields created by technology and fail to navigate back to their home environments. Most people would probably shrug this off, but it affects among other one of the most important insect species: the honeybee.

Because the bee happens to be the indispensable prerequisite for fructification: without bees, the fruit, vegetable and agricultural crops will fall short.

We are, however, not only affected by the economic consequences of our actions. It can also be proven that the mechanisms evidently affecting birds and bees are also affecting the human organism. An all-round unnatural radiation with an unprecedented power density (GL) is also harming human health in a novel way.

But, unless mankind reminds itself of the basics of its existence and unless the politicians in charge put a stop to the present development, the damage to health and economic fundamentals is predictable and will fully manifest itself not now, but in the next generation.

The reasons for this are explained in this paper. It endeavours to quantify natural electrical and magnetic signals provided to men and animals as guiding signals throughout evolution. The paper, however, places particular emphasis on what happens when these natural signal amplitudes are suppressed, changed and distorted on an unprecedented scale by technically generated artificial fields. Mankind can only take successful countermeasures if the damage mechanisms are understood.

3.7 Effects of technically generated fields on bees

We investigated the reaction of bees to artificially created electrical fields in the laboratory (WARNKE 1975, 1976, WARNKE et al. 1976) and found the following: 50 Hz AC fields with field strengths of 110 V/cm cause significant restlessness of the bees in their enclosure. The colony temperature increases greatly. The defence of the social territory is uncontrollably increased to the point where individuals in a colony stab one other to death. They no longer recognise one other.

After a few days in the field, the bees tear their brood from the cells; no new brood is reared. Honey and pollen are also depleted and then no longer collected. Bees that were newly established in their hives shortly before the start of the experiment always abandon the hive again and disappear when the electrical field is switched on. Bees that have lived in their hive for a long time, plug all the cracks and holes with propolis, including the entrance. This otherwise only happens in winter in a cold draught.

Since an acute lack of oxygen develops when the cracks and the entrance are plugged, the bees attempt to introduce air by intensive fanning. In this process, the wing muscles generate temperatures high enough to melt the wax. The animals attempt to fight the temperature increase by more fanning. In the end, the colony burns itself out. This implies the death of all members of the colony – which we could obviously prevent in future.

With very sensitive colonies, the reaction signal was measurable from field strengths of 1 V/cm and frequencies between 30 Hz and 40 kHz. When the field is switched on, the animals suddenly move their wings and buzz at frequencies of 100–150 Hz (WARNKE 1973, 1976, WARNKE et al. 1976).

With signals in the frequency range of 10 to 20 kHz, the aggressiveness was

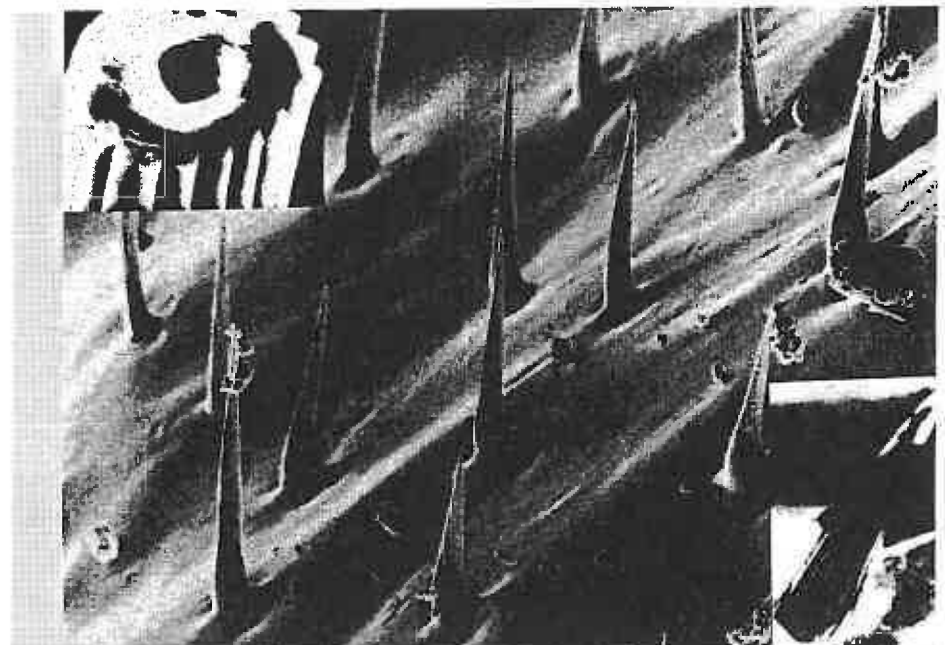


Fig. 15: Wing section of bees enlarged with scanning electron microscope. Observe the special structures serving to focus the electrical field.
Warnke 1989, Copyright: Ulrich Warnke

increased and the homing ability much reduced even though the natural meteorological and electromagnetic environment was intact in the flight space (WARNKE, 1973).

Scientists from the University of Koblenz-Landau conducted several experiments, looking at different aspects and questions, to measure the homing behaviour of bees (*Apis mellifera carnica*) as well as the development of mass and area of the combs under the influence of electromagnetic radiation (KUHN et al. 2001, 2002, STEVER et al. 2003, 2005, HARST et al. 2006).

They recorded an increase in agility, an increased swarming drive and no winter clustering when under the influence of EM radiation of cordless telephones.

In other experiments with base station fields of the DECT cordless telephones (1 880–1 900 MHz, 250 mW EIRP, 100

Hz pulsed, 50 m range, permanent exposure), the weight and area development of the colonies was slower compared to the colonies that were not exposed to a field.

The homing ability of the bees was tested from five days after the DECT telephones were introduced. There were significant differences in the return times of the colonies that were in the field and those that were not. No more than six of the bees exposed to the field ever returned – sometimes none returned. With the bees not exposed to a field, there were returning bees at any point in time of the experiment.

5. Summary

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.



Health Impacts Due to Proximity to Cell Towers:

South Bend, Indiana: heart palpitations, interference with hearing, recurring headaches, short-term memory loss, sleep disturbances, multiple tumors, glandular problems, chronic fatigue, allergies, weakened immune system, miscarriage, inability to learn.¹

Germany: (within 400 meters = 1312 feet = ~¼ mile) significantly higher rates, and earlier development (8 years earlier), of malignant tumors; after 5 years of tower operation, cancer risk increased to 3 times that of those living outside area.²

Spain: (up to 300 meters = 984 feet) fatigue, sleep disturbances, headaches, feeling of discomfort, difficulty concentrating, depression, memory loss, visual disruptions, irritability, hearing disruptions, skin problems, cardiovascular disorders, dizziness (these are the symptoms of electrohypersensitivity, a condition recognized by the World Health Organization). Repeat study recording exposure to radio frequency: within 50-150 m (164 – 492 feet) of cell phone antenna at 0.11 +/- 0.19 microW/cm² – headaches, sleep disturbances, irritability, difficulty concentrating, discomfort, depression, dizziness, appetite loss, and nausea.^{3,4}

France: extreme sleep disruption, chronic fatigue, nausea, skin problems, irritability, brain disturbances, and cardiovascular problems.⁵

Egypt: high risk for developing nerve and psychiatric problems, and changes in neurobehavioral function; significantly lower performance on tests for attention, short-term auditory memory, and problem-solving⁶

Israel: those living near a cell tower for 3-7 years had a cancer rate 4 x higher than control population, with breast cancer most prevalent⁷

Animals:

Dairy cattle: significant drop in milk yield, behavioral disorders after erection of a telecom mast with cellular antenna and TV antenna (when they were moved 20 km away, milk and behavior returned to normal), abortion, death due to acute cardiac and circulatory collapse with internal bleeding from several organs⁸

Birds: reproductive problems, aggression among nesting pairs, infertility⁹

Trees: possible leading cause of forest die-off instead of acid rain or climate change¹⁰

Bees, bats, butterflies, birds, insects, and other wildlife (also humans): impact on orientation and navigational ability (due to presence of magnetite in organism), impact on NOS (nitrous oxide system) which controls the immune system, and is involved in the ability to smell and learn¹¹

"Laboratory studies of radio frequency radiation as well as epidemiological studies of people who live near cell phone antennas and/or use wireless technology indicate adverse biological effects. These effects include

increase in cancers, DNA breaks, impaired reproduction, increased permeability of the blood-brain barrier, altered calcium flux, changes in enzyme activity, neurological disorders, altered brainwave activity, insomnia, decreased memory, inattention, slower reaction time, tinnitus, dizziness, skin disorders, headaches, chronic pain, chronic fatigue, respiratory problems and arrhythmia.

A growing population is becoming sensitive to electromagnetic energy and some of these people are affected by radio frequency radiation and are unable to live near antennas. Animals that live near cell phone and broadcast antennas are also affected by RF radiation, which manifests itself in reproductive impairment and behavioral abnormalities.

The cancers and symptoms of EHS (electrohypersensitivity) occur at levels well below the FCC guidelines for radio frequency radiation. These guidelines are based on short-term (30-minute) thermal effects and are inadequate to protect the population from long-term, non-thermal exposure. The FCC guidelines conform to ICNIRP guidelines but are much higher (i.e. less protective) than guidelines in other countries.

Metal objects such as wiring in the home, fences, poles, roofs, filing cabinets can redirect RFR and create hot spots or interfere with reception. This applies to metal implants and metal objects on or near the body (zippers, glasses, jewelry, etc.). For this reason calculations of exposure may not be as reliable as actual measurements."

in "Analysis of Health and Environmental Effects of Proposed San Francisco Earthlink Wi-Fi Network", May, 2007. Magda Havas, B.Sc., Ph.D. Environmental & Resource Studies, Trent University, Canada
(http://www.buergerwelle.de/pdf/snafu_havas_wifi.pdf)

¹ Hicks, Onnink, Barber, Pennington v. Horvath Communications, Cause No. 71C01-0107-CP St. Joseph Circuit Court, St. Joseph, County, Indiana

² Eger, H. et al. 2004. The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer. *Umwelt-Medizin-Gesellschaft* 17,4 2004, as: 'Einfluss der räumlichen Nähe von Mobilfunksendeanlagen auf die Krebsinzidenz'.

