

# ULSTER COUNTY LEGISLATURE

TRACEY A. BARTELS, Chairwoman  
DAVID B. DONALDSON, Vice Chairman  
JONATHAN R. HEPPNER, Majority Leader  
KENNETH J. RONK, JR., Minority Leader  
VICTORIA A. FABELLA, Clerk



P.O. Box 1800  
KINGSTON, NEW YORK 12402  
Telephone: 845 340-3900  
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## MINUTES

**OCTOBER 15, 2019**

## REGULAR MEETING

**7:00 PM**

**MEETING CALLED TO ORDER BY CHAIRWOMAN: 7:03 PM**

**PLEDGE OF ALLEGIANCE TO THE FLAG AND MOMENT OF SILENT MEDITATION:**

## ANNOUNCEMENTS

### **FIRE EVACUATION PLAN**

PLEASE NOTE THAT IN THE EVENT OF AN EMERGENCY THE FIRE DEPARTMENT HAS REQUESTED THAT LEGISLATORS AND ALL OTHERS MOVE AT LEAST ONE BLOCK AWAY FROM THE COUNTY OFFICE BUILDING IN ORDER NOT TO IMPEDE THE FIREFIGHTERS IN THEIR DUTIES

### **CELL PHONES**

Please silence cell phones for the duration of the Session.

### **MICROPHONES**

Please be reminded to use your microphones when speaking so that you are recorded for the official record.

**ROLL CALL:** Present: 21 Absent 2 (Legislators Lopez, Rodriguez)

Note: Legislator Lopez arrived 7:39 PM

**BIRTHDAYS:**

Legislator Brian Woltman, October 4<sup>th</sup>  
Legislator Craig Lopez, October 30<sup>th</sup>

**MOTION TO DISPENSE WITH THE READING OF THE MINUTES OF THE PREVIOUS MEETING**

Majority Leader Heppner motioned, seconded by Minority Leader Ronk to dispense with the reading of the minutes of the previous meeting. All in favor.

**COMMUNICATIONS FROM:**

UC Legislative Chair, Tracey Bartels

UC Legislative Vice Chair, David Donaldson  
League Of Women Voters, Pres. Cynthia Bell  
Hon. Carl Belfiglio

Legal Services of the Hudson Valley

UC Industrial Development Agency (UCIDA)

County News  
Catskill Mountain Railroad  
UC Office For The Aging, Director Susan Koppenhaver

UC Attorney, Clinton Johnson

Press Release, Statement Investigation Finding  
Appointment, Ways & Means  
Committee Legislator David Donaldson  
UC Community Action Designee  
Letter, Opposing PLL No. 23 of 2018  
Resignation, UCCA Board Treasurer &  
Member Effective Immediately  
10/11/19  
3<sup>rd</sup> Annual Ulster Partners in Justice  
11/13/2019  
Notice of Public Hearing Proposed  
Brooklyn Bottling Project 9/30/19  
Vol. 51, No. 18 & 19  
Press Release, RR Lengthen Ride 60%  
Order of Succession, Judy Riley Deputy  
Director  
Order of Succession, First Assistant  
Attorney Lauren W. Sheeley  
County Litigation, September 2019

**COMMUNICATIONS (continued):**

UCRRA, Exec. Director Tim Rose

Girl Scouts Heart of the Hudson Valley  
UC Tourism Dept.

UC Regional Chamber of Commerce

Ellenville Million Reallocation of Funds  
Peter Baker

Drescher & Malecki Certified Public Accts.

UC Personnel Department  
UC Resource Recovery Agency, Exec. Dir. Rose  
Central Hudson  
UC Traffic Safety Board  
UC Community Services Board  
Eve Fox, Woodstock

Marcey Brownstein, NYC

Letter, Draft 2020 budget &  
Disposal/Pull-Charge Fee Projections  
Press Release, 108<sup>th</sup> Yr. Girl Scouting  
2020 Community Resource Guide  
Trending, October 2019  
Ribbon Cutting Raymour & Flanigan  
10/22/19 10AM  
(7) Funding Suggestions  
D&U Railroad Update  
Lost Revenue For Ulster County  
NYS DOT Independent Auditor's  
Report Year Ending 12/31/2018  
Civil Service Exam Announcement  
2020 Net Service Fee Calculation  
News Letter September 2019  
Attendance Sheet October 7, 2019  
Minutes, September 9, 2019  
Email, Oppose The Straw Law  
Amendments  
Article, A Republican Suburb Designed  
For Cyclists

**COUNTY EXECUTIVE COMMUNICATIONS:**

Appointment, Interim Director UC  
Veteran's Service Agency, Frank  
Reggero, Effective 9/1/2019  
Appointment, Director of Information  
Services, Alan Macaluso, Effective  
Immediately  
UC Corporate Compliance Committee  
Mtg. Agenda & Minutes 6/26/2019  
2020 UC Executive Operating Budget  
Budgetary Transfers September 2019

**COMMITTEE REPORTS:**

Economic Development, Tourism, Housing,  
Planning & Transit  
Energy & Environment  
Law Enforcement and Public Safety  
Laws and Rules, Governmental Services  
Legislative Programs, Education & Community Services  
Public Health and Social Services  
Public Works and Capital Projects  
  
Ways and Means

**DATE:**

September 3, 2019  
September 5, 2019  
September 10, 2019  
September 16, 2019  
September 9, 2019  
September 4, 2019  
September 4, 2019  
September 17, 2019  
September 10, 2019  
September 17, 2019

Chairwoman Bartels announced a censure measure will be brought to lawmakers through the resolution process to ensure the matter is considered in a transparent fashion.

**PUBLIC COMMENT:**

There were (14) speakers signed up for public comment.

1. Morey Gottesman, Gardiner: Mr. Gottesman representing the group Friends of Tillson Lake thanked the Legislature for their support preserving the lake. Friends of Tillson Lake will be asking for future support to secure funding from New York State for the dam.
2. Stephan Shafer, Saugerties: Mr. Shafer spoke in support of Resolution No. 409.
3. Michael Baden, Town of Rochester Supervisor: Supervisor Baden spoke on behalf of his town and the UC Association of Town Supervisors and Mayors asking for legislative mediation concerning UCRRA policies accepting non-commercial refuse.
4. Todd Schmidt, Lake Katrine: Mr. Schmidt as CSEA Local 856 President, Southern Region 3 PAC Chair and VP of CSEA Region 3 representing 30,000 members in the seven-county region spoke in opposition to Resolution No. 407 campaign finance reform. Funds can be better used financing county services, infrastructure and employees.
5. William Barr, Saugerties: Mr. Barr spoke in support of Resolution No. 409.

6. David Gross, Woodstock: Mr. Gross spoke in support of Resolution No. 380.
7. Iris Marie Bloom, Marbletown: Ms. Bloom spoke in support of Resolution No. 380.
8. Kate Reese Hurd, High Falls: Ms. Hurd spoke to breast cancer and wireless radiation.
9. Neil Bettez, Town of New Paltz Supervisor: Supervisor Bettez spoke in opposition to Resolution No. 374.
10. Lin Elkin, New Paltz: Ms. Elkin spoke in support of Resolution Nos. 380 & 409.
11. Tanya Garment, Kingston: Ms. Garment spoke in support to impose a formal governmental censure.
12. Janet Appuzo, Wallkill: Ms. Appuzo spoke in support of Resolution No. 409.
13. Eva Bradley, Accord: Ms. Bradley spoke in support of Resolution No. 380.
14. Melissa Servant, Gardiner: Ms. Servant spoke in support to impose a formal governmental censure.

Please Note: Complete content of the public comment period can be heard on the Ulster County Legislative Website.

**RESOLUTION NOS: 374, 380, 407 – 410, 412 – 414, 417 – 442; 411 – NO ACTION TAKEN;  
415 & 416 – POSTPONED; 381 & 382 – DEFEATED;  
212 of 2018 & 361 of 2018 WITHDRAWN**

**Resolution No. 212 of 2018** – Setting A Public Hearing On Proposed Local Law No. 16 Of 2018, A Local Law Regarding Campaign Finance Reform in Ulster County, To Be Held On Tuesday, December 11, 2018 At 6:00 PM  
*WITHDRAWN BY SPONSOR*

**Resolution No. 361 of 2018** – Setting A Public Hearing On Proposed Local Law No. 21 Of 2018, A Local Law Regarding Campaign Finance Reform in Ulster County, To Be Held On Tuesday, December 11, 2018 At 6:00 PM  
*WITHDRAWN BY SPONSOR*

MINUTES

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OCTOBER 15, 2019

**Resolution No. 381** - Setting A Public Hearing On Proposed Local Law No. 8 Of 2019, A Local Law Amending Local Law No. 4 Of 2019, A Local Law Amending Local Law No. 2 Of 2006 (A Local Law Adopting A County Charter Form Of Government For The County Of Ulster, State Of New York) And Amending Local Law No. 10 Of 2008 (A Local Law Adopting An Administrative Code For The County Of Ulster, State Of New York), To Create Term Limits For Certain Ulster County Elected Officials, To Further Restrict Said Terms, To Be Held On Thursday, October 10, 2019 At 6:25 PM

*DEFEATED IN COMMITTEE*

**Resolution No. 382** - Requesting The New York State Legislature Introduce Legislation Removing The Ulster County Industrial Development Agency From Article 18-A Of New York's General Municipal Law

*DEFEATED IN COMMITTEE*

**Resolution No. 411** - Setting A Public Hearing On Proposed Local Law No. 11 Of 2019, A Local Law Amending Various Sections Of The Ulster County Charter And Ulster County Administrative Code To Reduce The Ulster County Legislature To 21 Members, To Be Held On Tuesday, November 12, 2019 At 6:15 PM

*NO ACTION TAKEN IN COMMITTEE*

**Resolution No. 415** - Establishing Program Administration For The Ulster County Revolving Loan Fund Committee

*POSTPONED IN COMMITTEE*

**Resolution No. 416** – Establishing A Policy For Consideration Of Solar Arrays On All New Or Renovated/Replaced Roofs On Ulster County Buildings

*POSTPONED IN COMMITTEE*

A motion was made by Majority Leader Heppner, seconded by Minority Leader Ronk, to move Resolution Nos. 430, 431, 433, 442 out of the Non-Consent Agenda and into the Consent Agenda. All in favor.

**Consent**

**408      Confirming The Appointment Of Susan C. Koppenhaver As Director Of  
The Office For The Aging**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21              NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**410      Establishing The Ulster County Criminal Justice Reform Task Force**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21              NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**412      Approving The Execution Of A Contract In Excess Of \$50,000.00  
Entered Into By The County – Cornell Cooperative Extension Of Ulster  
County – Department Of Environment**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21              NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**413      Approving The Execution Of A Contract In Excess Of \$50,000.00  
Entered Into By The County – Family Of Woodstock Inc. – Youth  
Bureau**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21              NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 414 Approving The Execution Of A Contract In Excess Of \$50,000.00 Entered Into By The County – Woods Services, Inc. – Department Of Social Services**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21 NOES: 0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 417 Approving The Execution Of A Contract In Excess Of \$50,000.00 Entered Into By The County – RUPCO, Inc – Department Of Planning**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20 NOES: 0  
(1 Abstention: Legislator Gerentine)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 418 Approving The Execution Of A Contract Amendment Causing The Aggregate Amendment Amount To Be In Excess Of \$50,000.00 Entered Into By The County – Tyler Technologies, Inc. – Ulster County Sheriff**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20 NOES: 0  
(1 Abstention: Legislator Woltman)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 419 Approving The Execution Of A Contract Amendment Causing The Aggregate Amendment Amount To Be In Excess Of \$50,000.00 Entered Into By The County – AssetWorks LLC – Information Services**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21 NOES: 0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)



