BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the matter of DOCKET NO.:17-035-62
Darlene Schmidt Exhibit showing brain barrior RF damage

v. Downes v. Bidwell Court demanded

Rocky Mt. Power Corp Jury Demanded

Pursuant to our ratified US constitution and Utah, art 1 sec 3, America's jurisprudence system, I move this court for an ex parte hearing:

Histroy of Motorola silencing RF Radiation health care damage

Louis Slesin has a doctorate in environmental policy from MIT and in 1980 founded an investigative newsletter called Microwave News. "No one in this country cared!" Slesin said of the findings. "It wasn't news!" He suggested that much of the comfort of our modern lives depends on not caring, on refusing to recognize the dangers of microwave radiation. "We love our cell phones. The paradigm that there's no danger here is part of a worldview that had to be put into place," he said. "Americans are not asking the questions, maybe because they don't want the answers. So what will it take?"

To understand how radiation from cell phones and wireless transmitters affects the human brain, and to get some sense of why the concerns raised in so many studies outside the U.S. are not being seriously raised here, it's necessary to go back fifty years, long before the advent of the cell phone, to the research of a young neuroscientist named Allan Frey.

In 1960, Frey, then 25, was working at General Electric's Advanced Electronics Center at Cornell University when he was contacted by a technician whose job was to measure the signals emitted by radar stations. At the time, Frey had taken an interest in the electrical nature of the human body, specifically in how electric fields affect neural functioning. The technician claimed something incredible: He said he could "hear" radar at one of the sites where he worked.

Frey traveled to the facility and stood in the radar field. "And sure enough, I could hear it, too," he said, describing the persistent low-level hum. Frey went on to establish that the effect was real—electromagnetic (EM) radiation from radar could somehow be heard by human beings. The "hearing," however, didn't happen via normal sound waves perceived through the ear. It occurred somewhere in the brain itself, as EM waves interacted with the brain's cells, which generate tiny electrical fields. This idea came to be known as the Frey effect, and it caused an uproar in the neuroscience community.

The waves that Frey was concerned with were those emitted from the nonionizing part of the EM spectrum—the part that scientists always assumed could do no outright biological damage. When Frey began his research, it was assumed that the only way microwaves could have a damaging biological effect was if you increased the power of their signals and concentrated them like sword points—to the level where they could cook esh. In 1967, this resulted in the first popular microwave oven, which employed microwave frequencies at very high power, concentrated and contained in a metal box. Aside from this engineered thermal effect, the signals were assumed to be safe.

Allan Frey would help pioneer the science that suggested otherwise. At the vanguard of a new field of study that came to be known as bioelectromagnetics, he found what appeared to be grave nonthermal effects from microwave frequencies—the part of the spectrum that belongs not just to radar signals and microwave ovens but also, in the past fifteen years, to cell phones. (The only honest way to think of our cell phones is that they are tiny, low-power microwave ovens, without walls, that we hold against the sides of our heads.) Frey tested microwave radiation on frogs and other lab animals, targeting the eyes, the heart, and the brain, and in each case he found troubling results. In one study, he triggered heart arrhythmias. Then, using the right modulations of the frequency, he even stopped frog hearts

with microwaves—stopped the hearts dead.

Frey observed two factors in how microwaves at low power could affect living systems. First, there was the carrier wave: a frequency of 1,900 megahertz, for example, the same frequency of many cell phones today. Then there was the data placed on the carrier wave—in the case of cell phones, this would be the sounds, words, and pictures that travel along it. When you add information to a carrier wave, it embeds a second signal—a second frequency—within the carrier wave. This is known as modulation. A carrier wave can support any number of modulations, even those that match the extra-low frequencies at which the brain operates (between eight and twenty hertz). It was modulation, Frey discovered, that induced the widest variety of biological effects. But how this happened, on a neuronal level, he didn't yet understand.

In a study published in 1975 in the Annals of the New York Academy of Sciences, Frey reported that microwaves pulsed at certain modulations could induce "leakage" in the barrier between the circulatory system and the brain. Breaching the blood-brain barrier is a serious matter: It means the brain's environment, which needs to be extremely stable for nerve cells to function properly, can be perturbed in all kinds of dangerous ways. Frey's method was rather simple: He injected a fluorescent dye into the circulatory system of white rats, then swept the microwave frequencies across their bodies. In a matter of minutes, the dye had leached into the confines of the rats' brains.

Frey says his work on radar microwaves and the blood-brain barrier soon came under assault from the government. Scientists hired and funded by the Pentagon claimed they'd failed to replicate his findings, yet they also refused to share the data or methodology behind their research ("a most unusual action in science," Frey wrote at the time). For more than fifteen years, Frey had received almost unrestricted funding from the Office of Naval Research. Now he was told to conceal his blood-brain-barrier work or his contract would be canceled.

Since then, no meaningful research into the effect of microwaves on the blood-brain barrier has been pursued in the United States. But a Swedish neurosurgeon, Leif Salford, recently expanded on Frey's work, confirming much of what Frey revealed decades ago. Salford found that microwave exposure killed rodents' brain cells and stimulated neurons associated with Alzheimer's. "A rat's brain is very much the same as a human's," he said in a 2003 interview with the BBC. "They have the same blood-brain barrier and neurons. We have good reason to believe that what happens in rats' brains also happens in humans'. " His research, he said, suggests that "a whole generation of [cell-phone] users may suffer negative effects in middle age."

The potential complications don't end there. In the mid-1990s, a biophysicist at the University of Washington named Henry Lai began to make profound discoveries about the effects of such frequencies not only on the blood-brain barrier but also on the actual structure of rat DNA. Lai found that modulated EM radiation could cause breaks in DNA strands—breaks that could then lead to genetic damage and mutations that would be passed on for generations. What surprised Lai was that the damage was accomplished in a single two-hour exposure.

"This was explosive news," Slesin said. "The reason it was so important was at the time you had all these allegations of brain tumors and cell phones being connected"—specifically the 1992 lawsuit brought by a Florida man, David Reynard, against a number of companies that manufactured phones and provided cell service, following the death of his wife from a brain tumor. "If you can break up DNA with cell-phone radiation, suddenly it's not such a stretch to think of brain tumors developing from this radiation."

Galvanized by the Reynard case, Motorola frantically mobilized to reassure its investors. Then, in 1994, the company went on the attack to discredit Lai, issuing a memo, later obtained by Slesin, stating it had "war-gamed" Lai's work. "We do not believe that Motorola should put anyone on-camera," the memo said. "We must limit our corporate visibility." It further stated that the "key question" was whether "this experiment [can] be replicated."

The cell-phone industry funds lots of risk studies, and many of them show no effect from cell-phone-related radiation. The industry pointed to those favorable studies when countering Lai's DNA findings. (In 2004, it should be pointed out, a European Union–funded study carried out by twelve research groups in seven countries found evidence of genotoxic effects resulting from cell-phone radiation—the same kind of DNA damage that Henry Lai uncovered in the 1990s.) But when Jerry Phillips, a scientist with the Veterans Administration whose work was funded by Motorola, replicated Lai's

findings, the company put him under so much pressure not to publish that Phillips abruptly quit microwave research altogether.