³ Santini, 2001. Symptoms experienced by people in the vicinity of cellular phone base station in *La Presse Medicale*

⁴ Oberfeld, G. et al. 2004. The microwave syndrome-further aspects of a Spanish study. *Biological Effects of EMFs*, Kos Greece, October 2004

⁵ "Study of the health of people living in the vicinity of mobile phone base stations: I. influences of distance and sex," R. Santini et al, *Institut National des Sciences Appliquées—laboratoire de biochimie-pharmacologie*, 2002

⁶ "Neurobehavioral Effects Among Inhabitants Around Mobile Phone Base Stations," Abdel-Rassoul et al, *Neurotoxicology*, 8-01-2006

⁷ "Increase of Cancer Near Cell-Phone Transmitter Station," Wolf D. and Wolf, *International Journal of Cancer Prevention* 1-2, April 2004

⁸ Löscher and Käs. 1998. Conspicuous behavioural abnormalities in a dairy cow herd near a TV and Radio transmitting antenna. *Practical Veterinary Surgeon* 79: 5, 437-444

⁹ Balmori, A. 2005. Possible effects of electromagnetic fields from phone masts on a population of white stork. *Electromagnetic Biology and Medicine* 24:109-119

¹⁰ Wolfgang Volkrodt and Ulrich Hertel, also ". . . There is also this important fact: any tree may act as a receiving dielectric rod or monopole antenna with the ability to both absorb energy from the wave passing by and to scatter the wave in many directions. If the polarization of the transmitting tower antenna matches the particular tree or trees (i.e. vertical orientation of the antenna which is usually the case for collinear dipole arrays on towers), maximum coupling or absorption of the wave energy by the tree will occur. Polarization and conduction currents will generally flow to the root system.

from Chapter 11: "Brief Overview of the Effects of Electromagnetic Fields on the Environment" by Raymond S. Kasevich, BSEE, MSE, PE, Registered Professional Electrical Engineer; Cell Towers: Wireless Convenience or Environmental Hazard? Proceedings of the 'Cell Towers Forum' State of the Science/State of the Law edited by B. Blake Levitt (2001)

¹¹ Warnke, 2007. Bees, Birds and Mankind – Destroying Nature by 'Electrosmog'. Kompetenzinitiative, Stuttgart, Germany

August 27, 2010

A Pushback Against Cell Towers

By MARCELLE S. FISCHLER

http://www.nytimes.com/2010/08/29/realestate/29Lizo.html?_r=1&pagewanted=print&

TINA CANARIS, an associate broker and a co-owner of RE/MAX Hearthstone in Merrick, has a \$999,000 listing for a high ranch on the water in South Merrick, one of a handful of homes on the block on the market. But her listing has what some consider a disadvantage: a cell antenna poking from the top of a telephone pole at the front of the 65-by-100-foot lot.

"Even houses where there are transformers in front" make "people shy away," Ms. Canaris said. "If they have the opportunity to buy another home, they do."

She said cell antennas and towers near homes affected property values, adding, "You can see a buyer's dismay over the sight of a cell tower near a home just by their expression, even if they don't say anything."

By blocking, or seeking to block, cell towers and antennas over the course of the last year, Island homeowners have given voice to concerns that proximity to a monopole or antenna may not be just aesthetically unpleasing but also harmful to property values. Many also perceive health risks in proximity to radio frequency radiation emissions, despite industry assertions and other evidence disputing that such emissions pose a hazard.

Emotions are running so high in areas like Wantagh, where an application for six cell antennas on the Farmingdale Wantagh Jewish Center is pending, that the Town of Hempstead imposed a moratorium on applications until Sept. 21. That is the date for a public hearing on a new town ordinance stiffening requirements.

At a community meeting on Aug. 16 at Wantagh High School, Dave Denenberg, the Nassau county legislator for Bellmore, Wantagh and Merrick, told more than 200 residents that 160 cell antennas had been placed on telephone poles in the area in the last year by NextG, a wireless network provider.

"Everyone has a cellphone," Mr. Denenberg said, "but that doesn't mean you have to have cell installations right across the street from your house." Under the old town code, installations over 30 feet high required an exemption or a variance. But in New York, wireless providers have public utility status, like LIPA and Cablevision, and they can bypass zoning boards.

Earlier this month in South Huntington, T-Mobile was ordered to take down a new 100-foot monotower erected on property deemed environmentally sensitive (and thus requiring a variance). Andrew J. Campanelli, a civil rights lawyer in Garden City, said a group of residents had hired him to oppose the cellular company's application.

"They were worried about the property values," Mr. Campanelli said. "If your home is near a cell antenna, the value of your property is going down at least 4 percent. Depending on the size of the tower and the proximity, it is going down 10 percent."

In January, in an effort to dismantle 50 cell antennas on a water tower across from a school in the

village of Bayville, Mr. Campanelli filed a federal lawsuit that cited health risks and private property rights.

In a statement, Dr. Anna F. Hunderfund, the Locust Valley superintendent, said that in February 2009 the district had engaged a firm to study the cellphone installations near the Bayville schools, finding that the tower “posed no significant health risks,” and she noted that the emission levels fell well below amounts deemed unsafe by the Federal Communications Commission.

In June 2009, Sharon Curry, a psychologist in Merrick, woke up to find a cell antenna abutting her backyard, level to her 8-year-old son’s bedroom window.

Puzzled by its presence, particularly because she lives next to an elementary school, she did research to see if there was cause for concern. What she learned about possible health impacts, she said, led her to seek help from civic associations and to form a group, Moms of Merrick Speak Out, to keep new cell towers out. She said she was seeking the “responsible” placement of cell antennas, away from homes and schools.

The Federal Communications Act of 1996 says health concerns are not a valid reason for a municipality to deny zoning for a cell tower or antenna. Property values and aesthetics, however, do qualify, according to the act.

Frank Schilero, an associate broker with RE/MAX Innovations in Wantagh, has a listing on a \$629,000 home down the street from the Farmingdale Wantagh Jewish Center, where the application is pending to put six cell antennas on the roof.

“People don’t like living next to cell towers, for medical reasons or aesthetics,” Mr. Schilero said. “Or they don’t want that eyesore sticking up in their backyards.” There is an offer on his listing, he added, but since the buyer heard about the possible cell antennas she has sought more information from the wireless companies about their size and impact.

Charles Kovit, the Hempstead deputy town attorney, said that under the proposed code change any new towers or antennas would have to be 1,500 feet from residences, schools, houses of worship and libraries.

The town recently hired a consultant, Richard A. Comi of the Center for Municipal Solutions in Glenmont, to review antenna applications.

Under the new ordinance, applications for wireless facilities would require technical evidence that they had a “gap” in coverage necessitating a new tower.

“If not, they will get denied,” Mr. Kovit said. The wireless companies would also have to prove that the selected location had “the least negative impact on area character and property values.” If another location farther away from homes can solve the gap problem, “they are going to have to move.”



County of Santa Cruz

COUNTY ADMINISTRATIVE OFFICE

701 OCEAN STREET, SUITE 520, SANTA CRUZ, CA 95060-4073

(831) 454-2100 FAX: (831) 454-3420 TDD: (831) 454-2123

SUSAN MAURIELLO, J.D., COUNTY ADMINISTRATIVE OFFICER

January 18, 2012

AGENDA: January 24, 2012

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz, California 95060

SmartMeter Moratorium

Dear Members of the Board:

On December 13, 2011, your Board directed this office to return today with a report on issues associated with the current SmartMeter moratorium ordinance, and information on the possible extension of the moratorium for an additional year. Your Board also directed the Public Health Officer to return with an analysis of the research on the health effects of SmartMeters, and directed County Counsel to return with a report regarding the legality of a public utility refusing service to customers who are willing to pay for service and are willing to have an analog meter.

As your Board is aware, the California Public Utility Commission is considering PG&E's application for modification to PG&E's SmartMeter proposal to include an option for residential customers who do not wish to have a wireless SmartMeter. The item was scheduled on the January 12, 2012 agenda, but the commission anticipates that a vote on the proposal will not happen prior to February 1, 2012.

Moratorium Ordinance

Your Board has heard significant amounts of testimony regarding SmartMeters and concerns about their possible impact on health, questions about their accuracy, their inability to recover real-time data, privacy concerns, and the lack of safety standards for chronic long-term exposure to electromagnetic frequency radiation. In addition, PG&E has not presented studies to support their primary justification that the SmartMeter program will encourage customers to more effectively manage their utilization of electricity.

Given the broad concern about SmartMeter technology and your Board's desire to go on record, this office and County Counsel believe that notwithstanding the enforcement challenges, that it is in the best interest of public health, safety, and welfare for your Board to adopt the attached ordinance (Attachment A) implementing a temporary moratorium on the installation of SmartMeters in or on any home, apartment, condominium or business within the unincorporated area of the County. The purpose of the moratorium is to allow additional time to educate the CPUC about these concerns and allow time for adequate study of the impacts resulting from the SmartMeter technology.

PG&E, asserting that local governments do not have jurisdiction on the installation of the meters, has ignored the previous Santa Cruz County ordinance as well as similar ordinances adopted in other jurisdictions. PG&E believes that only the California Public Utilities Commission (CPUC) has the authority to stop installation of the meters. Elected representatives, including the Board of Supervisors of Marin County, have acknowledged the limits of their ordinances to actually stop the installation of the meters. However, jurisdictions have adopted their ordinances with statements that such ordinances play an important role by informing the CPUC of significant community concerns.

Health Officer Report

The Public Health Officer's report is provided as Attachment B. The report discusses the health risks associated with SmartMeters, the scientific reports and actions the public might take to mitigate potential harm.

PG&E Shutoff Update

At the December 13, 2011, meeting, your Board questioned the PG&E representative about the utility company's decision to shut off power to the homes of residents who removed their SmartMeters. Subsequent to that meeting, PG&E restored power to those residences with the intent of charging them based on past electrical bills.

Petition

At your January 10, 2012 meeting, your Board was presented with a petition to the California Public Utilities Commission regarding PG&E SmartMeter Opt-out Application, (Petition A.11-03-014). The petition provides the opportunity for local elected officials to urge the Commission to continue Petition A.11-03-014 for further public hearings. The petition is provided as Attachment C. It is recommended that your Board direct the Chair to sign the petition on behalf of the Board and submit it to the PUC.

IT IS THEREFORE RECOMMENDED THAT YOUR BOARD:

- (1) Direct the Chair to send a letter to the PUC calling for independent testing and monitoring of SmartMeters in place to determine duty cycles and frequency, especially in the following circumstances
 - Where both gas and electric meters are located closely together
 - Where there is a bank of SmartMeters such as on a multi-family residential building or apartment building
 - Where there is a collector meter on a home that serves the home, plus as many as 5000 other residential units in the area
 - Where a SmartMeter on a home acts as a relay for other local neighborhood meters

- (2) Direct the Chair to send a letter to the PUC and PG&E allowing any Santa Cruz County resident to request removal of a previously installed SmartMeter and the replacement with an analog meter
- (3) Accept and file the report from the Public Health Officer
- (4) Direct the Chair to sign the petition to the California Public Utilities Commission on behalf of the Board urging the Commission to delay consideration of a preliminary decision on PG&E's SmartMeter application until further public hearing and input are completed, and
- (5) Adopt the attached ordinance imposing a temporary moratorium on the installation of SmartMeters within the unincorporated area of Santa Cruz County and direct the Clerk of the Board to place the ordinance on the February 7, 2012 agenda for final consideration.