- 422 Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With The New York State Department Of Labor To Allow The Department Of Planning To Act As Census Designated Affiliate – Department of Planning**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21 NOES: 0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 423 Amending Capital Project No. 529 (Purchase Of Mass Transit Buses And Related Equipment) And Amending The 2019 Capital Fund Budget – Ulster County Area Transportation (UCAT)**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21 NOES: 0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 425 Authorizing The Acceptance Of A Donation Of A Trailer Vehicle To Be Used By The Opioid Response As County Law Enforcement (ORACLE) Program – Ulster County Sheriff**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20 NOES: 0  
(1 Abstention: Legislator Woltman)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 426 Authorizing The Chair Of The Ulster County Legislature To Accept An Award For A Department Of Homeland Security Preparedness Grant For The Port Security Grant Program – Ulster County Sheriff**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20 NOES: 0  
(1 Abstention: Legislator Woltman)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 427      Approving The Memorandum Of Agreement Between The County Of Ulster And The Ulster County Deputy Sheriff's Police Benevolent Association, Inc. For The Years 2018 And 2019**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    20                NOES:    0  
(1 Abstention: Legislator Woltman)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 428      Amending Capital Project 482 – Countywide Radio System – Department Of Emergency Communications / Emergency Management**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 430      Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With New York State Office Of Victim Services For Funding Under The Victim And Witness Assistance Grant Program – Department Of Probation**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 431      Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With New York State Division Of Criminal Justice Services – Sexual Assault Crisis And Prevention Program – Department Of Probation**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 432      Approving The Ulster County 2020 STOP DWI Program Plan And Authorizing The Chair Of The Ulster County Legislature To Execute All Intermunicipal Agreements Required Under The Plan – Department Of Probation (STOP-DWI Division)**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                  NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 433      Establishing Capital Project No. 552 (SUNY Ulster – Kingston Center Roof Safety Improvement) And Amending The 2019-2024 Capital Project Fund – SUNY Ulster**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                  NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 435      Amending The 2019 – 2024 Capital Improvement Program – Establishing Capital Project No. 549 Replacement HVAC At Information Services – 25 South Manor – Amending The 2019 Capital Fund Budget – Department Of Public Works**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    20                  NOES:    0  
(1 Abstention: Legislator Litts)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 437      Authorizing An Application For A Grant From The Catskill Watershed Corporation (CWC) For The Maltby Hollow Bridge Replacement Project In The Town Of Olive And Authorizing The Execution Of Any Associated Grant Funding Agreements With CWC – Department Of Public Works**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    20                NOES:    0  
(1 Abstention: Legislator Litts)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 438      Authorizing The Commissioner Of Finance To Accept Bids For Parcels Of County-Owned Real Property For Private Sale And Authorizing The Chair Of The Ulster County Legislature To Convey Such Parcels – Department Of Finance**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 439      Authorizing The Conveyance Of County-Owned Property To The Original Owner – Department Of Finance**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

- 440      Approving The Execution Of A Contract In Excess Of \$50,000.00 Entered Into By The County – S&O Construction Services, Inc. – Department Of Public Works**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    20                NOES:    0  
(1 Abstention: Legislator Litts)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**441      Establishing County Equalization Rates For The Year 2020 Levy**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**442      Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With The New York State Board Of Elections For Expenses Related To The Purchase Of Equipment And Services Necessary For Early Voting In Ulster County – Ulster County Board Of Elections**

ADOPTED BY THE FOLLOWING VOTE:

AYES:    21                NOES:    0  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

**Non-Consent**

**374      Establishing A Policy To Prohibit Appointees Of Ulster County Elected Officials And Board Of Elections Staff From Holding Any Elective Public Office Of Any City, Town or Village Within Ulster County**

**Legislator Donaldson motioned, seconded by Legislator Greene, to refer the Resolution back to the Laws and Rules, Governmental Services Committee.**

MOTION ADOPTED BY THE FOLLOWING LONG ROLL VOTE:

AYES:    15                NOES:    6  
(Noes: Legislators Gerentine, Haynes, Maio, Joseph Maloney, Roberts, and Ronk)  
(Absent: Legislator Rodriguez)  
(Legislator Lopez arrived at 7:39 PM)

*REFERRED BACK TO LAWS AND RULES, GOVERNMENTAL SERVICES COMMITTEE*

- 380 Adopting Proposed Local Law No. 4 Of 2019, A Local Law Amending Local Law No. 2 of 2019, A Local Law Requiring Restaurants And Fast Food Service Establishments Provide Plastic Beverage Straws Solely Upon Request, To Include Plastic Stirrers, Plastic Cutlery And Condiment Packets**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 13                      NOES: 9  
(Noes: Legislators Gerentine, Litts, Lopez, Maio, Brenda Maloney, Roberts, Ronk, Wawro, and Woltman)  
(Absent: Legislator Rodriguez)

- 407 Setting A Public Hearing On Proposed Local Law No. 10 Of 2019, A Local Law Regarding Campaign Finance Reform in Ulster County, To Be Held On Tuesday, November 12, 2019 At 6:10 PM**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21                      NOES: 1  
(Noes: Legislator Woltman)  
(Absent: Legislator Rodriguez)

- 409 Declaring A Climate Emergency**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 21                      NOES: 1  
(Noes: Legislator Gerentine)  
(Absent: Legislator Rodriguez)

- 420 Approving The Reallocation Of Funds Within The Ellenville Million Program – Department Of Planning**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20                      NOES: 2  
(Noes: Legislators Bartels and Joseph Maloney)  
(Absent: Legislator Rodriguez)

- 421 Authorizing The Ulster County Legislature To Conduct A Public Hearing For The Proposed Acquisition For Public Purpose Of Property For The Construction Of The Ulster County Midtown Linear Park (PIN 8761.82) In The City Of Kingston - Department Of Planning**

ADOPTED BY THE FOLLOWING VOTE:

AYES: 18 NOES: 4  
(Noes: Legislators Donaldson, Greene, Joseph Maloney, and Petit)  
(Absent: Legislator Rodriguez)

- 424 Authorizing Purchase Of Buses, For The County Of Ulster, New York, At A Maximum Estimated Cost Of \$1,745,480.00, And Authorizing The Issuance Of \$1,745,480.00 Bonds Of Said County To Pay The Cost Thereof**

ADOPTED BY THE FOLLOWING LONG ROLL VOTE:

AYES: 22 NOES: 0  
(Absent: Legislator Rodriguez)

- 429 Authorizing The Issuance Of An Additional \$477,385.00 Bonds Of The County Of Ulster, New York, To Pay Part Of The Cost Of The Upgrade To The Countywide Radio System, For Said County**

ADOPTED BY THE FOLLOWING LONG ROLL VOTE:

AYES: 22 NOES: 0  
(Absent: Legislator Rodriguez)

- 430 Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With New York State Office Of Victim Services For Funding Under The Victim And Witness Assistance Grant Program – Department Of Probation**

MOVED TO CONSENT

- 431 Authorizing The Chair Of The Ulster County Legislature To Execute An Agreement With New York State Division Of Criminal Justice Services – Sexual Assault Crisis And Prevention Program – Department Of Probation**

MOVED TO CONSENT

- 433      Establishing Capital Project No. 552 (SUNY Ulster – Kingston Center Roof Safety Improvement) And Amending The 2019-2024 Capital Project Fund – SUNY Ulster**

MOVED TO CONSENT

- 434      Authorizing Safety Roof Improvements To The Kingston Center At  
BOND      Ulster County Community College-SUNY Ulster, In And For The  
County Of Ulster, New York, At A Maximum Estimated Cost Of  
\$90,000.00, And Authorizing The Issuance Of \$90,000.00 Bonds Of  
Said County To Pay The Cost Thereof**

ADOPTED BY THE FOLLOWING LONG ROLL VOTE:

AYES:    22                      NOES:    0  
(Absent: Legislator Rodriguez)

- 436      Authorizing Improvements To The Heating Ventilating And Air-  
BOND      Conditioning Systems At The County Information Services Building, In  
And For The County Of Ulster, New York, At A Maximum Estimated  
Cost Of \$74,600.00, And Authorizing The Issuance Of \$74,600.00  
Bonds Of Said County To Pay The Cost Thereof**

ADOPTED BY THE FOLLOWING LONG ROLL VOTE:

AYES:    21                      NOES:    0  
(1 Abstention: Legislator Litts)  
(Absent: Legislator Rodriguez)

#### **Late Resolution**

- 442      Authorizing The Chair Of The Ulster County Legislature To Execute An  
Agreement With The New York State Board Of Elections For Expenses  
Related To The Purchase Of Equipment And Services Necessary For  
Early Voting In Ulster County – Ulster County Board Of Elections**

MOVED TO CONSENT



**MEETING ADJOURNED IN MEMORY OF:** Read by Legislator Brenda Maloney.

Harry P. Whaley Jr., Lake Katrine, NY  
Carmen A Kassler, Kingston, NY  
Carol M. Trowbridge, Kingston, NY  
Richard J. Tanagretta, Pine Bush, NY  
David J. Dittman Sr., Woodstock, NY  
Hannelore Schneller, West Hurley, NY  
Clarence R. Jansen, Kingston, NY  
Melissa R. Hoffman, Farmingdale, NY  
John J. Erceg, Saugerties, NY  
James B. Speirs, Saugerties, NY  
Jeffrey Ferraro, Glasco, NY  
Teresa "Tessie" Feminella, Highland, 102 Yrs.  
Ester Taylor Evans, Stone Ridge, NY

Amelia M. Fabiano, Saugerties, NY  
Daniel T. Hughes, Kerhonkson, NY  
Robert A. Carle, Glenford, NY  
Stephen J. Passante, Highland, NY  
Thomas T. Barringer, Port Ewen, NY  
Joan M. Dutcher Vogt, Hurley, NY  
Anthony P. Turck, Town of Esopus, NY  
Dolores Jones, Milton, NY  
Emilie Wright, Phoenicia, NY  
Michael Dodig, Saugerties, NY  
Robert Knisell, Saugerties, NY  
Jacqueline Schoenbacher, Saugerties, NY  
David M. Girard, Stone Ridge, NY

Motion by Legislator Litts, seconded by Legislator Donaldson to adjourn Legislative Session.  
All in favor.

**MEETING ADJOURNED: 7:52 PM**

**NEXT MEETING:**

The next Regular Meeting of the Ulster County Legislature will be held on **November 19, 2019 at 7:00 PM** in the Legislative Chambers, Sixth Floor, Ulster County Office Building, 244 Fair Street, Kingston, New York.

Resolution deadline is **Friday, October 25, 2019 at 12 Noon.**

**This document presents an extensive list of the actions being taken around the country and the world RE the dangers of wireless radiations. In the email and web versions, the links are clickable (of course).**

The following entry needs to be added to the list: 9/20/16, in Israel: “CITY OF HAIFA BANS WIFI IN SCHOOLS,” <https://www.cellphonetaskforce.org/city-of-haifa-bans-wifi-in-schools-2/> Another extensive list of U.S. and international actions taken since 1992 is at this same webpage.

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<https://www.globalresearch.ca/telcos-losing-battle-impose-5g/5691065>

Center for Research on Globalization

*For this article, at this site:* “Note to readers: please click the share buttons above or below. Forward this article to your email lists. Crosspost on your blog site, internet forums. etc.”

## **5G Cell Phone Radiation: How the Telecom Companies Are Losing the Battle to Impose 5G Against the Will of the People**

By [Claire Edwards](#)

Global Research, October 04, 2019

Theme: [Environment](#), [Intelligence](#)

**Claire Edwards**, BA Hons, MA, worked for the United Nations as Editor and Trainer in Intercultural Writing from 1999 to 2017. Since May 2018, she has collaborated with Arthur Firstenberg to publish the *International Appeal to Stop 5G on Earth and in Space* ([www.5gspaceappeal.org](http://www.5gspaceappeal.org)), which is available in 28 languages. The Appeal has attracted over 94,000 individual and group signatories from more than 170 countries. Claire [warned the Secretary-General](#) about the dangers of 5G during a meeting with UN staff in May 2018, calling for a halt to its rollout at UN duty stations. The original source of this article is Global Research Copyright © [Claire Edwards](#), Global Research, 2019

*The telecommunications companies and the mainstream media would have you believe that the race to roll out 5G is unstoppable. That you are nothing and no one in the face of a lethal multi-trillion-dollar agenda imposed by some of the most powerful entities on the planet.*

They thought that if they called their new, alleged “communications technology”, adapted from the military [Active Denial Technology](#), “5G” or fifth generation, the public would just assume that it was more of the same as 4G, 3G or 2G. And if they



could characterise the rollout as a race, the public would not have enough time to find out what a killer technology 5G is. How wrong they were! Not only has the public found out, but now they know how lethal previous generations of wireless technology – to be used concurrently with 5G – are as well.

