



Charles Parkinson Esq
President of Economic Development Committee
Sir Charles Frossard House
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Dear Mr. Parkinson

I am a public health physician and professor and obtained my undergraduate degree from Harvard College and my MD degree from Harvard Medical School. I have held previous positions at the National Institute of Mental Health, the Armed Forces Radiobiology Research Institute, as Director of the Wadsworth Center for Laboratories and Research of the New York State Department of Health and as Dean of the School of Public Health at the University at Albany. My current title is Director of the Institute for Health and the Environment at the University at Albany and Professor of Environmental Health Sciences within the School of Public Health. In addition, I am an Honorary Professor, Queensland Children's Medical Research Unit, University of Queensland, Brisbane, Australia.

This letter is to help bring to your kind attention why I strongly support an indefinite moratorium of fifth generation (5G) infrastructure in Guernsey until further study on long term health impacts of non-ionizing radiation can determine if it is safe for long-term, chronic human exposure. We know that 5G technology, which is still being standardized, proposes to use non-ionizing radiation at microwave frequencies in the giga-hertz (GHz) range faster data. These are "millimeter" wave forms.

These frequencies have not been tested for long term safety in humans nor have these been used commercially until very recently. Due to the nature of the higher frequencies, industry requires infrastructure (antennas) to be placed close together (roughly every 900 meters) and is attempting to streamline these antenna sittings in neighborhoods near where children live and play. This technology would blanket neighborhoods with unprecedented radiofrequency exposure.

Because 5G technology is so new there has been no opportunity to determine the degree to which this specific frequency will cause adverse health effects. However high frequency electromagnetic fields contain higher levels of energy than those of lower frequency. This alone would suggest that 5G will be worse than the current 3G and 4G. We have considerable knowledge (after tens of thousands of peer studies) of the health effects in humans of these frequencies and have good reason to expect that 5G emissions will results in similar adverse effects on human health.

In 2011 the International Agency for Research on Cancer, a part of the World Health Organization, rated radiofrequency electromagnetic fields in the range of 30 KHz to 300 GHz as being possible human carcinogens. This frequency range includes that expected to be used by 5G, which is 10-50 GHz initially with possible expansion in the future. Since 2011 there has been additional evidence in both human and animal studies. There is strong evidence that excessive use of a mobile phone held to the ear increases the risk of developing brain cancer, especially glioma and the usually fatal glioblastomas, as well as acoustic neuromas, a Schwann cell tumor of the auditory nerve. These cancers occur primarily on the side of the head where the individuals regularly use his or her mobile phone. Recent animal studies by the US National Toxicology Program have shown that mobile phone-intensities induce gliomas and Schwannomas in rats, while studies by the Ramazzini Institute in Italy, using much lower intensities modelled after those generated by a mobile phone mast, gave rise to the same two cancers. The fact that animal exposures result in the same two cancers seen in humans is strong evidence that the exposure causes these cancers. There is also evidence that women who wear an active cell phone in their bra are at elevated risk of developing breast cancer.

I believe with many of my other esteemed experts around the world that wireless radiation should be upgraded immediately to a Class 1 Human carcinogenic. The evidence is there **now**, and we should learn from asbestos, tobacco and other disasters and not wait for an epidemic which I and other colleagues believe will be worse than tobacco as we are all exposed.

There are other important adverse effects of radiofrequency radiation. Of concern is evidence that exposure of men to radiofrequency radiation resulting from keeping a mobile phone in their pockets or a wireless laptop on their lap results has been shown to reduce the sperm count in men by up to 50%. There are also many studies showing that isolated sperm are damaged by non-thermal levels of radiofrequency radiation. This is important because of widespread evidence that male fertility in developed countries is declining.

In addition, an increasing number of people are developing the syndrome of electro-hypersensitivity (EHS). This syndrome includes headaches, tinnitus, fatigue and other non-specific symptoms that occur only when the individual is in the presence of electromagnetic fields. It is not clear yet what percentage of the population suffers from this condition, but reports suggest that it occurs in about 5% of people. The syndrome is often but not always triggered by a brief, often unintentional, intense exposure in a previously healthy individual. Recent studies from France have demonstrated that there are clinical chemistry changes in the blood that correlate with this disease and indicate that it is likely due to generation of reactive oxygen species caused by the radiofrequency exposure.

All of the health effects reported above occur at intensities of radiofrequency fields that are much below those that cause measureable tissue heating. Unfortunately, most national and international agencies set regulatory safety standard based (including ICNIRP) far too high and on the false assumption that the only health concerns are a result of tissue heating. This is simply a wrong assumption and the result is a failure to protect the public even from the existing source of exposure to radiofrequency radiation. Places including Brussels, The Netherlands, Rome and others have correctly decided to follow the precautionary principle and stopped or restricted 5g. I strongly suggest Guernsey does the same.