Very truly yours,



SUSAN A. MAURIELLO
County Administrative Officer

Attachments:

- A. Proposed Ordinance
- B. Report from Public Health Officer
- C. Petition to CPUC

cc: PG&E
California Public Utilities Commission

ORDINANCE NO. 5114**AN UNCODIFIED ORDINANCE OF THE COUNTY OF SANTA CRUZ
IMPOSING A TEMPORARY MORATORIUM ON THE INSTALLATION
OF SMARTMETERS AND RELATED EQUIPMENT IN, ALONG,
ACROSS, UPON, UNDER AND OVER THE PUBLIC STREETS AND
OTHER PLACES WITHIN THE UNINCORPORATED AREA OF SANTA
CRUZ COUNTY**

The Board of Supervisors of the County of Santa Cruz find as follows:

WHEREAS, the County of Santa Cruz (the "County"), through its police powers granted by Article XI of the California Constitution, retains broad discretion to legislate for public purposes and for the general welfare, including but not limited to matters of public health, safety and consumer protection; and

WHEREAS, the County of Santa Cruz has a franchise agreement with PG&E that has been in effect since 1955; and

WHEREAS, in addition, the County retains authority under Article XII, Section 8 of the Constitution to grant franchises for public utilities, and pursuant to California Public Utilities Code section 6203, "may in such a franchise impose such other and additional terms and conditions..., whether governmental or contractual in character, as in the judgment of the legislative body are to the public interest;" and

WHEREAS, Public Utilities Code section 2902 reserves the County's right to supervise and regulate public utilities in matters affecting the health, convenience and safety of the general public, "such as the use and repair of public streets by any public utility, the location of the poles, wires, mains, or conduits of any public utility, on, under, or above any public streets, and the speed of common carriers operating within the limits of the municipal corporation;" and

WHEREAS, Pacific Gas & Electric Company ("PG&E") is now installing SmartMeters in Central and Northern California and is installing these meters within the County of Santa Cruz; and

WHEREAS, concerns about the impact and accuracy of SmartMeters have been raised nationwide, leading the Maryland Public Service Commission to deny permission on June 21, 2010 for the deployment of SmartMeters in that state. The State of Hawaii Public Utility Commission also recently declined to adopt a smart grid system in that state. The CPUC currently has pending before it a petition from the City and County of San Francisco, and other municipalities, seeking to delay

the implementation of SmartMeters until the questions about their accuracy can be evaluated; and

WHEREAS, major problems and deficiencies with SmartMeters in California have been brought to the attention of the Board of Supervisors of the County of Santa Cruz, including PG&E's confirmation that SmartMeters have provided incorrect readings costing ratepayers untold thousands of dollars in overcharges and PG&E's records outlined "risks" and "issues" including an ongoing inability to recover real-time data because of faulty hardware originating with PG&E vendors; and

WHEREAS, the ebb and flow of gas and electricity into homes discloses detailed information about private details of daily life. Energy usage data, measured moment by moment, allows the reconstruction of a household's activities: when people wake up, when they come home, when they go on vacation, and even when they take a hot bath. SmartMeters represent a new form of technology that relays detailed hitherto confidential information reflecting the times and amounts of the use of electrical power without adequately protecting that data from being accessed by unauthorized persons or entities and as such pose an unreasonable intrusion of utility customers' privacy rights and security interests. Indeed, the fact that the CPUC has not established safeguards for privacy in its regulatory approvals may violate the principles set forth by the U.S. Supreme Court in *Kyllo v. United States* (2001), 533 U.S. 27; and

WHEREAS, significant health questions have been raised concerning the increased electromagnetic frequency radiation (EMF) emitted by the wireless technology in SmartMeters, which will be in every house, apartment and business, thereby adding additional human-made EMF to our environment around the clock to the already existing EMF from utility poles, individual meters and telephone poles; and

WHEREAS, FCC safety standards do not exist for chronic long-term exposure to EMF or from multiple sources, and reported adverse health effects from electromagnetic pollution include sleep disorders, irritability, short term memory loss, headaches, anxiety, nausea, DNA breaks, abnormal cell growth, cancer, premature aging, etc. Because of untested technology, international scientists, environmental agencies, advocacy groups and doctors are calling for the use of caution in wireless technologies; and

WHEREAS, the primary justification given for the SmartMeters program is the assertion that it will encourage customers to move some of their electricity usage from daytime to evening hours; however, PG&E has conducted no actual pilot projects to determine whether this assumption is in fact correct. Non-transmitting time-of-day meters are already available for customers who desire

them, and enhanced customer education is a viable non-technological alternative to encourage electricity use time shifting. Further, some engineers and energy conservation experts believe that the SmartMeters program--in totality--could well actually increase total electricity consumption and therefore the carbon footprint; and

WHEREAS, this Board of Supervisors sent a letter to the CPUC on September 15, 2010 expressing concern about reports that SmartMeter technology was interfering with the proper functioning of common household devices and requesting a response from the CPUC; and

WHEREAS, there has been no response by the CPUC to the letter sent by the Board of Supervisors; and

WHEREAS, because the potential risks to the health, safety and welfare of County residents are so great, the Board of Supervisors wishes to adopt a moratorium on the installation of SmartMeters and related equipment within the unincorporated area of the County of Santa Cruz. The moratorium period will allow the Council on Science and Technology and legislative process referenced above to be completed and for additional information to be collected and analyzed regarding potential problems with SmartMeters; and

WHEREAS, there is a current and immediate threat to public health, safety and welfare because, without this urgency ordinance, SmartMeters or supporting equipment will be installed or constructed or modified in the County without PG&E's complying with the CPUC process for consultation with the local jurisdiction, the County's Code requirements, and subjecting residents of Santa Cruz County to the privacy, security, health, accuracy and consumer fraud risks of the unproven SmartMeter technology; and

WHEREAS, the Board of Supervisors hereby finds that it can be seen with certainty that there is no possibility that the adoption and implementation of this Ordinance may have a significant effect on the environment. This Ordinance does not authorize construction or installation of any facilities and, in fact, imposes greater restrictions on such construction and installation in order to protect the public health, safety and general welfare. This Ordinance is therefore exempt from the environmental review requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations; and

WHEREAS, there is no feasible alternative to satisfactorily study the potential impact identified above as well or better with a less burdensome or restrictive effect than the adoption of this interim urgency moratorium ordinance; and

WHEREAS, based on the foregoing it is in the best interest of public health, safety and welfare to allow adequate study of the impacts resulting from the SmartMeter technology; therefore it is appropriate to adopt a temporary moratorium that would remain in effect from the date of its adoption until December 31, 2012, unless your Board acts to repeal it prior to that date.

NOW, THEREFORE BE IT ORDAINED by the Board of Supervisors of the County of Santa Cruz as follows:

SECTION I

Moratorium. From and after the effective date of this Ordinance, no SmartMeter may be installed in or on any home, apartment, condominium or business of any type within the unincorporated area of the County of Santa Cruz, and no equipment related to SmartMeters may be installed in, on, under, or above any public street or public right of way within the unincorporated area of the County of Santa Cruz.

SECTION II

Violations of the Moratorium may be charged as infractions or misdemeanors as set forth in Chapter 1.12 of the Santa Cruz County Code. In addition, violations may be deemed public nuisances, with enforcement by injunction or any other remedy authorized by law.

SECTION III

This Board of Supervisors finds and determines that: (a) there is a current and immediate threat to the public peace, health, or safety; (b) the moratorium must be imposed in order to protect and preserve the public interest, health, safety, comfort and convenience and to preserve the public welfare; and (c) it is necessary to preserve the public health and safety of all residents or landowners adjacent to such uses as are affected by this interim ordinance as well as to protect all of the citizens of Santa Cruz County by preserving and improving the aesthetic and economic conditions of the County.

SECTION IV

If any provision of this interim ordinance is held to be unconstitutional, it is the intent of the Board of Supervisors that such portions of such ordinance are severable from the remainder and the remainder is given full force and effect.

SECTION V

This interim ordinance is not subject to the California Environmental Quality Act (CEQA) pursuant to Section 15060(c) (2) – the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment and Section 15060(c) (3) – the activity is not a project as defined in Section 15378 of the CEQA Guidelines, because it has no potential for resulting in physical change to the environment, directly or indirectly.

SECTION VI

This ordinance shall take effect on the 31st day after the date of final passage.

PASSED AND ADOPTED THIS 7th day of February, 2012, by the Board of Supervisors of the County of Santa Cruz by the following vote:

AYES:	SUPERVISORS	Coonerty, Stone, Caput and Leopold
NOES:	SUPERVISORS	None
ABSENT:	SUPERVISORS	Pirie
ABSTAIN:	SUPERVISORS	None

Attest:

Clerk of the Board

APPROVED AS TO FORM:

County Counsel

Chairperson of the Board of Supervisors



County of Santa Cruz 0257

HEALTH SERVICES AGENCY

POST OFFICE BOX 962, 1060 EMELINE AVE., SANTA CRUZ, CA 95061-0962
TELEPHONE: (831) 454-4114 FAX: (831) 454-5049 TDD: (831) 454-4123

Poki Stewart Namkung, M.D., M.P.H.
Health Officer
Public Health Division

Memorandum

Date: January 13, 2012
To: Santa Cruz County Board of Supervisors
From: Poki Stewart Namkung, M.D., M.P.H. *PSN*
Health Officer
Subject: Health Risks Associated With SmartMeters

Overview

On December 13, 2011, Santa Cruz County Board of Supervisors directed the Public Health Officer to return on January 24, 2012, with an analysis of the research on the health effects of SmartMeters.

Background

In order to analyze the potential health risks associated with SmartMeters, the following questions should be asked:

- 1) What is the SmartMeter system and what is the potential radiation exposure from the system?
- 2) What scientific evidence exists about the potential health risks associated with SmartMeters?
- 3) Are there actions that the public might take to mitigate any potential harm from SmartMeters?