Below is the evidence from a number of different countries that the pushback is huge and growing. The telcos have lost the propaganda war, despite their control of the mainstream media, from which not a whisper of the dangers of 5G is heard, and of social media and Youtube, who have been desperately deleting millions of accounts to silence the naysayers.

**As this article went to press, support arrived from an unlikely source.** In an impassioned speech before the [United Nations General Assembly on 24 September 2019](#), **UK Prime Minister Boris Johnson** stated that digital authoritarianism is not the stuff of dystopian fantasy but of an emerging reality. [He described the Internet of Things, “smart” cities and AI as a giant, dark thundercloud lowering ever more oppressively over the human race](#), a gathering force reshaping the future of humanity over which the human race has no control and from which, in future, there may be nowhere to hide.

He asked if algorithms could be trusted with our lives and hopes and whether machines should be allowed to doom us to a cold and heartless future in an Orwellian world designed for censorship, repression and control. He recalled the [Universal Declaration of Human Rights](#) and endorsed its ideals of upholding freedom of opinion and expression, the privacy of home and correspondence, and the right to seek and impart information and ideas.

He exhorted the academic committees, company boards and industry standards groups who are writing the rulebooks of the future, making ethical judgements, and choosing what will or will not be rendered possible to find the right balance between freedom and control, between innovation and regulation, between private enterprise and government oversight. He insisted that the ethical judgements inherent in the design of new technology must be made transparent to all and that joint efforts must be made to agree a common set of global principles to shape the norms and standards that will guide the development of emerging technology.

What follows is a citizen journalist’s list of the actions taken to halt 5G and reports and complaints that have discredited this Machiavellian attempt to foist a disastrous technology on the world in 2019. It is not an exhaustive list and I extend my apologies to all those whose efforts I may have overlooked here and much gratitude to all who have contributed to making this pushback so successful.

However, we cannot afford to be complacent and, in particular, we must work to stop the use of the Earth orbits and the stratosphere to beam 5G down to Earth, for this puts the ionosphere and the entire planet at risk. We must also work to ensure that the use of street lights with blue light for this anti-life agenda is rapidly reversed.

The effort to stop 5G is still gathering momentum and we must continue to work together and tirelessly to protect all life on Earth and the planet itself until this demented plan is relegated to the history books as the most Mephistophelian scheme in the history of humankind.

- 1     **USA**                      Author [Naomi Wolf reports](#) EMF reactions, cloud anomalies and their correlation with irritable and stressed behaviour in New York.  
24 June 18
- 2     **Taiwan**                    [Taiwan’s five wireless carriers say that they will not rush to roll out 5G services](#) in the absence of a profitable business model to sell the revolutionary technology, in spite of all the use cases that have been suggested.  
28 Dec 18
- 3     **Switzerland**              [The government appoints a group of experts to probe the risks involved with introducing 5G](#), whose findings should be published by the end of 2019. The Swiss Federation of Doctors also urges caution, maintaining that “as long as there is no scientific proof that raising the radiation limits will not impact health, one must refrain from raising them.”  
2018
- 4     **Austria**                    [After 5G is officially switched on in Vienna in November 2018](#), former UN staff member reports Vienna’s first EMF injuries.  
4 January 19
- 5     **Europe**                    Journalist group [Investigate Europe](#) publishes “The ICNIRP Cartel: Who’s Who in the EMF Research World, an interactive graphic”, exposing [conflicts of interest among ICNIRP members](#).  
13 January
- 6     **USA**                        [Congresswomen Eshoo and Speier introduce BillHR530](#) to block FCC cell tower pre-emption and preserve local government control and invalidate the Federal Communications Commission’s (FCC) 26 September 2018 ruling to accelerate the deployment of 5G small cells throughout the US.  
14 January
- 7     **USA**                        *Russia Today (RT) America* airs the first of 7 reports on the dangers of 5G: [5G Wireless: A Dangerous ‘Experiment on Humanity’](#). “Is there a catch?”, asks the presenter. “Just a small one”, comes the reply, “It just might kill you”. The segment is viewed 1.8 million times.  
14 January

8	<b>European Commission</b>	The <a href="#">Scientific Committee on Health, Environmental and Emerging Risks (SCHEER)</a> rates the potential effects on wildlife of increases in electromagnetic radiation from 5G a maximum 3 in terms of scale, urgency and interactions with other ecosystems and species, stating that “The lack of clear evidence to inform the development of exposure guidelines to 5G technology leaves open the possibility of unintended biological consequences”.
	14 January	
9	<b>Italy</b>	The Lazio regional administrative court decrees that the ministries of environment, health and education have six months to <a href="#">launch information campaigns on the risks associated with the use of mobile phones</a> .
	16 January	
10	<b>USA</b>	The Illinois Supreme Court rules that a woman can <a href="#">sue Six Flags Great America for fingerprinting her child</a> without telling her how the data would be used in violation of the state’s biometric law. “This is no mere ‘technicality,’” Chief Justice Lloyd Karmeier writes in the opinion. “The injury is real and significant.”
	25 January	
11	<b>Italy</b>	An <a href="#">Italian Court in the city of Monza</a> rules the acoustic neuroma brain tumour of an airport employee to be an occupational disease caused by exposure to the radiation from a cell phone he used for over 10 years for his work.
	30 January	
12	<b>USA</b>	<a href="#">US Senator Blumenthal definitively establishes that no safety studies have been done on 5G</a> .
	6 February	
13	<b>USA</b>	<a href="#">At least 21 US cities/regions pass ordinances restricting “small cell” installation</a> , and many are charging “recertification fees” to make it unprofitable for the wireless industry.
	February	
14	<b>Switzerland</b>	<a href="#">Study: Radiation From Smartphones May Impair Memory In Teens</a> . A research team at the Swiss Tropical and Public Health Institute says that radio frequency electromagnetic fields (RF-EMF) may negatively affect an adolescent’s brain from cellphone exposure, causing potentially harmful effects on his or her memory performance. The authors say having the device close to one’s head lead to the greatest amount of radiation exposure.
	18 February	
15	<b>UN</b>	The Planetary Association for Clean Energy (PACE) submits a statement to the UN revealing that allowable international <a href="#">“radiation limits will have to be increased by 30 to 40%” in order to make 5G deployment technologically feasible</a> and calls 5G “an experiment on humanity that constitutes cruel, inhuman and degrading treatment” in violation of more than 15 international treaties and agreements.
	22 February	
16	<b>ICNIRP</b>	<a href="#">Eric Van Rongen</a> , Chair of ICNIRP [self-proclaimed international commission on non-ionizing radiation protection, but actually just a German NGO], the organisation whose non-transparent pronouncements on the international limits at which phones can emit radiofrequency are strangely adopted by UN bodies, calls 5G <a href="#">“a public health experiment”</a> , stating that “It will be necessary to gain more information about the exposure and any health problems that might come from an effect of that exposure”.
	3 March	
17	<b>UK</b>	<a href="#">The Daily Telegraph asks, Do smartphones cause cancer?</a> World Health Organisation to assess brain tumour link.
	3 March	
18	<b>USA</b>	<a href="#">A class action lawsuit is filed against the FCC</a> by 62 entities and municipalities across the USA. aimed at first slowing down and then vacating the FCC “order and declaratory ruling purporting to streamline the deployment of wireless facilities by pre-empting local government authority”.
	7 March	
19	<b>Netherlands</b>	<a href="#">Utrecht City Council decides unanimously to postpone decision-making on 4G and 5G</a> infrastructure on new lamp posts until the risks to health and privacy are better understood.
	9 March	
20	<b>France</b>	Popular French astrophysicist and philosopher <a href="#">Aurélien Barrau causes a storm In France when he announces on Twitter “5G kills ... We have already killed 70% of the living (with almost no global warming). Do we want to choose life or the speed of the telephone network?”</a>
	10 March	
21	<b>Guernsey</b>	<a href="#">Call to halt 5G technology in Guernsey due to health fears</a> , ITV News.
	11 March	
22	<b>UK</b>	<a href="#">Insurers announce premature death trend</a> . British insurer Legal & General CEO says: “There’s been a long discussion about whether this is a blip or a trend, and sadly it’s looking like a trend.”
	17 March	
23	<b>Germany</b>	Without invoking the precautionary principle, the <a href="#">Federal Office for Radiation Protection (BfS)</a> admits that the effects of the higher frequencies of 5G are not yet well researched and advises that 5G should be developed cautiously. It states that consideration needs to be given to whether people will be exposed to much higher radiation.
	20 March	

24	<b>UK</b>	Sacha Stone publishes documentary <a href="#">5G Apocalypse: The Extinction Event</a> . (565,354 views as at 3 October 2019).
	23 March	
25	<b>USA</b>	<a href="#">Portland, Oregon city officials state clear opposition</a> to the installation of 5G networks around the city, supported by the mayor and two commissioners.
	24 March	
26	<b>Italy</b>	<a href="#">Florence applies the precautionary principle</a> , refusing permissions for 5G and referring to “the ambiguity and the uncertainty of supranational bodies and private bodies (like ICNIRP)”, which “have very different positions from each other, despite the huge evidence of published studies”.
	28 March	
27	<b>Italy</b>	<a href="#">One Roman district votes against 5G trials</a> , with others expected to follow. Other motions to Stop 5G are expected in the four regional councils, one provincial council and other municipal councils of Italy.
	28 March	
28	<b>Russia</b>	The <a href="#">Russian Ministry of Defense refuses to transfer frequencies for 5G</a> , which effectively delays any 5G rollout there for several years.
	28 March	
29	<b>USA</b>	New Jersey Congressman Andy Kim sends a letter, noting that, “Current <a href="#">regulations governing radiofrequency (RF) safety were put in place in 1996</a> and have not yet been reassessed for newer generation technologies.”
	28 March	
30	<b>Belgium</b>	<a href="#">Belgian Environment Minister announces that Brussels is halting the 5G rollout</a> , saying, “The people of Brussels are not guinea pigs whose health I can sell at a profit.” It turns out that there is now no methodology to effectively measure the radiation of MIMO antennas, which have the characteristic of varying field in time, space and intensity, unlike antennas used for 2G, 3G and 4G, which emit radiation of constant intensity and space. Celine Fremault therefore asserted that, as this technical obstacle was not resolved, she would not go further in the legislative process.
	31 March	
31	<b>USA</b>	The Blue Cross Blue Shield health insurance association reports that millennials – the first generation to grow up using cell phones – are <a href="#">experiencing an unprecedented decline in their health when they reach their late 20s</a> .
	April	
32	<b>EU</b>	An <a href="#">EU report admits</a> that 5G is a massive experiment, lamenting that “it is not possible to accurately simulate or measure 5G emissions in the real world” and stating that “complex interference effects ... may result, especially in dense urban areas.”
	April	
33	<b>Germany</b>	<a href="#">54,600 Germans sign a petition to force the German Bundestag to debate 5G</a> .
	4 April	
34	<b>Netherlands</b>	<a href="#">Members of Parliament in the Netherlands insist that radiation research must be carried out before any approval of the 5G network</a> .
	4 April	
35	<b>USA</b>	The <a href="#">California Supreme Court</a> publishes an <a href="#">opinion</a> supporting municipal authority to make regulations on so-called ‘small cell’ PROW (public right of way) towers and uses of the public’s right-of-way. This opinion affirms the 2016 appellate <a href="#">court ruling</a> .
	4 April	
36	<b>USA</b>	The <a href="#">California Supreme Court Justices unanimously uphold a 2011 San Francisco ordinance</a> requiring telecommunications companies to get permits before placing antennas on city infrastructure.
	5 April	
37	<b>Switzerland</b>	The <a href="#">Canton of Vaud adopts a resolution calling for a moratorium on 5G</a> antennas until the publication of a report on 5G by the Swiss Federal Office for the Environment.
	9 April	
38	<b>Switzerland</b>	<a href="#">Geneva adopts a motion for a moratorium on 5G</a> , calling on the Council of State to request WHO to monitor independent scientific studies to determine the harmful effects of 5G.
	10 April	
39	<b>France</b>	French lawmaker Jean-Paul Lecoq <a href="#">raises the wide range of risks posed by the 5G deployment</a> in the National Assembly.
		<a href="#">The Dangers of 5G to Children's Health</a>
	11 April	
40	<b>USA</b>	Oregon Representative Peter A. DeFazio, House Transportation and Infrastructure Committee Chairman, writes a letter to FCC Chairman Ajit Pai and acting FDA Commissioner Sharpless <a href="#">regarding the status of the government's research into the potential health effects of RF radiation</a> and its relation to the FCC’s guidelines for safe human RF exposure levels.
	15 April	