There has been a dramatic increase in the average human exposure to radiofrequency radiation in recent years from our existing 3G and 4G facilities. The ongoing implementation of 5G throughout the world is going to result in a dramatic increase in exposure above and beyond the increases we are already witnessing. While there is ongoing debate over the question of whether millimeter waves, such as those to be used in 5G, are more or are less harmful than our existing exposures, there is no question whatsoever but that implementation of 5G will enormously increase exposure. Because the millimeter waves do not travel as far as those in current use, it is necessary to place a mini-mobile antenna about every 900 meters. These generators will be placed on poles in front of about every sixth house in residential areas. One will be constantly exposed when walking down the street.

I have extensive expertise in the study of public health impacts from this type of radiation which can have both thermal effects and non-thermal biological effects on humans and animals. My research leads me to support a moratorium on 5G to protect public health and safety.

In the 1980s I served as the Executive Secretary of the New York State Powerlines Project, a state-funded study designed to determine whether there were adverse health effects from living near to power lines. The program of research showed that children living in homes with elevated magnetic fields coming from power lines suffered from an elevated risk of developing leukemia, and that electromagnetic field (EMF) exposure altered a variety of responses studied in animals and in cellular systems. After the Powerlines Project was finished, I became the spokesperson for New York State on the issue of health effects of electromagnetic fields.

I have published several reviews and have edited two books on the Biological Effects of Electric and Magnetic Fields. I am also a Co-Editor and a Contributing Author of the BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF) (<http://www.bioinitiative.org/>). This report was first published in 2007 and has been updated in 2012 and 2014. The BioInitiative Report documents bioeffects, adverse health effects and public health conclusions about impacts of electromagnetic radiation (electromagnetic fields including extremely low frequency ELF-EMF and radiofrequency /microwave or RF-EMF fields). The entire report is a comprehensive and up-to-date review of the scientific information on this subject. The Bio Initiative report was used by the European Parliament to support reduction in environmental levels of RFR /EMR.

In 2009, I was invited to present to the President's Cancer Panel on the subject of power line and radiofrequency fields and cancer. I have also testified on the subject of adverse health effects of EMFs to humans before the United States House of Representatives.

I am an active researcher and educator. My research activities at present are focused on the general subject of environmental causes of human disease. I have authored over 450 major publications in peer-reviewed scientific journals, have edited five books and have numerous other publications. I participate in many international, national, state and local organizations and committees as listed in my curriculum vitae along with the Honors, Awards, and Fellowships I have received. While my personal research has not been directed at study of electromagnetic fields, I have had sufficient administrative and evaluation responsibilities related to human health effects of power line magnetic fields so as to consider myself an expert in this area.

I strongly urge you to implement a moratorium on this infrastructure until there is proof of long- term safety. In the interim, I support fiber optic /copper cabling to the home to provide connectivity speeds which are faster, safer and more secure than wireless data transmissions.

Guernsey, as an independent country making its own decisions, could really make a mark in the world by joining the sensible few to stop 5g to protect the health of your citizens in spite of the temptation to follow the herd. If the telecoms industry cannot guarantee that 5g is safe and has already advised their investors (in a similar way the tobacco industry did years ago) that they cannot guarantee that wireless radiation is safe, then on what grounds can a rational decision be made?

This idea to create an Internet of Things has come from industry and their consultants eager to make huge commercial gains so we rely on technology for everything. Is that healthy? We are also told that we need 5g to have driverless electric cars or gadgets to monitor our health in the future. I am sure you will agree that this is wholly unacceptable if the delivery medium of wireless pulsed microwave radiation is making us sick. On a very basic level, excessive use of technology is already making society lazy, which contributes to obesity, worse eyesight (wireless radiation effects the eyes also), strains on the neck, fingers and shoulders etc. All this without the likely increases in cancer and other illnesses from RFR, will substantially add to the strain on your public healthcare budget. Do we want our children to lose all connection with nature by sitting glued to their screens and not even know how to switch on a light or to drive a car?

Instead Guernsey could instigate a major study now on the effects of 4g now on the health of the residents and negative effects on the environment on the island and then to study and take expert advice regarding the many restrictions other countries follow. For example, the use of Wi-Fi in schools, employer health warnings, strict sales laws about the sale of mobile phones with health warnings etc. You may not be aware but buried deep within the fine print of most mobile phone (and similar devices) instructions is a warning that a mobile phone should not be held next to the body which includes our heads!

Yours sincerely,

A handwritten signature in blue ink that reads "David O. Carpenter". The signature is fluid and cursive, with a long horizontal stroke at the end.

David O. Carpenter, M.D.
Director, Institute for Health and the Environment
University at Albany

Cc Deputies of Guernsey, Dr Nicola Brink (Director of Health), CICRA, David Green