SmartMeters are a new type of electrical meter that will measure consumer energy usage and send the information back to the utility by a wireless signal in the form of pulsed frequencies within the 800 MHz to 2400MHz range, contained in the microwave portion of the electromagnetic spectrum. SmartMeters are considered part of 'smart grid' technology that includes: a) a mesh network or series of pole-mounted wireless antennas at the neighborhood level to collect and transmit wireless information from all SmartMeters in that area back to the utility; b) collector meters, which are a special type of SmartMeter that collects the radiofrequency or microwave radiation signals from many surrounding

buildings (500-5000 homes or buildings) and sends the information back to the utility; and c) proposed for the future, a power transmitter to measure the energy use of individual appliances (e.g. washing machines, clothes dryers, dishwasher, etc) and send information via wireless radio frequency signal back to the SmartMeter. The primary rationale for SmartMeters and grid networks is to more accurately monitor and direct energy usage.

The public health issue of concern in regard to SmartMeters is the involuntary exposure of individuals and households to electromagnetic field (EMF) radiation. EMFs are everywhere, coming from both natural and man-made sources. The three broad classes of EMF are:

- extremely low frequency, ELF (from the sun or powerlines)
- radio frequency, RF (from communication devices, wireless devices, and SmartMeters)
- extremely high frequency, known as ionizing radiation (x-rays and gamma rays)

Much of this exposure is beyond our control and is a matter of personal choice; however, public exposure to RF fields is growing exponentially due to the proliferation of cell phones, and wireless fidelity (Wi-Fi) technology. To understand the relationship between EMF from SmartMeters and other sources, it is helpful to view the electromagnetic spectrum:

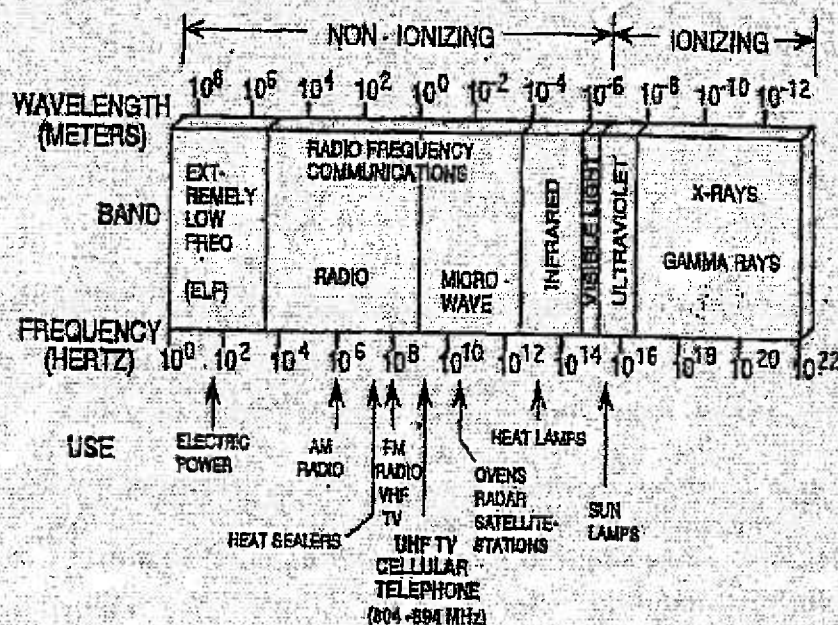


Fig. 1: The electromagnetic spectrum, showing the relation s between ELF and RF fields, wavelength and frequency, and the ionizing and non-ionizing portions of the spectrum.

The Federal Communications Commission (FCC) has adopted limits for Maximum Permissible Exposure (MPE) that are based on exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP). The limits vary with

the frequency of the electromagnetic radiation and are expressed in units of microwatts per centimeter squared. A SmartMeter contains two antennas whose combined time-averaged public safety limit of exposure is $655 \mu\text{W}/\text{cm}^2$ (Sage, 2011). According to the California Council on Science and Technology (CCST) Report (2011), within distances of three to ten feet, SmartMeters would not exceed this limit. However, CCST did not account for the frequency of transmissions, reflection factors, banks of SmartMeters firing simultaneously, and distances closer than three feet. There are numerous situations in which the distance between the SmartMeters and humans is less than three feet on an ongoing basis, e.g. a SmartMeter mounted on the external wall to a bedroom with the bed placed adjacent to that mounting next to the internal wall. That distance is estimated to be one foot. The CCST Report also states that SmartMeters will generally transmit data once every four hours, and once the grid is fully functional, may transmit "more frequently." It has been aptly demonstrated by computer modeling and real measurement of existing meters that SmartMeters emit frequencies almost continuously, day and night, seven days a week. Furthermore, it is not possible to program them to not operate at 100% of a duty cycle (continuously) and therefore it should not be possible to state that SmartMeters do not exceed the time-averaged exposure limit. Additionally, exposure is additive and consumers may have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices such as cell and cordless phones, personal digital assistants (PDAs), routers for internet access, home security systems, wireless baby surveillance (baby monitors) and other emerging devices. It would be impossible to know how close a consumer might be to their limit, making safety a uncertainty with the installation of a mandatory SmartMeter.

This report will focus on the documented health risks of EMF in general, the relevance of that data to SmartMeters exposure, the established guidelines for RF safety to the public at large, and then provide recommendations to ameliorate the risk to the public's health.

Evidence-based Health Risks of EMFs

There is no scientific literature on the health risks of SmartMeters in particular as they are a new technology. However, there is a large body of research on the health risks of EMFs. Much of the data is concentrated on cell phone usage and as SmartMeters occupy the same energy spectrum as cell phones and depending on conditions, can exceed the whole body radiation exposure of cell phones (see Attachment B1, Figure 4). In terms of health risks, the causal factor under study is RF radiation whether it be from cell phones, Wi-Fi routers, cordless phones, or SmartMeters. Therefore all available, peer-reviewed, scientific research data can be extrapolated to apply to SmartMeters, taking into consideration the magnitude and the intensity of the exposure.

Since the mid-1990's the use of cellular and wireless devices has increased exponentially exposing the public to massively increased levels of RF. There is however, debate regarding the health risks posed to the public given these increased levels of radiation. It must be noted that there is little basic science funding for this type of research and it is largely funded by industry. An intriguing divide, noted by Genuis, 2011 is that most

research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures; most research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures research funded by industry and some governments seems to cast doubt on the potential for harm. Elements of the controversy stem from inability to replicate findings consistently in laboratory animal studies. However, analysis of many of the conflicting studies is not valid as the methodology used is not comparable. Despite this controversy, evidence is accumulating on the results of exposure to RF at non-thermal levels including increased permeability of the blood-brain barrier in the head (Eberhardt, 2008), harmful effects on sperm, double strand breaks in DNA which could lead to cancer genesis (Phillips, 2011), stress gene activation indicating an exposure to a toxin (Blank, 2011), and alterations in brain glucose metabolism (Volkow, 2011).

In terms of meta-analyzed epidemiological studies, all case-control epidemiological studies covering >10 years of cell phone use have reported an increased risk of brain tumors from the use of mobile phones (Hallberg, 2011). Other studies have pointed to an increasing risk of acoustic neuroma, salivary gland tumors, and eye cancer after several years of cell phone use and the tumors occur predominantly on the same side of the head as the phone is used. The analysis of brain cancer statistics since the mid 20th century in several countries reveals that brain tumor formation has a long latency time, an average of over 30 years to develop from initial damage. (Hallberg, 2011). Therefore using studies such as the Interphone Study which looked at shorter latency periods for the development of specific brain cancers will result in inconclusive data.

Another potential health risk related to EMF exposure, whose legitimacy as a phenomenon remains contentious, is electromagnetic hypersensitivity (EHS). In the 1950's, various centers in Eastern Europe began to describe and treat thousands of workers, generally employed in jobs involving microwave transmission. The afflicted individuals often presented with symptoms such as headaches, weakness, sleep disturbance, emotional instability, dizziness, memory impairment, fatigue, and heart palpitations. Clinical research to verify the physiological nature of this condition did not begin in earnest until the 1990's and found that the EMF involved was usually within the non-ionizing range of the electromagnetic spectrum. In the early 2000's, estimates of the occurrence of EHS began to swell with studies estimating the prevalence of this condition to be about 1.5% of the population of Sweden (Hilleert et al., 2002), 3.2% in California (Levallios et al., 2002), and 8% in Germany (infas Institut für angewandte Sozialwissenschaft GmbH, 2003).

In 2004, WHO declared EHS "a phenomenon where individuals experience adverse health effect while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs)...Whatever its cause, EHS is a real and sometimes debilitating problem for the affected persons (Mild et al., 2004)."

Currently, research has demonstrated objective evidence to support the EHS diagnosis, defining pathophysiological mechanisms including immune dysregulation in vitro, with

increased production of selected cytokines and disruption and dysregulation of catecholamine physiology (Genuis, 2011).

Until recently, the diagnosis of EHS has not received much support from the medical community due to lack of objective evidence. In an effort to determine the legitimacy of EHS as a neurological disorder, however, a collection of scientists and physicians recently conducted a double-blinded research study that concluded that "EMF hypersensitivity can occur as a bona fide environmentally-inducible neurological syndrome (McCarty et al., 2011).

Safety Guidelines

The guidelines currently used by the FCC were adopted in 1996, are thermally based, and are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock. FCC guidelines have a much lower certainty of safety than standards. Meeting the current FCC guidelines only assures that one should not have heat damage from SmartMeter exposure. It says nothing about safety from the risk of many chronic diseases that the public is most concerned about such as cancer, miscarriage, birth defects, semen quality, autoimmune diseases, etc. Therefore, when it comes to nonthermal effects of RF, FCC guidelines are irrelevant and cannot be used for any claims of SmartMeter safety unless heat damage is involved (Li, 2011).

There are no current, relevant public safety standards for pulsed RF involving chronic exposure of the public, nor of sensitive populations, nor of people with metal and medical implants that can be affected both by localized heating and by electromagnetic interference (EMI) for medical wireless implanted devices. Many other countries (9) have significantly lower RF/MW exposure standards ranging from 0.001 to 50 $\mu\text{W}/\text{cm}^2$ as compared with the US guideline of 200-1000 $\mu\text{W}/\text{cm}^2$. Note that these recommended levels are considerably lower than the approximately 600 $\mu\text{W}/\text{cm}^2$, (time-averaged) allowed for the RFR from SmartMeters operating in the low 900 MHz band mandated by the FCC based on only thermal consideration.

In summary, there is no scientific data to determine if there is a safe RF exposure level regarding its non-thermal effects. The question for governmental agencies is that given the uncertainty of safety, the evidence of existing and potential harm, should we err on the side of safety and take the precautionary avoidance measures? The two unique features of SmartMeter exposure are: 1) universal exposure thus far because of mandatory installation ensuring that virtually every household is exposed; 2) involuntary exposure whether one has a SmartMeter on their home or not due to the already ubiquitous saturation of installation in Santa Cruz County. Governmental agencies for protecting public health and safety should be much more vigilant towards involuntary environmental exposures because governmental agencies are the only defense against such involuntary exposure. Examples of actions that the public might take to limit exposure to electromagnetic radiation can be found in Attachment B2.