41	<b>USA</b>	New York Congressman Thomas Suozzi <a href="#">sends a letter to the FCC seeking answers about the technology</a> . "Small cell towers are being installed in residential neighborhoods in close proximity to houses throughout my district. ..., My constituents are worried that should this technology be proven hazardous in the future, the health of their families and value of their properties would be at serious risk."
	16 April	
42	<b>Switzerland</b>	The Federal Office for the Environment (FOEN) sends a <a href="#">7-page information letter</a> to all cantonal governments for the purpose of "calming the situation". It claims that the new 5G adaptive (directional) antennas would mean much lower exposures for the population: "The beam cone is now aligned directly to the user and in all other radiation directions the radiation is lower [sic]."
	17 April	
43	<b>Switzerland</b>	<a href="#">The Swiss government announces the introduction of a monitoring system to assuage concerns about the potential health impact of fifth-generation (5G) mobile frequency emissions</a> and smooth the cutting-edge technology's rollout. The move comes as some Swiss cantons baulk at authorizing new antennas needed to support 5G services after a spectrum auction in February that raised 380 million Swiss francs (\$377 million).
	17 April	
44	<b>USA</b>	The US National Oceanic and Atmospheric Administration (NOAA) and NASA clash with the Federal Communications Commission (FCC), which oversees US wireless networks, saying that <a href="#">next-generation mobile technology could interfere with crucial satellite-based Earth observations</a> .
	26 April	
45	<b>France</b>	<a href="#">French farmers sue the state over mystery cow deaths they blame on electromagnetic fields</a> . A group of French cattle farmers is suing the state over the mysterious death of hundreds of cows, which they believe are the victims of harmful electromagnetic fields. Several studies have shown that livestock, particularly cattle, are affected by even low-level electromagnetic fields
	26 April	
46	<b>Swiss Re</b>	Insurance company Swiss Re's report on <a href="#">New Emerging Risk Insights</a> states that "Existing concerns regarding potential negative health effects from electromagnetic fields (EMF) are only likely to increase. An uptick in liability claims could be a potential long-term consequence. ... interruption and subversion of the 5G platform could trigger catastrophic, cumulative damage."
	May	
47	<b>Denmark</b>	<a href="#">A legal opinion by a Danish law firm</a> states that rolling out 5G is illegal under EU and international law: <i>It is the conclusion of this legal opinion that establishing and activating a 5G-network, as it is currently described, would be in contravention of current human and environmental laws enshrined in the European Convention on Human Rights, the UN Convention on the Rights of the Child, EU regulations, and the Bern- and Bonn-conventions. ... This also applies when the radiation remains within the limits recommended by ICNIRP and currently used in Denmark as well as broadly within the EU.</i>
	4 May	
48	<b>International</b>	<a href="#">Meteorologists warn that the introduction of 5G mobile phone networks could seriously affect weather forecasters' ability to predict major storms</a> by disrupting the delicate satellite instruments they use to monitor changes in the atmosphere. The result will be impaired forecasts, poorer warnings about major storms, and loss of life, they say.
	4 May	
49	<b>France</b>	French health authority ANSES warns in a 400-page report that <a href="#">LED lights in your house can cause irreversible damage to the eyes</a> and lead to a vision-robbing condition.
	15 May	
50	<b>Italy</b>	Montecitori Palace, Rome, Italy Stop 5G: <a href="#">a parliamentary motion commits the Government to the moratorium</a> . Ortica Web.
	20 May	
51	<b>USA</b>	The US National Oceanic and Atmospheric Administration (NOAA) and US National Aeronautics and Space Administration (NASA) <a href="#">criticize FCC plans for opening a 24 GHz spectrum band</a> to 5G telecommunications providers, stating that US weather forecasting capabilities would be set back decades. The matter is on the <a href="#">agenda</a> for international <a href="#">treaty</a> negotiations at the International Telecommunication Union's <a href="#">World Radio Conference</a> (WRC) in the fall of 2019, but with respect to 24 GHz, the Department of State has already <a href="#">submitted</a> the FCC's out-of-band emission limits as <a href="#">the US position during preliminary negotiations</a> .
	22 May	
52	<b>USA</b>	The US state of <a href="#">Louisiana unanimously votes to stop 5G</a> , calling for study of effects on health and environment before 5G is launched ( <a href="#">Resolution 145</a> ).
	29 May	
53	<b>France</b>	An <a href="#">LED lamp post is destroyed in France</a> .
	31 May	

54	<b>USA</b>	<a href="#">Ongoing lawsuits against the US Federal Communications Commission</a> (FCC) over the <a href="#">constitutional overreach</a> in the rollout of 5G:
	June 2019	<ul style="list-style-type: none"> <li>· National League of Cities (19,000 cities &amp; towns)</li> <li>· US Conference of Mayors (1,192 cities)</li> <li>· National Association of Counties (3,069 counties)</li> <li>· National Association of Regional Councils (500 councils and metropolitan &amp; regional planning organizations)</li> <li>· National Association of Towns and Townships (10,000 towns)</li> <li>· National Association of Telecommunications Officers &amp; Advisers (local government officials)</li> <li>· Colorado Communications Utility Alliance</li> <li>· League of Arizona Cities and Towns</li> <li>· League of California Cities</li> <li>· League of Oregon Cities</li> <li>· Michigan Coalition to Protect Public Rights of Way</li> <li>· Michigan Municipal League</li> <li>· Michigan Townships Association</li> <li>· Texas Coalition of Cities for Utility Issues</li> <li>· 7 Counties</li> <li>· 45 Cities</li> </ul>
55	<b>Europe</b>	EMFOff publishes an exposé of corruption at the World Health Organization: <i>The WHO Cover-Up That is Costing Us the Earth</i> . <a href="#">Video</a> and <a href="#">PDF document</a> .
	June	
56	<b>Canada</b>	In Toronto, the Canadian Civil Liberties Association files a <a href="#">court application to stop (Alphabet/Google subsidiary) Sidewalk Labs' "smart city" project as "unconstitutional"</a> because it would allow "historically unprecedented, non-consensual, inappropriate mass-capture surveillance and commoditization of personal data."
	June	
57	<b>Australia</b>	<a href="#">Step-by-Step Action Plan: We say No to 5G in Australia</a> : devised by barrister Raymond Broomhall, who has stopped 25K antenna projects across Australia.
	June	
58	<b>Ireland</b>	<a href="#">Councillor Clare Colloran Molloy, with support from other councillors, raises concerns to Clare County Council about dangers of 5G.</a>
	June	
59	<b>Switzerland</b>	The Canton of Fribourg introduces <a href="#">a licensing requirement for 5G antennas</a> in order to give those affected a chance to object.
	4 June	
60	<b>Russia</b>	A man living in the Tver region <a href="#">saws down a cell tower</a> because he believes the radiation from it is destroying the vegetable, berry and fruit crops growing on his land located nearby.
	6 June	
61	<b>Switzerland</b>	A <a href="#">telephone antenna is destroyed by an explosion</a> in Vaud, Switzerland.
	10 June	
62	<b>UK</b>	<a href="#">Glastonbury Town Council</a> opposes the introduction of 5G technology in Glastonbury until further information has been obtained on the health effects on residents, adopting the following motion: " <i>This council has a social responsibility to protect the public and environment from exposure to harm, albeit unpredictable in the current state of scientific knowledge, and therefore opposes the roll-out of 5G in the Parish of Glastonbury – based on the precautionary principle – until further information is revealed from a newly convened 5G advisory committee (working group).</i> "
	11 June	
63	<b>UK</b>	Shadow Minister (Environment, Food and Rural Affairs) David Drew asks the Secretary of State for Digital, Culture, Media and Sport, what discussions he has had with the <a href="#">providers of 5G on whether they have made any provision for personal liability on health and safety grounds</a> and whether any provision has been made for white zones. He also asks the Secretary of State for Health and Social Care, <a href="#">what investigations the Government has commissioned on the health and safety implications of the 5G rollout</a> .
	11 June	
64	<b>USA</b>	<a href="#">5G installer discusses the consequences of 5G</a> . Current radiofrequency emitted by cell towers uses relatively low power (1.5-2.8 MHz), which at short range superheats the water molecules in your brain, eyes and testicles. It dissipates over distance as it has a long wave trough. 5G will be up close, in offices, outside homes, everywhere, including in the back of self-driving cars. It broadcasts in GHz not MHz — 30 GHz is 15,000 times more powerful than current previous levels.
	12 June	

65	<b>Ireland</b>	A motion calling on <a href="#">Clare County Council</a> to oppose the rollout of 5G on health grounds is backed by the elected representatives. <a href="#">Leitrim County Council</a> follows suit.
	18 June	
66	<b>USA</b>	Pennsylvania lawmakers <a href="#">cancel a vote on proposed legislation</a> to facilitate infrastructure next-generation 5G wireless services. It is the third defeat for the Verizon- and AT&T-backed legislation.
	18 June	
67	<b>US</b>	The Centers for Disease Control and Prevention report that <a href="#">US suicide rates are at the highest level since World War II</a> . Life expectancy, perhaps the broadest measure of a nation's health, has fallen for three straight years, the first three-year drop since 1915 to 1918.
	20 June	
68	<b>UK</b>	<a href="#">UK parliamentary committee</a> discusses concerns about the health effects of electromagnetic fields and 5G, especially with regard to electrohypersensitivity Tonia Antoniazzi, MP, asks why the inaccurate and discredited 2012 report of AGNIR is still on the Public Health England website. <a href="#">Transcript</a> . <a href="#">Video</a> (from 16. 35).
	25 June	
69	<b>France</b>	"Bees are producing nothing!": <a href="#">French beekeepers announce a catastrophic year for French honey</a> .
	25 June	
70	<b>USA</b>	The state of New Hampshire asks <a href="#">a series of questions</a> about 5G in Bill <a href="#">HB 522</a> .
	27 June	
71	<b>USA</b>	US <a href="#">Senator Dianne Feinstein</a> introduces <a href="#">SB 2012</a> , "Restoring Local Control Over Public Infrastructure Act of 2019", to repeal FCC rules that limit state and local government control over telecom infrastructure. The bill is supported by the US Conference of Mayors, National Association of Telecommunications Officers and Advisors, American Public Power Association, Communications Workers of America, National Association of Counties, League of California Cities and American Public Works Association.
	27 June	
72	<b>France</b>	After victories for "electrohypersensitive" (EHS) people in Toulouse (March) and Bordeaux (May), the Tribunal de grande instance of FOIX issues a decision protecting EHS people who cannot tolerate dirty electricity diffused by "smart" meters.
	27 June	
73	<b>Glastonbury, UK</b>	<a href="#">Glastonbury festival-goers are used as guinea pigs</a> in a 5G trial and <a href="#">document multiple injuries online</a> .
	29 June	
74	<b>Europe</b>	The <a href="#">European Stop 5G Alliance</a> comprising representatives from 19 European countries is officially founded at an international conference in Mendrisio, Switzerland.
	29 June	
75	<b>France</b>	French baby-clothing firm Petit Bateau decides not to wait for the "conclusive" data and <a href="#">launches clothing line to protect babies from electromagnetic radiation</a> .
	July	
76	<b>Ireland</b>	<a href="#">Councillor Orla Leyden proposes a motion with Roscommon County Council to oppose 5G and this is passed</a> .
	July	
77	<b>USA</b>	The Ninth Circuit Court of Appeals <a href="#">affirms the City of Berkeley's right</a> to require cell phone retailers in the city to notify prospective customers about cell phone manufacturers' safety guidelines to ensure consumer safety, adopted in May 2015.
	1 July	
78	<b>Russia</b>	In the Urals, police detain a woman who tried to <a href="#">burn down a communications tower because of concerns about health</a> . The woman believed that her malaise and insomnia related to the fact that this tower was located directly near her home.
	1 July	
79	<b>USA</b>	Prof. Em. Martin L. Pall states that <a href="#">5G effects will take months, not years</a> , and he expects a breakdown in mental function, sterility, damaged heart function and societal collapse.
	3 July	
80	<b>Italy</b>	60 regions, autonomous provinces and municipalities question 5G, a moratorium is established in Italy and 14 municipalities approve Stop 5G city council resolutions or motions. The Mayor of Marsaglia issues Italy's first Stop 5G ordinance and the Mayor of San Gregorio Matese bans the installation of 5G antennas on the municipal territory.
	4 July	
81	<b>Russia</b>	<a href="#">Ban on cell phones in schools</a> expected in September 2019.
	4 July	
82	<b>Ireland</b>	<a href="#">Councillor Justin Warnock calls on Leitrim Council to halt the roll-out of 5G on health grounds</a> .
	4 July	



