NEW ENGLAND CLEAN POWER LINK

HEALTH AND SAFETY FACTS

The New England Clean Power Link (NECPL) is a proposed High Voltage Direct Current (HVDC) underground and underwater electric transmission line that will bring 1,000 MW of clean, cost-competitive energy from the Canadian border to a converter station that is proposed to be built in Ludlow, Vermont. The line will consist of two approximately 5 to 6 inch diameter solid state HVDC cables that will be submerged in Lake Champlain and buried in existing public rights-of-ways.

HVDC technology has been used all over the world for more than 60 years and has proven to be safe and reliable. Within the Northeast Kingdom of Vermont, there is an overhead HVDC line from Canada that has been in service since 1986. This fact sheet provides answers to some of the most common questions about this technology and why it is safe for the people and animals of Vermont.

What is High Voltage Direct Current Technology (HVDC)?

HVDC electric transmission is a safe and highly efficient technology used to transmit electricity over long distances. When developed as a buried cable system, HVDC operates more efficiently than traditional Alternating Current (AC) transmission. Direct current is an electric current flowing in one direction only, such as can be found in batteries. Alternating currents flows in both directions. Advances in DC technology have recently made underground and underwater HVDC systems more common in the U.S. To connect to the New England electrical grid DC power must be converted to AC power at a Converter Station.

Is it safe to put HVDC cables in water or in public right of ways?

Yes, it is absolutely safe and actually quite common. HVDC cables are buried or installed in water bodies all over the world, including in the San Francisco Bay, Long Island Sound, the Atlantic Ocean and along Roads and Parkways. The cables that would be used in the Clean Power Link will be equipped with state-of-the-art fault detection equipment that can sense problems and shut the cable off instantly should the need arise. Moreover, the thermal impacts of the cable in the water and on land are insignificant to terrestrial or aquatic organisms.

Will the cables give off Electromagnetic Fields (EMFs)?

Electric and magnetic fields are present everywhere in our environment. AC and DC electricity both produce electric and magnetic fields, but the electric and magnetic fields produced by DC are different than those produced by AC lines. DC produces static fields that do not vary over time as they do in AC. DC electric fields are created by the voltage of electrical equipment and magnetic fields are created when electric current flows through a wire. The fields are strongest near their origin and decrease rapidly as you move away from the source.

There will be no external electric field associated with the Clean Power Link project. The submarine and terrestrial cables that will be used have a metallic sheath that will serve to block the electric field so that outside of the cables the field strength will effectively be zero.

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The magnetic field around the cables will be similar to the earth's magnetic field. Burying the cables overland or underwater will reduce the magnetic field strength at the earth's surface. In addition, by installing the cables close together, the counter directional current of each cable will further reduce the field strength. The generated magnetic field at the ground surface is more than three orders of magnitude below the limit values defined by the ICNIRP (International Commission on Non-Ionizing Radiation Protection) for human exposure.[1]

In New York, the Public Service Commission (PSC), recently approved the Champlain Hudson Power Express (CHPE), a similar HVDC project that will use the same technology as NECPL. In its approval, the PSC noted that "modern DC cables are designed with sheathing to substantially reduce or eliminate direct electric fields" and that the expected magnetic field levels of the facility will be "comparable to the expected magnetic field of a household appliance and considerably less than the earth's magnetic field…"

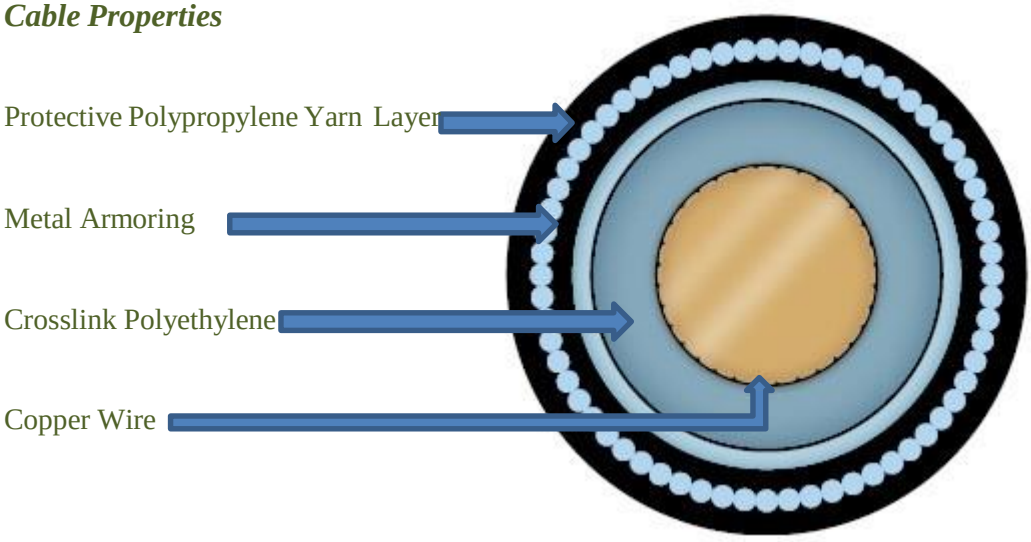
Will the cable harm fish?

No it will not. In addition to extremely low or non-existent electric, magnetic and thermal emissions, the cable will be buried, or submerged in deep areas of Lake Champlain, further minimizing any effect on fish or aquatic life.

What is the cable made of? Does it have hazardous substances in it that could leak into the lake or soil?

The cable is completely solid. There are no liquids, gels or oils that could leak. The cable is made up of a protective coating, metal armoring, a crosslink polyethylene insulator (the same substance used in cutting boards found in your kitchen), and copper wire.

Cable Properties



[1] The ICNIRP Guidelines are formally recognized by the World Health Organization