References:

- Balmori, A. "Electromagnetic Pollution from Phone Masts. Effects of Wildlife." Pathophysiology (2009).
- Blackman, C. "Cell Phone Radiation: Evidence from ELF and RF studies supporting more inclusive risk identification assessment,." Pathophysiology (2009): doi: 10.1016.
- . "Cell Phone Radiation: Evidence from ELF and RF Studies Supporting More Inclusive Risk Identification Assessment." Pathophysiology (2009).
- Blank, M, Goodman R. "Electromagnetic field stress living cells." Pathophysiology (2009): doi: 10.1016.
- Blank, M. "Prefice." Pathophysiology (2009): doi10.1016.
- Carpenter, D. and Sage, C. "BioInitiave Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields." (2007).
- Carpenter, David O. "Electromagnetic Fields and Cancer: The Cost of Doing Nothing." (2009).
- Carpenter, David O. " Report on the CCST document "Health Impacts of Radiofrequency from Smart Meters"." (n.d.).
- Carpenter, David O. Sage Cindy. "Setting Prudent Public Health Policy for Electromagnetic Field Exposures." Reviews on Environmental Health (2008): Vol. 23 No.2 .
- Consultants, Sage Associates - Environmental. "Assesments of Radiofrequency Microwave Radiation Emmissions from SmartMeters." (2011).
- Davanipour, E. Sobel. "Long Term Exposure to magnetic fields and the risks of Alzheimer's disease and breast cancer." Pathophysiology (2009): doi: 10.1016.
- De-Kun Li, MD PhD MPH. "Repsonse to CCST." Written Testimony (2009).
- Genuis SJ, Lipp CT. "Electromagnetic Sensitivity: Fact or Fiction?" Sci total Environ (2011): doi: 10.1016.
- Goldworthy, Andrew. "The Biological Effect of Weak Electronmagnetic Fields." (2007).
- Hallberg O, and Morgan J. "The Potential Impact of Mobile Phone Use on trends in Brain and CNS Tumors." Neuro and Neurophysiology (2011).
- Hallberg, O et. al.,. "Apparent decreases in Swedish Public Health indicators after 1997-Are they due to improved diagnostic or environmental factors?" Pathophysiology (2009): doi: 10.1016.
- Hankin, Norbert EPA. "Response to Janet Newton EMR Network re: Radiofrequency Guidelines." (2002).
- Hardell, L. et al.,. "Epidemiological eveidence for an association between use of wireless phones and tumor diseases." Pathophysiology (2009): doi: 10.1016.
- Hillert, L et al.,. "Prevalence of self-reported hypersensitivity to electric or magnetic fields in a population-based questionnaire survey." Scab J Work Environ Health 28 (2002): 33-41.

- Hirsch, Daniel. "Comments on the Draft Report by the Council on Science and Technology "Health Impacts of Radio frequency from Smart Meters"." (2011).
- Hondou, Tsuyoshi. "Passive exposure to Mobile Phones: Enhancement of Intensity by Reflection." (2006).
- Huttunen, P. et al.,. "FM-radio and TV tower signals can cause spontaneous hand movements near moving RF reflector." Pathophysiology (2009): doi: 10.1016.
- Infas. "Study on concern and anxiety of the general public with respect to the possible risks due to high frequency electromagnetic fields used." (2004).
- Johannsson, Ollie Professor Dept of Neuroscience, Karolinska Institute Stockholm, Sweden. "Commentary." (2011).
- Khurana, Vini G. et al.,. "Cell phones and brain tumors: A review including the long-term epidemiologic data." Science Direct, Surgical Direct, Surgical Neurology (2009).
- Kreutzer, Rick CDPH. "Technical Commentary on CCST Report: Health Impact on Radio Frequencies from SmartMeters." (2011).
- Kundi, M., Hutter MP. "Mobile Phone base stations-Effects on wellbeing and health." Pathophysiology (2009): doi:10.1016.
- Lai, Henry Dept. of Bioengineering Univ. Of Washington. "Biological Effects of Radiofrequency Radion." (2002).
- Levallois, P and et al. "Study of self-reported hypersensitivity to electromagnetic fields in California." Environ Health Perspect (2002): 110 (Suppl 4); 619-23.
- Levis, Angelo G. et al. "Mobile phones and head tumors. The discrepancies in cause-effect relationships in the epidemiological studies-how do they arise?" Environmental Health (2011).
- Lotz, W. Gregory. "Letter to Richard Tell in support of RF exposure guidelines." (n.d.): 1999.
- Maret, Dr. Karl. "Commentary on the CCST report " Health Impacts of Radio Frequency from Smart Meters"." (2011).
- Mauer, Sandy EMF Network. "PG&E SmartMeters violate FCC RF Exposure Compliance Rates." (2010);
- McCarty, DE et al.,. "Electromagnetic hypersensitivity: Evidence for a novel neurological syndrome." Int. J Neurosci (2011).
- Mekaya, MA et al., Dept of Biophysics University Ankara, Turkey. "Pulse modulated 900 Mhz radiation induces hypothyroidism and apoptosis in thyroid cells: a light, electron microscopy and immunohistochemical study." (2010).
- Mild, Kjell Hansson and Emilie van Dventer Paolo Ravazzani editors Mike Repacholi. "Electromagnetic Hypersensitivity - Proceedings International Workshop of EMF Hypersensitivity Prague, Czech Republic ." (2004).
- Neutra, Dr. Raymond Richard. "Commentary." (2011).
- Organization, Word Health. "IARC Classifies radiofrequency electromagnetic fields as possible carcinogenic to humans." (2011).

Organization, World Health. "Electromagnetic fields and public health: Base stations and wireless technologies." Fact Sheet 304 Accessed on January 31, 2011 (2006):
<http://www.who.int/mediacentre/factsheets/fs304/enIndex/Html>.
—, "Electromagnetic fields and public health: Electromagnetic hypersensitivity." Fact Sheet No. 296 (2011):
<http://who.who.int/mediacentre/factsheets/fs296/index.html>.
—, "Interphone study reports on mobile phone use and brain cancer." (2010).
Peevey, Michael. "Ruling and Scoping Memo to PUC: Opt out program and its cost." (2011).
Phillips J.L. et al. "Electromagnetic fields and DNA damage." Pathophysiology (2009): doi: 10.1016.
Pourlis, A.F. "Reproductive and developmental effects of EMF in vertebrate models." Pathophysiology (2009): doi: 10.1016.
Sage, C and Carpenter D. O. "Public health implications of wireless technologies." Pathophysiology (2011): 16: 233-246.
Schüz, Joachim et., al. "Cellular Phones and the Risks of Glioma and Meningioma." American Journal of Epidemiology (2006): doi: 10.1093 .
Supervisors, Santa Cruz county Board of. "Temporary Moratorium on the Installation of SmartMeters." (2011).
Technology, California Council on Science and. "Health Impact of Radio Frequency Exposure from Smart Meters." (2011).
Tell, richard. "Summary Discussion of RF Fields and the PG&E SmartMeter System (2005 report and 2008 report)." (2009).
Volkow, N. D et al.,. "Effects of cell phone radiofrequency signal exposure on brain glucose metabolism." JAMA (2011): 305:808-13.
Yakemenko, I et al.,. "Long Term Exposure to Microwaves Provokes Cancer Growth: Evidences from Radar and Mobile Communications systems." Experiemental Oncology (2011).

Figure 4 from Hirsch; 2011

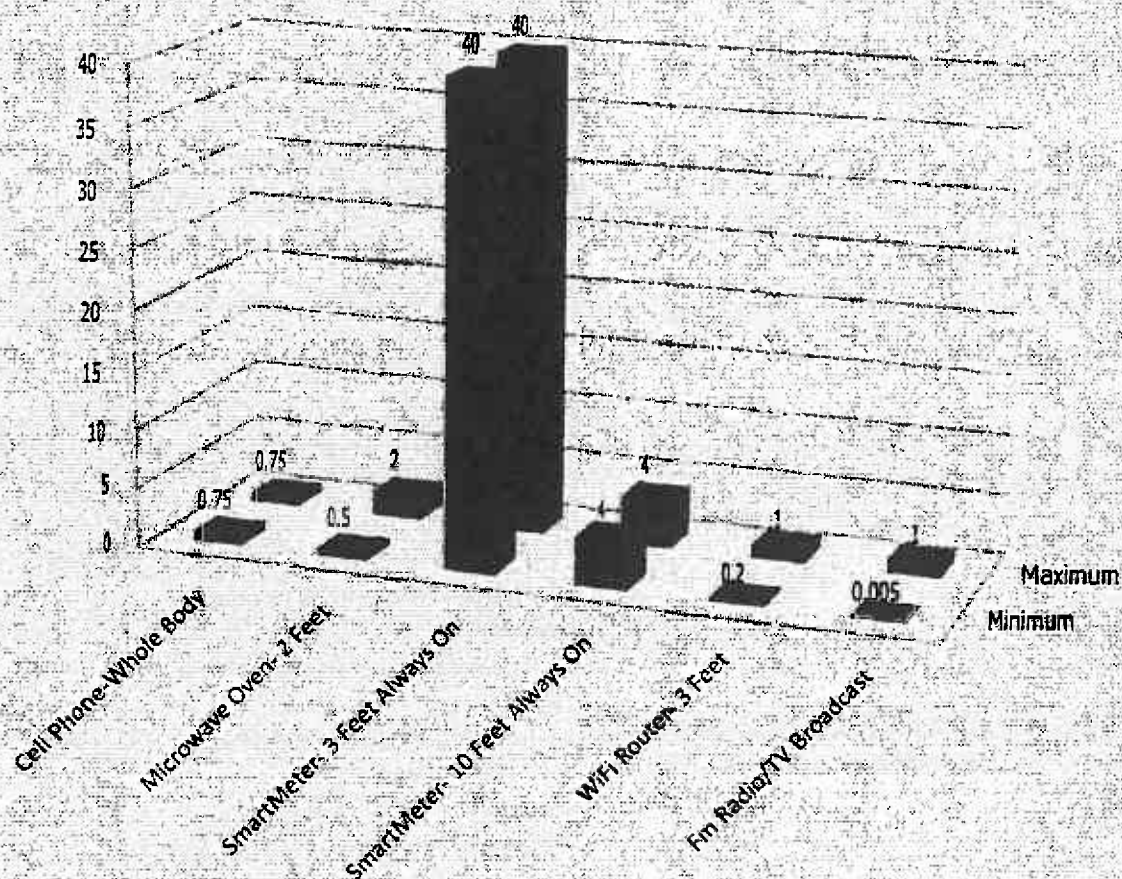


Figure 4. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected for assumed duty cycle and whole body exposure extrapolated from EPRI/CCST SmartMeter estimated levels at 3 feet].