83	<b>Switzerland</b>	Renowned <a href="#">Swiss law firm provides legal opinion</a> stating that the <a href="#">Swiss Federal government's modification of its ordinance</a> to privilege directional antennas is not legally admissible because it would undermine health protection.
84	<b>Switzerland</b>	As a result of the above legal opinion, the <a href="#">Swiss Canton of Zug suspends</a> ongoing licensing procedures.
85	<b>USA</b>	<a href="#">California Assembly Bill 272</a> asks all school districts, county offices of education, and charter schools to come up with smartphone policies to limit or prohibit student use at school.
86	<b>Russia</b>	President Putin emphasizes the <a href="#">environmental risks of new technologies</a> , saying "Hopes that the new technologies themselves will save the planet from the growing anthropogenic influence turned out to be illusions. Nature and climate degradation continues."
87	<b>USA</b>	Leading senators submit bill restoring local control and abolishing FCC regulations: Restoring Local Control Over Public Infrastructure Act of 2019.
88	<b>EU</b>	Galileo, the EU global navigation satellite system, is <a href="#">non-operational for at least four days as of 11 July</a> following a mysterious outage. <a href="#">The Galileo satellite system</a> was launched in 2016 and was funded by the EU as an alternative to the US Air Force's Global Positioning System (GPS) and the Russian global navigation satellite system GLONASS.
89	<b>USA</b>	The telcos belatedly realise that the public has found out about the dangers of 5G and launches a propaganda war of fake news, starting with <a href="#">The New York Times</a> . It blames all the bad news on 5G on the Russians, and this meme is taken up and repeated obediently by major media outlets <a href="#">around the world</a> , including <a href="#">the BBC</a> , <a href="#">Le Monde</a> , <a href="#">The Guardian</a> , <a href="#">The Infographics Show</a> and <a href="#">Wired Online</a> .
90	<b>France</b>	French NGO <a href="#">Alert Phonegate launches class action lawsuit against telco Nokia</a> for selling "smart" phones that were shown by the French National Frequency Agency (ANFR) to exceed the European specific absorption rate (SAR) limit. This deception is facilitated by the entry into force of the new European Directive (2014/53/EU), which has relaxed controls by allowing manufacturers to self-certify their products.
91	<b>Switzerland</b>	<a href="#">The Green party in Lausanne (Vaud) insists on the precautionary principle</a> , saying that 5G antennas are being installed while the consequences of these new technologies are not known. Green representatives call for a moratorium in Vaud and commit to opposing all new antennas until they receive clear and satisfactory answers relating to the impact of 5G.
92	<b>USA</b>	<a href="#">Bees dropping out of the sky near two 5G cell towers, California.</a>
93	<b>Austria</b>	The Austrian parliament commissions a <a href="#">study on the health effects of 5G networks</a> in response to concern from the public.
94	<b>Switzerland</b>	Swiss mainstream magazine <a href="#">L'Illustré reports on the injuries of Geneva's first 5G victims: "With 5G, we feel like guinea pigs"</a> .
95	<b>USA</b>	The US Court of Appeals for the D.C. Circuit finds that the <a href="#">FCC did not adequately address the potential harms of deregulation</a> or the benefits of environmental and historic-preservation reviews.
96	<b>USA</b>	<a href="#">The Oregon state legislative assembly declares a health emergency in Senate Bill 283</a> and directs the state health authority to review studies of the health effects of exposure to RF-radiation in schools and to recommend how to reduce children's exposure in schools and to report back not later than 2 January 2021.
97	<b>USA</b>	The Natural Resources Defense Council, joined by various American Indian tribes, as well as the National Association of Tribal Historic Preservation Officers and the National Trust for Historic Preservation, win a victory when the <a href="#">federal appeals court in D.C. ruled that the FCC illegally eliminated historic-preservation and environmental review</a> —and important opportunities for public participation—for 5G wireless infrastructure projects. Emphasizing the importance of such review, the court held that that the FCC's attempted explanations for the elimination "did not meet the standard of reasoned decision-making."
98	<b>USA</b>	The Chicago Tribune finds that <a href="#">popular cell phones tested for radiofrequency radiation measure over the legal safety limit</a> , in some cases more than double what Apple reported to federal regulators from its own testing. The FCC is investigating.

99	<b>USA</b>	<i>Cardiology Magazine</i> reports on smart phones and obesity. A poster abstract, presented at the Latin America Conference 2019, found that <a href="#">university students who used their smartphones five or more hours a day had a 43 percent increased risk of obesity</a> .
100	23 August <b>Russia</b>	Oleg Gregoriev, Chairman of the Russian National Committee on Non-Ionizing Radiation Protection, states that <a href="#">“5G may be like a slow Hiroshima”</a> .
101	26 August <b>USA</b>	The <a href="#">5G Crisis Awareness and Accountability Summit</a> attracts 200,000+ viewers from around the world, who send over 200,000 liability letters to their government representatives.
102	26 Aug-1 Sept <b>Russia</b>	<a href="#">The Russian Defence Ministry refuses to hand over 3.4–3.8 GHz for 5G</a> because these frequencies are used for satellite communications, instead suggesting that 4.4–4.99 GHz be used, which are popular only in China and Japan.
103	1 Sept <b>Kuwait</b>	<a href="#">The Kuwait Times publishes an article on the threats to health from 5G technology</a> , saying “RF-EMF exposure and health outcomes. In the meantime, they recommend that cell towers should be distanced from homes, daycare centers, schools, and places frequented by pregnant women, men who wish to father healthy children, and the young”.
104	1 Sept <b>USA</b>	<a href="#">T-Mobile cancels 5G installation nationwide</a> . Anonymous employee blames 15 states’ lawsuits against the Sprint merger.
105	3 Sept <b>USA</b>	<a href="#">Cellphone Users Sue Apple and Samsung Over Radiation Exposure</a> . Andrus Anderson in San Francisco is representing 16 plaintiffs against Apple and Samsung in a controversy some in the medical and scientific community are allegedly calling “Phone Gate.”
106	11 Sept <b>International</b>	<a href="#">Edward Snowden describes his role in the creation of the totalitarian surveillance state</a> , enabling the new wave of authoritarianism by the political and commercial classes that are realizing they can use technology to influence the world on a massive scale, bringing societies’ systems under attack.
107	13 Sept <b>Switzerland</b>	<a href="#">5G opponents block applications on 320 out of 326 antennas</a> . 5G opponents have raised objections to almost all of the applications for planning permission for antennas.
108	13 Sept <b>UK</b>	<a href="#">Smart meter rollout delayed by four years</a> . The government’s deadline to have smart meters in 30 million homes by the end of 2020 has been pushed back to 2024.
109	16 Sept <b>Australia</b>	Telco TPG (Total Peripherals Group) says <a href="#">community health fears stopped its 5G rollout in Australia</a> – as experts blame disinformation campaigns on social media.
110	18 Sept <b>United Nations</b>	<a href="#">UK Prime Minister Boris Johnson</a> describes the Internet of Things, “smart” cities and AI as a giant, dark thundercloud lowering oppressively over the human race, threatening a cold and heartless future in an Orwellian world designed for censorship, repression and control. He appeals for joint efforts on agreeing a common set of global principles to shape norms and standards to guide the development of emerging technology.
111	24 Sept <b>Cyprus</b>	The Parliamentary Committees on Health and Environment in Cyprus hold discussions on the negative aspects of 5G. Proposals are put forward to freeze 5G deployment and keep Cyprus radiation-free as a detoxing zone attractive for tourism.
112	26 Sept <b>Italy</b>	<a href="#">Italian parliament to vote on 7 October for a moratorium to stop the 5G rollout throughout Italy</a> . The text proposes that the government should suspend any form of technological experimentation of 5G in Italian cities, pending the production of sufficient scientific evidence to judge its harmlessness.
113	26 Sept <b>US</b>	<i>Journal Municipal Lawyer</i> publishes article entitled <a href="#">Putting the Cart Before the Horse – The FCC’s ‘5G First, Safety Second’ Policy</a> , which states that the FCC should have completed the review of its RF standards before opening the floodgates for the deployment of hundreds of thousands of small cell transmitters for 5G. The rules adopted by the FCC in 1996 were designed to protect only against the thermal effects of RF exposure.
114	Sept-Oct <b>International</b>	The authors of <a href="#">5G Wireless Communication and Health Effects—A Pragmatic Review Based on Available Studies Regarding 6 to 100 GHz</a> , funded by Deutsche Telekom, state that “The available studies do not provide adequate and sufficient information for a meaningful safety assessment, or for the question about non-thermal effects and conclude that, “In summary, <a href="#">the majority of studies with MMW exposures show biological responses</a> ”.
115	Sept <b>USA</b>	<a href="#">Lawsuit filed over cell phone radiation</a> . A new lawsuit claims that cell phone companies may try to hide how much radiation their devices emit. West Des Moines Iowa Attorney Bart Goplerud files <a href="#">lawsuit claiming that Apple and Samsung misrepresent safety risks</a> .
	25 Sept	

- 116 **European Parliament** MEPs Philippe Lamberts, Michèle Rivasi and Klaus Buchner invite Dr. Marc Arazi of Phonegate, Prof. Em. Martin Pall and European Stop 5G Alliance promoter Maurizio Martucci to a [press conference to discuss the health risks of 5G and the precautionary principle](#).
- 117 **France** 1 October A [group of French NGOs calls for a moratorium on the rollout of 5G](#), saying it could “[push the planet and our society into a world with out-of-control consequences](#)”.
- 118 **Ireland** 2 October [Councillor calls for more debate on use of 5G technologies](#). Cllr Kevin Murphy raised the motion at a meeting of West Cork local authority last week and said the issue of 5G might not be something that will affect people now, but will do so in the future. Fears over claims that 5G mobile technology may be linked to cancer.
- 119 **Germany** 2 October *Manager* magazine reports that protests by hundreds of protest groups aiming to stop 5G are hindering the multibillion 5G rollout. [Mast-Hass: Wie Proteste das Multimilliardenprojekt bremsen](#).
- 120 **USA** October [Erin Brokovich firm joins citizens 5G lawsuit](#) brought by [People's Initiative Foundation](#) against the FCC and the 1996 Telecom Act.
- 3 October

## CANCER CAUSATION FROM EXPOSURES TO WIRELESS/WIFI/EMFS

### EXCERPTS

From: *5G: Great Risk for EU, U.S. and International Health! Compelling Evidence for Eight Distinct Types of Great Harm Caused by Electromagnetic Field (EMF) Exposures and the Mechanism that Causes Them*, by Dr. Martin L. Pall, key research summary document, March 2018

The original **53-page MARCH 2018** document is at: <https://einarflydal.files.wordpress.com/2018/04/pall-to-eu-on-5g-harm-march-2018.pdf>. (The 90-page version has an additional chapter on U.S. agencies, e.g., the FCC.)

