

Brief biography of Richard L. Garwin for the hearing of 22 July 2015 on "Protecting the Electric Grid from the Potential Threats of Solar Storms and Electromagnetic Pulse."

Richard L. Garwin was born April 19, 1928 in Cleveland, Ohio, and attended the public schools in Cleveland and Cleveland Heights. He received a B.S. in Physics from what is now Case Western Reserve University and M.S. and Ph.D. degrees in Physics from the University of Chicago. He was on the Physics Department faculty at the University of Chicago until December 1952, when he joined the IBM Corporation in New York City at the IBM Watson Scientific Laboratory.

He was appointed IBM Fellow in 1966 and served in that capacity and as Director of Applied Research and member of the corporate Technical Committee at times until his retirement from IBM in June 1993. He continues as IBM Fellow Emeritus at the IBM T.J. Watson Research Center, Yorktown Heights, NY.

Beginning in 1950, he spent many summers at the Los Alamos Scientific Laboratory (now the Los Alamos National Laboratory) where he worked primarily on nuclear weapons. In July 1951 he outlined the first thermonuclear weapon demonstration-- the hydrogen bomb-- tested 1 November 1952 at Eniwetok with a yield of 11 megatons-- almost 1000 times the energy release of the nuclear weapon that destroyed Hiroshima on 6 August 1945.

In 1953-54 he spent half time on studies of air defense of the United States and Canada, he soon became a consultant to the White House President's Science Advisory Committee (PSAC) and to the Office of Science and Technology (now the Office of Science and Technology Policy).

For PSAC, he chaired several panels on air defense, antisubmarine warfare, naval warfare, and served as a member of the Strategic Military Panel for some 15 years.

Since 1966 he has been a member of the JASON group of consultants to the U.S. government, where he has worked on matters of nuclear weapons, national security, missile defense, and on many topics for the intelligence community.

In 2000 he was recognized by the National Reconnaissance Office as one of the Ten Founders of National Reconnaissance.

He has testified many times to both houses of Congress on matters of national security, technology, and arms control, as well as on nuclear power, the supersonic commercial aircraft, and the like.

In 1954, at Los Alamos, he wrote the first paper on electromagnetic pulse from nuclear explosions, including space nuclear explosions. This was focused on explosions within the atmosphere, but did not treat nuclear explosions in space, entirely missing the marvelous phenomenology that was revealed by an actual test in 1962-- Starfish Prime-- 1.4 megatons of explosive yield detonated at 400 km altitude.

He was an author of the JASON Report of 2011, "Impacts of Severe Space Weather on the Electrical Grid" and has studied also what is now known and published about space nuclear explosions, including the 2008 report of the EMP Commission and the reports of Metatech Corporation.

He continues to study matters of national security for the U.S. government as a JASON member and as a consultant to the Office of Science and Technology Policy.

He is a member of the National Academies of Science, Engineering, and Medicine, and of other organizations such as the International Institute of Strategic Studies. He has received from the U.S. government the Enrico Fermi Award, the R.V. Jones Award for Scientific Intelligence, and the National Medal of Science. His website, [www.fas.org/RLG/](http://www.fas.org/RLG/) is informally known as the Garwin Archive and contains the text of many of his publications and presentations.

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