Examples of strategies to reduce electromagnetic radiation.

(Genuis SJ, 2011)

Sources of adverse EMR	Considerations to reduce EMR exposure
Cell phones and cordless phones	<ul style="list-style-type: none"> • Minimize use of cell and cordless phones and use speaker phones when possible • Leave cell or cordless phone away from the body rather than in pocket or attached at the hip.
Wireless internet	<ul style="list-style-type: none"> • Use wired internet • Turn off the internet router when not in use (e.g. night-time) • Use power line network kits to achieve internet access by using existing wiring and avoiding wireless emissions.
Computers releasing high EMR	<ul style="list-style-type: none"> • Limit the amount of time spent working on a computer • Avoid setting a laptop computer on the lap • Increase the distance from the transformer. • Stay a reasonable distance away from the computer
Handheld electronics (electric toothbrush, hair dryer, Smart phone, electronic tablets, etc.)	<ul style="list-style-type: none"> • Limit the use of electronics and/or revert to using power-free devices • Turn devices off before going to sleep • Minimize electronics in bedrooms
Fluorescent lights	<ul style="list-style-type: none"> • Consider using alternate lighting such as incandescent (Uncertainty exists about the safety of LED lights) • Rely on natural sunlight for reading
Household power	<ul style="list-style-type: none"> • Measure levels of EMR and modify exposures as possible • Avoid sleeping near sites of elevated EMR • Filters can be used to mitigate dirty power
High voltage power lines substations, transmission towers, and emitters (cell phone tower, radar, etc.)	<ul style="list-style-type: none"> • Consider relocating to an area not in close proximity to high voltage power lines • Maintain considerable distance from emitters • Consider forms of shielding (shielding paints; grounded metal sheets)
Utility neutral-to-ground bonded to water pipes	<ul style="list-style-type: none"> • Increase size of neutral-wire to substation and install dielectric coupling in water pipe.

From: "Joel MOSKOWITZ" <jmm@berkeley.edu>

Looming Health Crisis: Wireless Technology and the Toxification of America

James F. Tracy, Before It's News, May 17, 2013

As a multitude of hazardous wireless technologies are deployed in homes, schools and workplaces, government officials and industry representatives continue to insist on their safety despite growing evidence to the contrary. A major health crisis looms that is only hastened through the extensive deployment of "smart grid" technology.

In October 2009 at Florida Power and Light's (FPL) solar energy station President Barack Obama announced that \$3.4 billion of the American Reinvestment and Recovery Act would be devoted to the country's "smart energy grid" transition. Matching funds from the energy industry brought the total national Smart Grid investment to \$8 billion. FPL was given \$200 million of federal money to install 2.5 million "smart meters" on homes and businesses throughout the state.[1]

By now many residents in the United States and Canada have the smart meters installed on their dwellings. Each of these meters is equipped with an electronic cellular transmitter that uses powerful bursts of electromagnetic radiofrequency (RF) radiation to communicate with nearby meters that together form an interlocking network transferring detailed information on residents' electrical usage back to the utility every few minutes or less. Such information can easily be used to determine individual patterns of behavior based on power consumption.

The smart grid technology is being sold to the public as a way to "empower" individual energy consumers by allowing them to access information on their energy usage so that they may eventually save money by programming

“smart” (i.e, wireless enabled) home appliances and equipment that will coordinate their operability with the smart meter to run when electrical rates are lowest. In other words, a broader plan behind smart grid technology involves a tiered rate system for electricity consumption that will be set by the utility to which customers will have no choice but to conform.

Because of power companies' stealth rollout of smart meters a large majority of the public still remains unaware of the dangers they pose to human health. This remains the case even though states such as Maine have adopted an “opt out” provision for their citizens. The devices have not been safety-tested by Underwriters Laboratory and thus lack the UL approval customary for most electronics.[2] Further, power customers are typically told by their utilities that the smart meter only communicates with the power company “a few times per day” to transmit information on individual household energy usage. However, when individuals obtained the necessary equipment to do their own testing they found the meters were emitting bursts of RF radiation throughout the home far more intense than a cell phone call *every minute or less*.[3]

America's Telecom-friendly Policy for RF Exposure

A growing body of medical studies is now linking cumulative RF exposure to DNA disruption, cancer, birth defects, miscarriages, and autoimmune diseases. Smart meters significantly contribute to an environment already polluted by RF radiation through the pervasive stationing of cellular telephone towers in or around public spaces and consumers' habitual use of wireless technologies. In the 2000 Salzburg Resolution European scientists recommended the maximum RF exposure for humans to be no more than one tenth of a microwatt per square centimeter. In the United States RF exposure limits are 1,000 microwatts per centimeter, with no limits for long term exposure.[4] Such lax standards have been determined by outdated science and the legal and regulatory maneuvering of the powerful telecommunications and wireless industries.

The Environmental Protection Agency (EPA) ceased studying the health effects of radiofrequency radiation when the Senate Appropriations Committee cut the department's funding and forbade it from further research into the area.[5] Thereafter RF limits were codified as mere “guidelines” based on the EPA's tentative findings and are to this day administered by the Federal Communications Commission (FCC).

These weakly enforced standards are predicated on the alleged “thermal effect” of RF. In other words, if the energy emitted from a wireless antenna or device is not powerful enough to heat the skin or flesh then no danger is posed to human health.[6] This reasoning is routinely put forward by utilities installing smart meters on residences, telecom companies locating cellular

transmission towers in populated areas, and now school districts across the US allowing the installation of cell towers on school campuses.[7]

The FCC's authority to impose this standard was further reinforced with the passage of the 1996 Telecommunications Act that included a provision lobbied for by the telecom industry preventing state and local governments from evaluating potential environmental and health effects when locating cell towers "so long as 'such facilities comply with the FCC's regulations concerning such emissions.'"[8]

In 2001 an alliance of scientists and engineers with the backing of the Communications Workers of America filed a federal lawsuit hoping the Supreme Court would reconsider the FCC's obsolete exposure guidelines and the Telecom Act's overreach into state and local jurisdiction. The high court refused to hear the case. When the same group asked the FCC to reexamine its guidelines in light of current scientific studies the request was rebuffed.[9] Today in all probability millions are suffering from a variety of immediate and long-term health effects from relentless EMF and RF exposure that under the thermal effect rationale remain unrecognized or discounted by the telecom industry and regulatory authorities alike.

Growing Evidence of Health Risks From RF Exposure

The main health concern with electromagnetic radiation emitted by smart meters and other wireless technologies is that EMF and RF cause a breakdown in the communication between cells in the body, interrupting DNA repair and weakening tissue and organ function. These are the findings of Dr. George Carlo, who oversaw a comprehensive research group commissioned by the cell phone industry in the mid-1990s.

When Carlo's research began to reveal how there were indeed serious health concerns with wireless technology, the industry sought to bury the results and discredit Carlo. Yet Carlo's research has since been upheld in a wealth of subsequent studies and has continuing relevance given the ubiquity of wireless apparatuses and the even more powerful smart meters. "One thing all these conditions have in common is a disruption, to varying degrees, of intercellular communication," Carlo observes. "When we were growing up, TV antennas were on top of our houses and such waves were up in the sky. Cell phones and Wi-Fi have brought those things down to the street, integrated them into the environment, and that's absolutely new." [10]

In 2007 the BioInitiative Working Group, a worldwide body of scientists and public health experts, released a 650-page document with over 2000 studies linking RF and EMF exposure to cancer, Alzheimer's disease, DNA damage, immune system dysfunction, cellular damage and tissue reduction.[11]
In May 2011 the World Health Organization's International Agency for Research on Cancer categorized "radiofrequency electromagnetic fields as possibly carcinogenic to humans based on an increased risk for glioma, a malignant type of brain cancer, associated with wireless cellphone use." [12]

In November 2011 the Board of the American Academy of Environmental Medicine (AAEM), a national organization of medical and osteopathic physicians, called on California's Public Utilities Commission to issue a moratorium on the continued installation of smart meters in residences and schools "based on a scientific assessment of the current available literature." "[E]xisting FCC guidelines for RF safety that have been used to justify installations of smart meters," the panel wrote, "only look at thermal tissue damage and are obsolete, since many modern studies show metabolic and genomic damage from RF and ELF exposure below the level of intensity which heats tissues ... More modern literature shows medically and biologically significant effects of RF and ELF at lower energy densities. These effects accumulate over time, which is an important consideration given the chronic nature of exposure from 'smart meters.'" [13]

In April 2012 the AAEM issued a formal position paper on the health effects of RF and EMF exposure based on a literature review of the most recent research. The organization pointed to how government and industry arguments alleging the doubtful nature of the science on non-thermal effects of RF were not defensible in light of the newest studies. "Genetic damage, reproductive defects, cancer, neurological degeneration and nervous system dysfunction, immune system dysfunction, cognitive effects, protein and peptide damage, kidney damage, and developmental effects have all been reported in the peer-reviewed scientific literature," AAEM concluded. [14]

Radiating Children

The rollout of smart meters proceeds alongside increased installation of wireless technology and cell phone towers in and around schools in the US. In 2010 Professor Magda Havas conducted a study of schools in 50 US state capitols and Washington DC to determine students' potential exposure to nearby cell towers. A total 6,140 schools serving 2.3 million students were surveyed using the antennasearch.com database. Of these, 13% of the schools serving 299,000 students have a cell tower within a quarter mile of school grounds, and another 50% of the schools where 1,145,000 attend have a tower within a 0.6 mile radius. The installation of wireless networks and now smart meters on and around school properties further increases children's RF exposure. [15]

Many school districts that are strapped for cash in the face of state budget cuts are willing to ignore the abundance of scientific research on RF dangers and sign on with telecom companies to situate cell towers directly on school premises. Again, the FCC's thermal effect rule is invoked to justify tower placement together with a disregard of the available studies.