[Notes and edits below appear in smaller font in brackets. **Bold** and underline added to text draw attention to key material.]

#### **8. Cancer causation** (35 reviews). [page 3, *5G: Great Risk*, March 2018]

**Brain cancer, salivary cancer, acoustic neuromas and two other types of cancer go up with cell phone use.** People living near **cell phone towers** have increased cancer rates. Other types of EMFs are also implicated. **Short wave radio, radio ham operators and people exposed to radar** all are reported to have increased cancer incidence. Perhaps most telling, **heavy-long term cell phone users** have the highest incidence of brain cancer and have **predominantly cancer increases on the ipsilateral side of the head** (the side they use their cell phones), as opposed to the contralateral [opposite] side. **I have an in press paper [7],\* focused not on whether EMFs cause cancer but rather on how they can cause cancer.** The paper shows that "downstream effects" of the main target of the EMFs in the cells of our bodies, can cause cancer in 15 different ways, including increases in cancer initiation, promotion and progression. Progression effects include both tissue invasion and metastasis. Each of these cancer causation effects are caused via mechanisms produced by downstream effects of the main non-thermal EMF mechanism, as discussed in Chapter 2.

[\*See page 2 here. Pall, M. L., 2018. How cancer can be caused by microwave frequency electromagnetic field (EMF) exposures: EMF activation of voltage-gated calcium channels (VGCCs) can cause cancer including tumor promotion, tissue invasion and metastasis via 15 mechanisms. Chapter 7 in Markov, M. S., (Ed.), *Mobile Communications and Public Health*, CRC Press, Boca Raton, FLs. This can be found as a pdf on line. Just search by the book title.]

#### **It should be obvious, that non-thermal EMFs:** [page 16, *5G: Great Risk*, March 2018]

1. Attack our nervous systems including our brains leading to **widespread neuropsychiatric effects** and possibly many other effects. This nervous system attack is of great concern.
2. Attack our **endocrine** (that is hormonal) systems. In this context, the main things that make us functionally different from single celled creatures are our nervous system and our endocrine systems – even a simple planaria worm needs both of these. Thus the consequences of the disruption of these two regulatory systems is immense, such that it is a travesty to ignore these findings.
3. Produce **oxidative stress and free radical damage**, which have central roles in all common chronic diseases.
4. **Attack the DNA of our cells, producing single strand and double strand breaks** in cellular DNA and oxidized bases in our cellular DNA. These in turn produce both cancer and mutations in germ line cells with germ line mutations producing mutations impacting future generations.
5. Produce **elevated levels of apoptosis (programmed cell death)**, events especially important in causing both neurodegenerative diseases and infertility.
6. **Lower male and female fertility**, lowered sex hormones, lowered libido, increased levels of spontaneous abortion and, as already stated, attacks on the DNA in sperm cells.
7. Produce **excessive intracellular calcium** [Ca<sup>2+</sup>]<sub>i</sub> and increased calcium signaling.
8. **Act in the cells of our bodies via 15 different mechanisms to cause cancer.**

**By attacking all of these important systems in the body, EMFs attack everything we care about including our health (in many ways), our reproductive systems, the integrity of our genomes and our ability to produce healthy offspring.**

[See the end here for the list of studies Dr. Pall provided.]

From: “**How cancer can be caused by microwave frequency electromagnetic field (EMF) exposures: EMF activation of voltage-gated calcium channels (VGCCs) can cause cancer including tumor promotion, tissue invasion and metastasis via 15 mechanisms.**” This is Chapter 7 in *Mobile Communications and Public Health*, edited by Markov, CRC Press, Boca Raton, FL .[the entire book is posted on the internet]

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## 7.1 INTRODUCTION [references are found at the end of the chapter – 194 studies are cited]

**Twenty nine different reviews [1-29], 24 of which were peer reviewed, provide a massive amount of evidence and opinion that microwave frequency EMFs are carcinogenic. Such EMFs not only produce initiation of the process of carcinogenesis, but also act as tumor promoters [2,3,14,16], a process also supported by two recent studies [30,31]. This vast amount of evidence and opinion on carcinogenicity of microwave frequency EMFs should, in the author’s opinion, be definitive.** However, if there are any questions about this, such questions should have been resolved by the 25 million dollar National Institute of Toxicology study on cancer causation by 2G cell phone radiation in rats [32]. This study **showed** that such radiation causes both **gliomas** [an uncommon form of brain cancer] and normally quite rare **heart schwannomas** [cancer of the tissue covering the nervous system, in this case of the heart] as well as cellular DNA damage which may act as initiators of the process of carcinogenesis.

Despite all of this evidence and opinion, the National Cancer Institute [33] stated that “No mechanism by which ELF-EMFs or radiofrequency radiation could cause cancer has been identified” and industry-friendly organizations have even claimed that there could not be such mechanisms. Similarly, the 2014 Canadian Report on Electromagnetic Fields [34] included cancer in their statement that, “At present, there is not scientific basis for the occurrence of acute, chronic and/or cumulative adverse health risks from RF field exposures below the limits outlined in Safety Code 6.” This issue of mechanism is the focus of this review. But before getting to that issue we need to consider how such EMFs act in the cells of our bodies in order to determine what downstream effects of such action can be carcinogenic.

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SEE NEXT PAGE FOR CHAPTER ON EMF CARCINOGENESIS

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# 7 How Cancer Can Be Caused by Microwave Frequency Electromagnetic Field (EMF) Exposures *EMF Activation of Voltage-Gated Calcium Channels (VGCCs) Can Cause Cancer Including Tumor Promotion, Tissue Invasion, and Metastasis via 15 Mechanisms*

*Martin L. Pall*

This is Chapter 7 in *Mobile Communications and Public Health*, edited by Markov, CRC Press, Boca Raton, FL. The entire book is posted openly on the internet.

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## 7.1 INTRODUCTION

Twenty nine different reviews [1–29], 24 of which were peer reviewed, provide a massive amount of evidence and opinion that microwave frequency EMFs are carcinogenic. Such EMFs not only produce initiation of the process of carcinogenesis, but also act as tumor promoters [2,3,14,16], a process also supported by two recent studies [30,31]. This vast amount of evidence and opinion on carcinogenicity of microwave frequency EMFs should, in the author's opinion, be definitive. However, if there are any questions about this, such questions should have been resolved by the 25 million dollar National Institute of Toxicology study on cancer causation by 2G cell phone radiation in rats [32]. This study showed that such radiation causes both gliomas and normally quite rare heart schwannomas as well as cellular DNA damage which may act as initiators of the process of carcinogenesis.

Despite all of this evidence and opinion, the National Cancer Institute [33] stated that “No mechanism by which ELF-EMFs or radiofrequency radiation could cause cancer has been identified” and industry-friendly organizations have even claimed there could not be such mechanisms. Similarly, the 2014 Canadian Report on Electromagnetic Fields [34] included cancer in their statement that, “At present, there is no scientific basis for the occurrence of acute, chronic and/ or cumulative adverse health risks from RF field exposure at levels below the limits outlined in Safety Code 6.” This issue of mechanism is the focus of this review. But before getting to that issue, we need to consider how such EMFs act in the cells of our bodies in order to determine what downstream effects of such action can be carcinogenic.

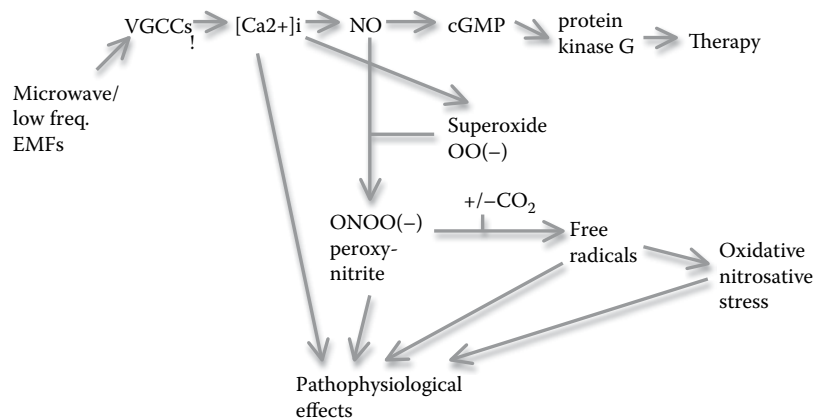
## 7.2 MICROWAVE/LOWER FREQUENCY EMFS ACT VIA ACTIVATION OF VOLTAGE-GATED CALCIUM CHANNELS (VGCCs) LEADING TO DOWNSTREAM EFFECTS

There is a large literature showing that EMF exposures produce large changes in calcium fluxes and large increases in calcium signaling [35,36]. This led to the suggestion by W.R. Adey that the main target of the EMFs is in the plasma membrane of cells, producing such calcium changes as follows: “Collective evidence points to cell membrane receptors as the probable site of first tissue interactions with both extremely low frequency and microwave fields for many neurotransmitters, hormones, growth-regulating enzyme expression, and cancer-promoting chemicals. In none of these studies does tissue heating appear to be involved causally in the responses” (from a talk at the Royal Society of Physicians, London May 16–17, 2002, quoted in [Reference 37](#)).

The main EMF target was identified by the author initially from two studies cited in [Reference 35](#) and then later 24 [38] and then 26 [39] studies. Each of these 26 studies showed that EMF effects could be blocked by calcium channel blockers, drugs that are specific for blocking the voltage-gated calcium channels (VGCCs). Five distinct classes of blockers were used in these studies, each class with a distinct structure and binding to a distinct site when acting as a calcium channel blocker. Each of the five is thought to be highly specific for blocking the VGCCs. When a blocker blocked or greatly lowered one effect it also blocked or greatly lowered other effects that were measured in the same study [38]. It follows from these various studies that EMFs act via activation of the voltage-gated calcium channels and that channel activation produces most if not all of the effects seen. Among the EMFs shown to act in this way are not only microwave frequency EMFs, such as those produced by various wireless communications devices which are the focus of this review, but also extremely low frequency EMFs such as 50 or 60 Hz EMFs from our power wiring [38]. It follows that effects in common produced by both types of EMFs, including cancer, may be explained as being caused by downstream mechanisms triggered by VGCC activation.

Such downstream mechanisms are produced by VGCC activation starting with increased intracellular calcium  $[Ca^{2+}]_i$  ([Figure 7.1](#)) [38–43]. The downstream mechanism that is most relevant to the cellular DNA damage produced by EMF exposure is the peroxynitrite pathway (lower right) producing reactive free radicals which attack the DNA. This pathway has been shown in four studies cited in [reference 38](#) to be elevated following EMF exposure, such that 3-nitrotyrosine levels, a marker for peroxynitrite, are elevated. Other carcinogenic effects of EMF exposure are thought to involve both this pathway and also excessive  $[Ca^{2+}]_i$  signaling (down-facing arrow, near center of [Figure 7.1](#)), as discussed below.

Before leaving this issue, it is important to discuss why the VGCCs are so sensitive to activation by these low-intensity EMFs. The VGCCs have a voltage sensor which is made up of 4 alpha helices in the plasma membrane, with each helix having 5 positive



**FIGURE 7.1** EMFs act via downstream effects of VGCC activation to produce pathophysiological and therapeutic effects. (Modified from Pall ML 2015. *Rev Environ Health* 30:99–116. With permission.)

charges on it, for a total of 20 positive charges [39]. Each of these charges is within the lipid bilayer part of the plasma membrane. The electrical forces on the voltage sensor are very high for three distinct reasons [39,42,43]. (1) The 20 charges on the voltage sensor make the forces on voltage sensor 20 times higher than the forces on a single charge. (2) Because these charges are within the lipid bilayer section of the membrane where the dielectric constant is about 1/120th of the dielectric constant of the aqueous parts of the cell, the law of physics called Coulomb's law predicts that the forces will be approximately 120 times higher than the forces on charges in the aqueous parts of the cell. (3) Because the plasma membrane has a high electrical resistance whereas the aqueous parts of the cell are highly conductive, the electrical gradient across the plasma membrane is estimated to be concentrated about 3000-fold. The combination of these effects means that comparing the forces on the voltage sensor with the forces on singly charged groups in the aqueous parts of the cell, the forces on the voltage sensor is approximately  $20 \times 120 \times 3000 = 7.2$  million times higher [39]. The physics predicts, therefore, extraordinarily strong forces activating the VGCCs via the voltage sensor. It follows that the biology tells us that the VGCCs are the main target of the EMFs and the physics tells us why they are the main target. Thus the physics and biology are pointing in the same direction.

