

Title by HN: Large transformers *do* need protection from E1 –Discussion No 2

Henry, --- This has been very valuable to me – thank you all!

I just need to correct my email of April 26 when I referred to ‘storing power’ – I should, of course, have said ‘storing energy’.

**I have a question re power transformers.** This has been concerning me for some time.

It seems that transformers can be protected against E3, using capacitor-based blocking devices which block GIC’s between transformer neutrals and earth (They block E3 quasi DC current). See link below - <http://www.emprimus.com/solidground>

**My concern is with respect to radiated E1. In a very brief conversation with Dr George Baker** I raised this question. He said that in tests on pole-mounted (small local distribution devices), ‘E1 broke through the windings insulation. *Large transformers have not been tested.* You need only a path to open full power. It’s not fully known how large transformers would react’ (I hope I’m quoting him accurately!).

If large transformers *do* need protection from radiated E1 **we have the nightmare challenge of putting them all in faraday cages!!!** The number of penetrations, including for (now external) cooling lines plus the large steel structures would be formidable. That said, to protect against kinetic attacks we need such barriers anyway...

**Does anyone have any insights?** --

Have a good weekend, **Dave**