The School District of Palm Beach County, the eleventh largest school district in the US, provides one such example. Ten of its campuses already have cell towers on their grounds while the district ponders lifting a ban established in 1997 that would allow for the positioning of even more towers. When concerned parents contacted the school district for an explanation of its wireless policies, the administration assembled a document, "Health Organization Information and Academic Research Studies Regarding the Health Effects of Cell Tower Signals." The report carefully selected pronouncements from telecom industry funded organizations such as the American Cancer Society and out-of-date scientific studies supporting the FCC's stance on wireless while excluding the long list of studies and literature reviews pointing to the dangers of RF and EMF radiation emitted by wireless networks and cell towers. [16]

The Precautionary Principle / Conclusion

Surrounded by the sizable and growing body of scientific literature pointing to the obvious dangers of wireless technology, utility companies installing smart meters on millions of homes across the US and school officials who accommodate cell towers on their grounds are performing an extreme disservice to their often vulnerable constituencies. Indeed, such actions constitute the reckless long term endangerment of public health for short term gain, sharply contrasting with more judicious decision making.

The 1992 Rio Declaration on Environment & Development adopted the precautionary principle as a rule to follow in the situations utilities and school districts find themselves in today. "Where there are threats of serious or irreversible damage lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation." [17] In exercising the precautionary principle, public governance and regulatory bodies should "take preventive action in the face of scientific uncertainty to prevent harm. The focus is no longer on measuring or managing harm, but preventing harm." [18]

Along these lines, the European Union and the Los Angeles School District have prohibited cell phone towers on school grounds until the scientific research on the human health effects of RF are conclusive. The International Association of Fire Fighters also interdicted cell towers on fire stations

pending “a study with the highest scientific merit and integrity on health effects of exposure to low-intensity [radio frequency/microwave] radiation is conducted and it is proven that such sitings are not hazardous to the health of our members.”[19]

Unwitting families with smart meters on their homes and children with cell towers humming outside their classrooms suggest the extent to which the energy, telecom and wireless industries have manipulated the regulatory process to greatly privilege profits over public health. Moreover, it reveals how the population suffers for want of meaningful and conclusive information on the very real dangers of RF while the telecom and wireless interests successfully cajole the media into considering one scientific study at a time.

“When you put the science together, we come to the irrefutable conclusion that there’s a major health crisis coming, probably already underway,” George Carlo cautions. “Not just cancer, but also learning disabilities, attention deficit disorder, autism, Alzheimer’s, Parkinson’s, and psychological and behavioral problems—all mediated by the same mechanism. That’s why we’re so worried. Time is running out.”[20]

Notes

[1] Energy.gov, “President Obama Announces \$3.4 Billion Investment to Spur Transition to Smart Energy Grid,” October 27, 2009,

<http://energy.gov/articles/president-obama-announces-34-billion-investment-spur-transition-smart-energy-grid>

[2] Ilya Sandra Perlingieri, “Radiofrequency Radiation: The Invisible Hazards of Smart Meters,” August 19, 2011, GlobalResearch.ca, <http://www.globalresearch.ca/index.php?context=va&aid=26082>

[3] Dr. Bill Deagle, “Smart Meters: A Call for Public Outrage,” Rense.com, August 30, 2011, <http://www.rense.com/general94/smartt.htm>. Some meters installed in California by Pacific Gas and Electric carry a “switching mode power-supply” that ‘emit sharp spikes of millisecond bursts’ around the clock and is a chief cause of ‘dirty electricity.’” See Perlingieri, “Radiofrequency Radiation: The Invisible Hazards of Smart Meters.” This author similarly measured bursts of radiation in excess of 2,000 microwatts per meter every 30 to 90 seconds during the day, and once every two-to-three minutes at night.

[4] Magda Havas, BRAG Antenna Ranking of Schools, 2010, http://electromagnetichealth.org/wp-content/uploads/2010/04/BRAG_Schools.pdf

[5] Susan Luzzaro, “Field of Cell Phone Tower Beams,” *San Diego Reader*, May 18, 2011, <http://www.sandiegoreader.com/news/2011/may/18/citylights2-cell-phone-tower/?page=1&>

[6] FCC Office of Engineering and Technology, <http://www.fcc.gov/oet/rfsafety>

[7] Luzzaro, “Field of Cell Phone Tower Beams”; Marc Freeman, “Cell Towers Could Be Coming to More Schools,” *South Florida Sun Sentinel*, January 5, 2012, http://articles.sun-sentinel.com/2012-01-05/news/fl-cell-towers-schools-palm-20120105_1_cell-towers-cellular-phone-towers-stealth-towers

[8] Amy Worthington, “The Radiation Poisoning of America,” GlobalResearch.ca, October 9, 2007, <http://www.globalresearch.ca/index.php?context=va&aid=7025>

[9] Worthington, “The Radiation Poisoning of America.”

[10] Sue Kovach, “The Hidden Dangers of Cell Phone Radiation,” *Life Extension Magazine*, August 2007, <http://www.lef.org/magazine/mag2007>

/aug2007_report_cellphone_radiation_01.htm

[11] Susan Luzzaro, "Field of Cell Phone Tower Beams"; Bioinitiative Report: A Rationale For a Biologically-based Public Exposure Standard For Electromagnetic Fields, <http://www.bioinitiative.org/freeaccess/report/index.htm>.

[12] World Health Organization International Agency for Research on Cancer, "IARC Classifies Radiofrequency Electromagnetic Fields as Possibly Carcinogenic," May 31, 2011, www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf; Joseph Mercola, "Be Aware: These Cell Phones Can Emit 28 Times More Radiation," [Mercola.com](http://articles.mercola.com/sites/articles/archive/2011/06/18/finally-experts-admit-cellphones-are-a-carcinogen.aspx), June 18, 2011, <http://articles.mercola.com/sites/articles/archive/2011/06/18/finally-experts-admit-cellphones-are-a-carcinogen.aspx>.

[13] American Academy of Environmental Medicine, "Proposed Decision of Commissioner Peevy [Mailed 11/22/2011] Before the Public Utilities Commission of the State of California," January 19, 2012. www.aaemonline.org

[14] American Academy of Environmental Medicine, "The American Academy of Environmental Medicine Calls for Immediate Caution regarding Smart Meter Installation," April 12, 2012, <http://www.aaemonline.org/>.

[15] Havas, BRAG Antenna Ranking of Schools, 31-38.

[16] Donna Goldstein, "Health Organization Information and Academic Research Studies Regarding the Health Effects of Cell Tower Signals," Planning and Real Estate Development, Palm Beach County School District, January 30, 2012.

[17] Havas, BRAG Antenna Ranking of Schools, 17.

[18] Multinational Monitor, "Precautionary Precepts: The Power and Potential of the Precautionary Principle: An Interview with Carolyn Raffensperger," September 2004, <http://multinationalmonitor.org/mm2004/09012004/september04interviewraffen.html>.

[19] Luzzaro, "Field of Cell Phone Tower Beams."

[20] Kovach, "The Hidden Dangers of Cell Phone Radiation."

James F. Tracy is Associate Professor of Media Studies at Florida Atlantic University. He is an affiliate of Project Censored and blogs at memorygap.org.

<http://beforeitsnews.com/alternative/2013/05/looming-health-crisis-wireless-technology-and-the-toxification-of-america-3-2652510.html>

Joel M. Moskowitz, Ph.D.

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Electromagnetic Radiation Safety

Website: <http://saferemr.blogspot.com>

Facebook: <http://www.facebook.com/SaferEMR>

News Releases: <http://pressroom.prlog.org/jmm716>

Twitter: @berkeleyprc

Americans Beware:

Nationwide Violations of FCC Radiation Limits at Wireless Antenna Sites

MARSHFIELD, VT--(Marketwire - Mar 20, 2013) - **The EMRadiation Policy Institute (EMRPI) releases Videos revealing the FCC's failure to protect Americans from wireless radiofrequency (RF) radiation.**

US workers and families are at risk of overexposure to RF at hazardous levels. **Hundreds of wireless industry-operated antenna sites from Maine to California have been tested by EMRPI and found to be in gross violation -- up to and in excess of 600% -- of the FCC's public exposure limits.** These sites include rooftops as well as locations where the general public, including children, can gain access, and where workers are on the job. See: Wireless Industry Safety Failure I

Wireless Radiation Can Harm Health.

Public health is threatened by wireless radiation exposure at current FCC lawful limits as they are among the least protective in the world. FCC safety limits do not acknowledge current science, nor the 2011 WHO IARC's classification of wireless radiation as a Group 2B carcinogen. The FCC does not even enforce its own inadequate radiation limits.

FCC Fails to Enforce Its Own Wireless Radiation Limits.

EMRPI informed FCC Chairman Julius Genachowski in December 2011 of widespread FCC rules violations. Despite detailed complaint letters sent to FCC Enforcement Bureau Chief P. Michele Ellison, of RF safety violations in 23 states across all regions of the US, EMRPI has received no response that the FCC has taken any enforcement action against any noncompliant site. EMRPI's investigation re-tested sites and found violations still occurring months after EMRPI's initial filings with the FCC. The FCC responded to a US Senator's

inquiry on sites in her state with misleading information about the safety of the Senator's constituents. See: Wireless Industry Safety Failure II

Are the FCC and the Wireless Industry Turning a Blind Eye to RF Violations?

FCC policy allows wireless companies to self-report their compliance with the lawful RF limits. The FCC website provides no information or procedures for either the public or workers to report potential or actual violations. Despite hundreds of thousands of wireless antenna sites across the US, since 1996 the FCC has issued only one wireless Notice of Violation, and not until 2010. Is FCC policing site violations and are violations hidden from the public?

The American Public Is Not Protected.

Congress must act to hold the FCC accountable. If not, Americans will remain at risk from unlawful RF radiation exposures at antenna sites across the country. The American people have a right to know and a right to be protected. EMRPI urges the American people to demand that the FCC enforce its own RF safety limits to protect all Americans.

Contact US Senators

at: http://www.senate.gov/general/contact_information/senators_cfm.cfm

Contact US House Members at: <http://www.house.gov/representatives/>

Contact Information

Contact:
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(802)426-3035
JNewton@emrpolity.org
President
The EMRadiation Policy Institute

WHY OUR WORLD IS ELECTROPOLLUTED

11:00 pm March 1, 2012 • by Helke Ferrie

(Ed note: This is the first of a 2-part series on Electropollution. The second part, to run in April Vitality, will focus on solutions.)

If something is invented by and for the military, it is certain to be effective and lethal. And industrial capitalists invariably view such military gizmos as having great profit potential – particularly if they're re-packaged and promoted as beneficial to the public. Hence, the science behind atom bombs dropped on Japan in World War II led soon after to cancer radiation therapy and mammography – two of the most lucrative practices in modern medicine. Similarly, biological warfare weapons such as DDT and chemotherapy proved to be enormously lucrative in their peace-time applications – their deadly properties being undiminished despite re-packaging. Originally, the military objected to the declassification of both, but industry interests prevailed.