EMFs have been shown to act in plants very similarly to how they act in animals, via activation of calcium channels in the plasma membrane of cells [43]. Although the plant channels are somewhat different from the animal VGCCs, they are thought to be channels regulated by a similar voltage sensor, such that the voltage sensor may well be the universal target of the low intensity EMFs [43].

### 7.3 MICROWAVE AND LOWER FREQUENCY EMFs CAUSE SINGLE STRAND AND DOUBLE STRAND BREAKS IN CELLULAR DNA

Single strand breaks in cellular DNA are primarily detected through what are sometimes called alkaline comet assays of the DNA, a method that can give a measure of such breaks when they occur in large numbers even in single cells. Double strand breaks in cellular DNA are detected by their ability to produce chromosome breaks and rearrangements, including the production of micronuclei.

Reviews of studies of single strand breaks in cellular DNA [38,39,44–49] and double strand breaks in cellular DNA [39,44–50] have been published earlier and no further review of the primary literature will be given here.

Breaks in cellular DNA produce large increases in polyADP-ribose polymerase (PARP) activity, which has roles in repairing these breaks. While to my knowledge there have been only three studies of PARP following microwave frequency EMF exposure [51–53], each of them found such increased PARP activity.

In [Reference 38](#), a number of studies are discussed where a particular research group using a consistent methodology and the same EMF found that different cell types differed from one another in whether EMF exposure produced detectable increases in single strand DNA breaks. On p. 106 of [Reference 39](#), it was found that studies of other types of EMF-dependent DNA damage also showed variations from one cell type to another. Studies discussed in [Reference 38](#) also showed that free radical scavengers and other agents that act through gene regulation to lower levels

of peroxynitrite and also free radicals enzymatically, greatly lower the production of single stranded breaks in cellular DNA following EMF exposure. These provide substantial evidence that the DNA strand breaks are produced by free radical attack on the DNA backbone. It will be argued below that these regulatory responses protecting the DNA from the EMF effects is Nrf2 [54], where raising Nrf2 lowers peroxynitrite and free radicals produced from peroxynitrite and also increases the repair of lesions produced by some free radical attacks on DNA. These studies support the view that the DNA strand breaks are produced through free radical attack on the DNA. Specifics will follow.

In addition, in some but not other studies, pulsed EMFs were shown to be much more active than are nonpulsed (also known as continuous wave) EMFs. This is consistent with many studies reviewed earlier, showing the pulsed EMFs are, in most cases, more biologically active than are continuous wave EMFs [39,55–61]. This effect of pulsations is very important because wireless communication devices communicate via pulsations with “smarter” devices and communicate more information, therefore producing still greater pulsations and therefore, being, at least potentially, much more dangerous.

### **7.3.1 HOW DNA STRAND BREAKS ARE PRODUCED BY PEROXYNITRITE AND FREE RADICALS AND HOW THIS LEADS TO CANCER**

DNA strand breaks and also DNA base changes are produced by peroxynitrite [62–64], acting through free radical breakdown products with the chemistry discussed in References 62–68. As shown in the peroxynitrite/free radical/oxidative stress pathway (see Figure 7.1), both peroxynitrite and its CO<sub>2</sub> adduct, nitrosoperoxycarbonate, break down and release free radicals. Peroxynitrite breaks down to release the hydroxyl radical and NO<sub>2</sub> radical. Nitrosoperoxycarbonate breaks down to produce the carbonate radical and NO<sub>2</sub> radical. Strand breaks in DNA occur due to hydrogen extraction from deoxyribose sugars in the DNA backbone. Most such extraction is performed by the hydroxyl radicals, but the carbonate radicals have some activity as well [68]. In contrast, carbonate radicals are more active in producing the base changes in the DNA [68], which are considered in the next section.

Double strand breaks are linked to cancer, in part because mutations that produce deficiencies in double strand breaks repair and produce cancer-prone phenotypes [69]. Double strand breaks have carcinogenesis roles in producing specific chromosomal rearrangements, including the Philadelphia chromosome, including many less specific rearrangements, deletions of tumor suppressor genes, gene amplification (including of oncogenes), copy number of mutations via aberrant recombination, and deletion or aberrant DNA replication processes leading to duplications and various other aberrations. Single strand breaks are less well understood but may cause copy number mutations via aberrant recombination.

## **7.4 DNA BASE CHANGES FOLLOWING EMF EXPOSURE**

There is one base change that has been shown to occur following EMF exposure, as well as several other such changes that are expected to occur but have not been studied or not been adequately studied. The change that has been shown to occur is the

oxidation of the guanine base in the DNA to form either 8-hydroxydeoxyguanosine (often abbreviated 8-OHdG) or 8-oxo-dihydrodeoxyguanosine (often abbreviated 8-oxodG). These two are rapidly interconvertible such that they flip back and forth from one form to another. I will refer to them both, therefore, as 8-OHdG although you will see these other designations in the literature and sometimes they are both referred to by the base rather than the deoxynucleoside. When the 8-OHdG is formed in the DNA, much of it, but not all, is rapidly excised from the DNA via a DNA repair mechanism, so that free 8-OHdG can be measured either in the blood or cerebrospinal fluid or in tissue fluids. Elevated 8-OHdG in these fluids is considered to be both an indication of oxidative stress and also as an indication of oxidative attack on the cellular DNA. Some studies following EMF exposure have shown elevated 8-OHdG in the cellular DNA [70–74] and other studies have shown elevated levels of free 8-OHdG in the body fluids [73,75–84]. One of these studies [70] also detected formamidopyrimidine elevation in the DNA following EMF exposure and Reference 85 also detected these oxidized bases in cellular DNA following EMF exposure. Reference 86 detected elevated levels of two of these formamidopyrimidine bases and also 8-OHdG following extremely low frequency EMF exposure. Because such extremely low frequency EMFs also act via VGCC activation [38] as do the microwave frequency EMFs, it is to be expected that similar EMF responses may be found. In summary, we have 16 studies each showing increased 8-OHdG following microwave frequency EMF exposure. 8-OHdG in cellular DNA should be considered to be an established effect of EMF exposure. The rate limiting step in the formation of 8-OHdG is hydrogen extraction from the guanine base in the DNA and this extraction is thought to be produced by the carbonyl radical [68], derived from the CO<sub>2</sub> adduct of peroxynitrite, nitrosoperoxycarbonate. We have, then, a plausible mechanism for the formation of this compound following EMF exposure.

There are other DNA base changes that are produced by peroxynitrite, but we will only discuss one of these. 8-nitrodG is produced by peroxynitrite breakdown products and is thought to have a major role in inflammatory carcinogenesis. It has never been tested for following EMF exposure to my knowledge. However, because 8-nitrotyrosine levels, considered a marker of peroxynitrite elevation, has been shown to be elevated following EMF exposures [38], and the chemistry of formation of 3-nitrotyrosine is almost identical to the chemistry of formation of 8-nitrodG, it is my opinion that it is highly likely that 8-nitrodG will be found to be elevated following suitable EMF exposures. Both 8-OHdG and 8-nitrodG are known to be mutagenic, producing both transition mutations and also the usually functionally more damaging transversion mutations, it may be expected that each of them contributes mutationally to EMF cancer causation.

## 7.5 ROLE OF EMF-INDUCED ORNITHINE DECARBOXYLASE IN CAUSING CANCER

Ornithine decarboxylase (ODCase) is an enzyme where increased activity has an important role in cancer [87–90]. Studies have shown that difluoromethylornithine and other ODCase inhibitors have substantial anticancer activity [88–90]. Studies have also shown that pulsed microwave frequency EMFs raise ODCase [91–95]. Two reviews included studies on EMFs raising ODCase [15,96].

Four of these studies of the EMF-ODCase connection have suggested that EMF-caused increased ODCase has an important role in EMF cancer causation [15,91,94,96], including specifically that ODCase may have a role in cell phone caused cancer [96]. It is quite possible, therefore, that increased ODCase activity following EMF exposure has an important role in EMF cancer causation.

ODCase activity is rapidly increased by oxidative stress, a process antagonized by antioxidants [97–100], suggesting that EMF exposures can increase ODCase activity via oxidative stress (see [Figure 7.1](#)).

## **7.6 ROLE OF EMF-INDUCED MELATONIN DEFICIENCY IN CAUSING CANCER**

Melatonin has been shown to be useful for both cancer prevention and cancer treatment [101–104]. Melatonin levels, which are usually high at night, have a role in producing sleep coordinated with the circadian rhythm. It has been shown to be often depleted at night by microwave and lower frequency EMF exposures [95,96,105–111]. These findings argue, therefore, that melatonin depletion, as suggested previously [95,96], is likely to have a role in EMF-caused carcinogenesis.

How then might melatonin act to help prevent or treat cancer? It is the author's opinion that melatonin probably acts both by raising both Nrf2 activity [112,113] and by raising adenosine monophosphate-activated protein kinase (AMPK) activity [114,115]. Nrf2 has important cancer preventive activity [116,117] and AMPK has important cancer treatment activity [118,119].

How then might EMFs act via VGCC activation to lower nocturnal melatonin levels? Probably by raising intracellular calcium  $[Ca^{2+}]_i$  which both increases the release of melatonin precursor serotonin [120] from the pineal gland and also by disrupting the circadian rhythm control [121,122].

## **7.7 EMF PRODUCED ELEVATED NF-KAPPA B ACTIVITY IS INVOLVED IN MULTIPLE MECHANISMS OF CANCER CAUSATION**

Studies have shown that microwave frequency EMF exposures can produce substantial increases in nuclear factor-kappaB (NF-kappaB) activity [123–127]. This should not be surprising because it has been known for over 25 years that oxidative stress produces increases in NF-kappa B activity [128]. NF-kappa B produces proliferation of pre-malignant and malignant cells, prevents apoptosis of cancer cells, promotes angiogenesis of solid tumors, and stimulates invasion including metastasis [129–133]. Consequently, the rise in NF-kappa B activity following EMF exposure may be a major pathway of action of cancer causation produced by EMF exposures.

NF-kappa B activity may explain part of the findings in the two previous sections on ODCase and cancer and also on melatonin and cancer. Part of the activity of oxidative stress in raising ODCase is mediated by the role of oxidative stress in raising NF-kappa B, which raises, in turn, ODCase [99,134]. Melatonin, as you may recall, produces much of its anticancer effects by raising the levels of both Nrf2 and

AMPK. Both Nrf2 and AMPK lower the activity of NF-kappa B, providing a partial further explanation for the anticancer activities of melatonin.

## **7.8 EMF CAUSED TUMOR PROMOTION VIA DISRUPTION OF GAP JUNCTIONS**

The overall hypothesis being explored here is that gap junction disruption has an important role in tumor promotion and that free radicals and other oxidants activate AP-1 which increases transcription of matrix metalloproteinase (MMP) genes, leading to degradation of both gap junctions and tight junctions.

Many reviews have documented the role of gap junctions in preventing tumor promotion [135–140] and therefore the role of gap junction disruption in causing tumor promotion. MMPs have important roles in degrading the proteins making up gap junctions [135–140] and also tight junctions [141,142]. AP-1 is a transcription factor activated by free radicals and other oxidants which acts to increase transcription of MMP-9 and other MMPs [136–140,143,144]. Such MMP increases may well explain the breakdown of the blood-brain barrier that occurs following EMF exposures [141,142,145]. It follows from the above in this paragraph, that the each of the mechanisms in our overall hypothesis here is well documented, such that we can explain how EMFs, acting via the peroxynitrite/free radical/oxidative stress pathway, outlined in [Figure 7.1](#) can lead, to tumor promotion via gap junction disruption.

Gap junction and tight junction disruption also have an important role in tissue invasion including metastasis [135–140,146], thus producing other important types of dysfunction that help cause tumor progression.

## **7.9 DOUBLE STRAND BREAKS, TUMOR PROMOTION, AND GENE AMPLIFICATION**

Gene amplification of oncogenes has been known for about 40 years to have a role in carcinogenesis. It is thought that gene amplification has a role in tumor promotion [147–152]. Tumor promoters including phorbol ester tumor promoters stimulate gene amplification [148–152]. These findings suggest that other effects that stimulate gene amplification that are produced by EMF exposures, including double strand DNA breaks (reviewed in References 153–155) and possibly single strand DNA breaks [156], can also act to stimulate tumor promotion following EMF exposure.

## **7.10 OTHER CALCIUM MEDIATED ACTIONS IN CANCER**

Because VGCC activation acts in the cell predominantly via excessive  $[Ca^{2+}]_i$ , reviews on cancer and calcium can be used to search for additional types of evidence arguing that such activation can have roles in cancer causation. Elevated  $[Ca^{2+}]_i$  has been shown to have such roles in a broad range of activities in tumorigenesis and progression including tumor initiation, aberrant proliferation, cell migration, progression, metastasis, and angiogenesis [157–164].



Genetic evidence also implicates excessive  $[Ca^{2+}]_i$  in carcinogenesis, including cancer causation due to mutations activating T-type VGCCs [165]. Other such gene mutations that raise  $[Ca^{2+}]_i$  and cause cancer include mutations in the TRP superfamily of receptors, Orai channels, and calcium ATPase pumps in both the sarcoplasmic reticulum (SERCA) and the plasma membrane (ATP2A2 and ATP2C1) and store-operated calcium channels [166–169]. Each of these types of cancer causing mutations produce increases in  $[Ca^{2+}]_i$ , showing that elevated  $[Ca^{2+}]_i$  has a key role in carcinogenesis.

Specific, cancer causing mechanisms produced as downstream effects of excessive  $[Ca^{2+}]_i$  are described in [Table 7.1](#).

### 7.11 SUMMARY: 15 DISTINCT EMF-INITIATED CAUSES OF CANCER

This paper is based on three important findings. First, that microwave and lower frequency EMFs act via activation of VGCCs. Second, 29 different reviews have concluded that such EMFs cause cancer, raising the question of how VGCC activation can cause cancer. Third, because VGCC activation acts mainly via increased  $[Ca^{2+}]_i$ , it is reasonable to assume that cancer causation occurs via increased calcium signaling and via other downstream effects of  $[Ca^{2+}]_i$ . This paper finds that there are multiple mechanisms that fit each of these two descriptions that cause cancer based on the cancer literature. Many of them come from the downstream effects involving the peroxynitrite/free radical/oxidative stress pathway and one of the important consequences of that pathway, elevated NF-kappa B. Those downstream effects are similar or identical to the effects that are central to inflammatory carcinogenesis in the literature. But, in addition, there are cancer causing effects that are caused by excessive calcium signaling and these are also discussed here.

These mechanisms are listed below. Mechanisms 1–6 are all reported to be raised following EMF exposures and are, therefore, particularly plausibly involved in EMF-caused carcinogenesis. Each of these 15 is produced as a consequence of either the peroxynitrite/free radical/oxidative stress pathway of action of as a consequence of excessive calcium signaling. Each is, therefore, highly plausible because each of these pathways of action are well documented downstream effects of EMF exposures.

1. Formation of single strand breaks in cellular DNA and
2. Double strand breaks in cellular DNA. The double strand breaks have multiple roles in carcinogenesis. The single strand breaks may generate chromosomal rearrangements and copy number mutations via aberrant recombination events. Double strand breaks are known to help cause gene amplification events and single strand breaks may also have roles in gene amplification.
3. Oxidized bases, of which 8-OHdG has been by far the most studied, which produce point mutations including transversion mutations. 8-OHdG is produced via peroxynitrite breakdown product free radicals including hydroxyl and carbonate radicals. These same free radicals have roles in



**TABLE 7.1**  
**Additional [Ca<sup>2+</sup>]<sub>i</sub>-Mediated Cancer-Related Activities**

Citation(s)	Cancer-Related Activity
[170,171]	Calcium-dependent phosphatidylserine flippase activity; this calcium-dependent enzyme activity controls, in turn, many different cancer cell surface markers, while placing substantial levels of phosphatidylserine on the outer surface of the plasma membrane specifically in cancer cells. This, in turn, makes the cancer cells resistant to immune surveillance.
[172–179]	The calcium/calmodulin-dependent protein kinase, CaMKII controls the progress through the cell cycle in many different types of cancer.
[180–182]	CaMKII activity is also stimulated by oxidation of methionine residues in the enzyme to methionine sulfoxide, a process that is greatly increased in oxidative stress. It follows that the cell cycling activated by CaMKII (see immediately above) can also be increased by oxidative stress.
[183–192]	c-src, viewed as being one of the most important cellular oncogenes causing human cancer, is activated by calcium binding to calmodulin [183–185]. c-src a tyrosine protein kinase, phosphorylates a tyrosine residue on L-type VGCCs, leading to large increases in the sensitivity of the VGCCs to activation [186–188]. This suggests that these mechanisms may constitute a positive feedback loop, leading to excessive [Ca <sup>2+</sup> ] <sub>i</sub> levels that may be substantially higher than those obtained by the direct impact of EMFs on the VGCCs. A second somewhat similar positive feedback loop occurs as a consequence of reactive oxygen species that are elevated under oxidative stress, also activates the L-type VGCCs [189–192]. It may be suggested, therefore, that these mechanisms may not only contribute to cancer causation, but also to electromagnetic hypersensitivity (EHS).
[159]	In a much broader pattern than the c-src connection, immediately above, Marchi and Pinton [159] reviewed various studies showing that calcium up-regulates multiple cellular oncogenes and down-regulates multiple tumor suppressor genes, thus stimulating large numbers of mechanisms involved in causing cancer.
[193,194]	Calpains are calcium-activated, cysteine proteases which are viewed, therefore, as calcium receptors. An excellent review of calpains and cancer [193] describes the complex and often divergent roles of calpains in cancer—roles that are sufficiently complex and divergent, that in most cases, this reviewer cannot summarize them. The one exception to that is the role [193] where “the positive role played by calpains in tumor cell migration and invasion has been well established” often leading to metastasis. Investigations show that calpain activity is correlated with invasion and that calpain inhibition leads to lowered cell migration and invasion. Calpains function in this role by increasing the activity of several proteins involved in cell movement as well as degrading the extracellular matrix. In the latter function, calpains act along with the matrix metalloproteinases (MMPs) which are discussed above in this paper. The role of calpains in tissue invasion and metastasis is confirmed in a recent review [194] on calpains in breast cancer.

generating both single strand breaks and double strand breaks in cellular DNA.

4. Increased ODCase produced following EMF exposures is an additional mechanism likely to be involved in EMF-caused carcinogenesis. Increased ODCase is caused by oxidative stress.

5. Lowered melatonin levels follow EMF exposures. Melatonin has anti-cancer activities which are thought to be produced primarily via melatonin-mediated increases in Nrf2 activity and increases in AMPK activity. Nrf2 helps prevent cancer and AMPK helps treat cancer.
6. Increased NF-kappaB activity is produced by oxidative stress which occurs following EMF exposure. NF-kappaB has multiple roles in cancer causation. NF-kappa B produces proliferation of premalignant and malignant cells, prevents apoptosis of cancer cells, promotes angiogenesis of solid tumors, and stimulates invasion including metastasis. NF-kappaB also helps explain 4 and 5 above. NF-kappaB acts to raise ODCase. Part of the cancer prevention or cancer treating actions of Nrf2 and AMPK is that they both act to lower NF-kappaB.
7. EMF-induced tumor promotion via gap-junction disruption, where oxidative activation of AP-1 induces increased proteolysis of both gap-junction and tight junction proteins, leading to gap-junction disruption and tumor promotion.
8. EMF-induced disruption of gap-junctions and tight junctions (see 7 immediately above) also has a key role in increasing tumor invasion and metastasis.
9. Tumor promotion via double strand breaks in cellular DNA and consequent gene amplification of cellular oncogenes. The other mostly calcium-linked mechanisms all come from [Table 7.1](#).
10. The calcium-dependent enzyme, phosphatidylserine flippase, produces substantial levels of phosphatidylserine on the outer surface of cancer cells, producing many cancer-specific cell surface markers and resistance of the cancer cells to immune surveillance.
11. The calcium/calmodulin dependent protein kinase, CaMKII, controls progress through the cell cycle in many types of cancer cells.
12. CaMKII activity is stimulated by oxidation of methionine residues in the protein, caused by oxidative stress; it follows that this critically important activity in cancer cells is both produced directly by elevated  $[Ca^{2+}]_i$ , and also oxidative stress.
13. The cellular oncoprotein c-src is activated by calcium binding to calmodulin and it acts in turn to raise the sensitivity of the L-type VGCCs to voltage activation. It follows that this may produce a positive feedback loop, leading to amplified  $[Ca^{2+}]_i$  levels. Oxidants also sensitize the VGCCs to activation, suggesting an additional positive feedback loop.
14. March and Pinton [\[159\]](#) reviewed a broad pattern of calcium effects, where calcium raised the activity of cellular oncoproteins and, in addition, lowered the activity of tumor suppressor proteins.
15. Calpains, calcium-activated cysteine proteases, increase tumor cell migration and tissue invasion leading to metastasis.

We have, then, 15 well-documented mechanisms by which EMFs acting via VGCC activation can cause cancer. It is complete and utter to nonsense, therefore, to claim there are no such mechanisms.

## 7.12 THE AUTHOR DECLARES NO CONFLICTS OF INTEREST

All time and financial costs in the writing of this paper are being donated by the author and no reimbursement will be sought or accepted for these costs. Therefore, the author declares no conflict of interest.

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**Breast Cancer and Fourth Stage Metastatic Breast Cancers;  
15 Biochemical Pathways to Carcinogenesis Activated by Wireless/EMF Radiations  
: 5G Opposition Actions Around the Nation and the World**

Ulster County Legislature, October 15, 2019

Since this is Breast Cancer Awareness Month, I've recently heard two important radio segments about cancer. In one, pharmaceutical researchers discussed how chemo drugs stop working over time – *the cancers change* to tolerate the drugs! In the other, a young woman spoke about her diagnosis of stage four metastatic breast cancer. She has survived thus far, but her doctor said that even with *early stage* breast cancer, about 25 percent of survivors go on to experience stage four *metastatic* breast cancer. Two people I know have suffered this – one had bone and brain tumors and died a costly and terrible medical death, and the other developed kidney cancer.

For me these are wake-up calls. We need to be absolutely serious about the *causes* of cancer. We know about pesticides, smoking, asbestos and arsenic, etc. But we are overlooking the most rapidly-intensifying cancer-generating factor in our modern life-style. Again Dr. Martin Pall has brought together the facts on how electromagnetic and wireless radiations activate *fifteen different biochemical pathways in the body that facilitate the development of cancers*. These pathways are opened when the Voltage-Gated Calcium Channels which I have spoken to you about are activated by these radiations. The results of this include DNA damage, tumor promotion, inflammation that generates cancers, facilitation of blood supply to tumors and metastasis. I've left a copy of Dr Pall's chapter on this with Netti and will also email it to you. It is from the internet book *Mobile Communications and Public Health*, edited by Markov.

I also want to alert you to the rising tide of actions – including legal actions – being taken around the nation and the world in opposition to 5G wireless, so I'll email you a recent article that logs over 100 actions just this year.\* I urge you to join in taking action. Thank you.

Kate Reese Hurd

High Falls NY [kreehu@gmail.com](mailto:kreehu@gmail.com)

\* Here's the link, but I'll also send you the article as a document with an INDEX to the actions, to make referencing them easy.: <https://www.globalresearch.ca/telcos-losing-battle-impose-5g/5691065>.