Today, it's World War II radar technology that has been harnessed to create a near universal addiction and worldwide dependence on telecommunications. Anything that facilitates and enhances the human ability to communicate plugs into a powerful primal urge.

We can say no to radiation and chemotherapy, and we can do perfectly well without pesticides – but we cannot do without telephones, the internet, or electricity. Millions of people use cell phones as if they were an indispensable body part; thousands of households use microwave ovens daily, unaware that they are ruining the nutrients in their food; well-meaning parents irradiate their infants with baby monitors; and most of us are zapped continuously by smart meters. All things wireless have taken the world by storm, supposedly serving progress.

Very few people know that all these gadgets are allowed to proliferate on the basis of outright fraudulent research. Most don't know that current safety standards are so completely at variance with genuine scientific evidence as to be truly absurd: in fact, our regulatory authorities are supporting the unfolding of a public health disaster. There simply is no research proving the safety of this technology as we know it. None at all.

NO GENUINE SAFETY TESTING CONDUCTED

Wireless technology has undergone no genuine safety tests because existing standards only apply to anything above 2.4 gigahertz of the radio spectrum, and anything below that level was simply assumed safe when commercial standards were adopted in 1997. This rests on the assumption that non-thermal radiation is harmless; non-thermal means not-heat producing. Radio waves and microwaves do produce heat, but only at very high concentrations. At low concentrations they do not produce heat but, instead, cause other equally serious problems affecting all organs of the body.

This problem started with Hermann Schwan, inventor of the microwave oven. As a scientist who worked for the Nazi regime, he was brought to the U.S. in 1947 along with 1,400 others under "Operation Paperclip" which allowed them to escape war crime prosecution in return for employment with the U.S. government. Schwan became a professor in Pennsylvania and continued radar research. He believed that radio and microwaves could only be harmful at

RESEARCH ON THE DANGERS OF EMF SUPPRESSED BY INDUSTRY AND GOVERNMENT

Researchers have found that cell phone use impairs DNA cellular repair, and has caused a sharp rise in brain cancer (documented from cell phone use over the past decade). The facts became so unavoidable that the usually arch-conservative World Health Organization had no choice last summer but to declare radiofrequency electromagnetic fields (RE-EMF) produced by cell phones, Bluetooth, cordless phones, Smart Meters, baby monitors, and WiFi to be a Class B carcinogen (like asbestos and DDT).

True, the actual mechanism by which this low-level radiation caused harm was not understood in the 1940's, even though the fact of harm was known and documented. Today, our understanding is so thorough, it exceeds the evidence we have of the harm done by DDT, asbestos, and smoking by far. Yet, the International Commission on Non-Ionizing Radiation Protection (ICNIRP), established in 1992, continues to stick to Schwann's standard and even deliberately misquotes, disguises, or ignores this enormous body of knowledge. It continues to provide guidelines to governments and industry based on research published before WiFi technology had even left the laboratory and become commercially available. To support these absurd guidelines, even fraudulent research projects were undertaken in the UK (see Mark Anslow).

In Canada an interesting case of suppression of evidence exists in the federal Report LTR-CS-98 of April 1973. It provided the evidence that microwave radiation is an "environmental pollutant" and a "threat to human health." And yet Health Canada established its Code 6 by following ICNIRP guidelines for radio frequencies and publicly repeated the propaganda about non-thermal radiation being safe as recently as September 2010.

The many international resolutions presented by scientists to governments the world over demanding the public be protected from this technology are simply ignored, but their urgency is increasing. When cell phones first became available in the early 90's, the Council of Europe, aware of the science since the 1930s about the dangers of radar to human health, requested that young people in particular be protected from such commercial devices. Last April, the Council did so again, in even stronger terms and armed with even more research. In February of this year, the Ontario Teachers' Union came to the defense of their students' safety and demanded a general WiFi blackout in schools. Some schools have done so already (Globe & Mail, Feb 13, 2012).

There is no doubt that we live in a time in which science consistently takes a back seat to industry interests and that governments consistently support industry, not public health or medical facts. If you suspect that government is selling us out, body and soul, to toxic industries for profit, you are not mistaken.

Just like the FDA's Dr. David Graham, and Health Canada's Shiv Chopra, the radiation industry too has its whistleblowers: Barrie Trower, as reported in the Toronto Star on August 26, 2010, is a former British Secret Service Microwave Weapons Specialist who recently spoke at the University of Toronto. He stated that Canada "is one of the world leaders in microwave radiation research," having documented the first recognized symptoms of radiation sickness in 1932 in concert with the U.S. government. Canada shares 13 secret code names for this research which documents the damage. Trower also pointed out that "there isn't a school in the world that hasn't seen an increase in aggression [and other behavioural problems] when WiFi was introduced." He

Alicia Murillo

From: cdbbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 5:44 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Nikki Castro

Email : nikki@seacliffinn.com

Address : BW Seacliff Inn
7500 Old Dominion Court
Aptos, CA 95003

Phone : Not Supplied

Comments :

My business in Aptos is directly affected by our lack of reliable broadband. Last year, I had to refund or discount thousands of dollars to customers who were dissatisfied with our broadband service, or like on most weekends, lack of service available. I have lost corporate clients who will no longer stay in our property because they cannot work on their laptops or tablets from their guest rooms. We have spent over \$50,000 dollars in the last 2 years on equipment and technicians to improve our existing service. We have tried to work with our internet provider Comcast to improve our broadband signal, but while they understand our issues, we are told that there is nothing they can do at this time.

We support the implementation of broadband recommendations as proposed in regular agenda item #59 for improvements to the telecommunications infrastructure.

Alicia Murillo

From: cbdbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 3:40 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Mary E Russell

Email : mer4000@aol.com

Address : 445 Los Altos Drive
Aptos, CA 95003

Phone : 831-566-8836

Comments :

I wholeheartedly support the implementation of broadband!

MARY E RUSSELL

Alicia Murillo

From: cdbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 3:22 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Grace Mundy

Email : gracemundy@aol.com

Address : 1819 Calypso Dr.
Aptos,
Ca.
95003

Phone : 831-662-1309

Comments :

I support the implementation of broad band recommendation as proposed in the regular agenda item #59 for improvement to the telecommunication infrastructure or something similar but not exactly the same.

Alicia Murillo

From: cbdbosmail@co.santa-cruz.ca.us
Sent: Monday, January 27, 2014 5:14 PM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Kevin Collins

Email : bats3@cruzio.com

Address : P.O. Box 722
Felton, CA 95018

Phone : 335-4196

Comments :

In reading the proposed Broad-band Ordinance and the Master Lease Agreement, I cannot find a single statement regarding the inherent obligation of the County to require the Telecoms to provide access to wired systems. Currently unless a rural road has at least 25 potential customers per road mile, the Cable Companies are not required to provide these rural areas of the County with high-speed cable or DSL quality telephone circuits. I personally have access only to Comcast which makes it a monopoly carrier in my community. AT&T has no apparent interest in running the necessary fiber optic line that would connect my area with DSL service. I have nearby neighbors who have requested Comcast connections and been told by Comcast that they must pay Comcast many thousands of dollars for Comcast to extend a circuit less than a thousand feet using existing PG&E poles to string the wire.

This Board document is clearly written to serve the Telecoms alone and not the public.
The Public Interest is not identical to the financial interests of the Telecom Industry.

The County is providing our own publicly owned infrastructure (street lighting poles, buildings etc.) for use by these corporate interests with no conditions whatsoever that would address at least some of the concerns held by many members of the public regarding the health hazards of new high-frequency cell and wifi transmissions. This is especially a concern with transmitters sited very near to homes and schools; essentially for transmitters mounted on power and light poles and on buildings within a few feet of residences where exposure is continuous. Many people regard the Federal FCC rules for microwave exposure to be a ridiculous farce. The County could at least establish zoning regulations that define an allowed distance between Cell transmitters and homes and schools. The extent to which the entire County Administration is ignoring the ongoing disputes over new Cell installations and also PG&E aggressive "Smart Meter roll-out is myopic. It is my understanding that the Day Valley argument has led to a decision by the PUC that now nullifies the County's own Zoning Administrator's project approval. The irony of that is huge.

Kevin Collins

Alicia Murillo

From: cdbbosmail@co.santa-cruz.ca.us
Sent: Tuesday, January 28, 2014 7:34 AM
To: CBD BOSMAIL
Subject: Agenda Comments

Meeting Date : 1/28/2014

Item Number : 59

Name : Rachmat Martin

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Soquel, CA
95073

Phone : 831-476-4725

Comments :

Rachmat Martin
602 Olive Springs Rd.
Soquel, CA 96073

January 28, 2014

Santa Cruz County
Board of Supervisors
701 Ocean Street
Santa Cruz, CA

Reference: Agenda Item 59 for today's scheduled meeting

Planning for future expanded and affordable internet access by all residents is, in my view a good thing. However, there are very serious health issues as sociated with the manner in which internet connectivity is often made available, particularly in the final leg of signal distribution as in distributed Wi-Fi.

The safety standards on signal intensity of emf generally used in this country are hundreds to thousand of times more lenient than those that have been generally accepted as safe and reasonable in Europe. There is a body of evidence to demonstrate that these standards should be lowered. Not commonly understood until recently is the fact that the body's exposure reaction to any kind of emf radiation is accumulative. Already, there are many citizens in our community who are struggling with health issues associated with, or aggravated by their exposure to unwanted emf radiation in any form, from so called Smart Meters, to Cell Towers, to community Wi-Fi. The resulting financial costs of this occur in many forms and will certainly continue to rise. The moral, legal, and financial liability for these costs may indeed be traced to decisions you now have before you concerning land use decisions and those whose properties transmission sites exist on. This transfer of liability was all quietly accomplished through the cleaver industry sponsored amendment of Section 704 of the Telecom Act of 1996. There are many reasons why the approach of prudent avoidance should guide you in considering new permits to construct, operate, and lease facilities for new wireless transmission systems of any kind.

We have access in this community to people who have done extensive background work and accumulated a very significant body of knowledge and data in the area of health effects of long term exposure to emf. One of

them is Dr. Karl Maret, who could not be present for this meeting today as he is delivering a talk on this very topic to the Commonwealth Club in San Francisco. Over the past night I have communicated with Karl who has been on the road since yesterday and he re-affirmed his willingness to be available for consultation or to talk with you or staff on this issue. I therefore urge you to table any decision making that commits the County to any future roll out of Broadband Wi-Fi until more information can be considered and appropriately reflected on and a greater number of the community can have an opportunity to become informed and to weigh in on how Wi-Fi can safely be made more available

Very Sincerely,

Rachmat Martin