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As it was mentioned in contribution B5_PS1_Q1.01_Cimadevilla, Renewable Energy Sources (RES) create changes in positive and negative-sequence networks. However, the influence on the power system side is much lower than on the RES side because of the following:

- There is negative-sequence current injection from the power system side
- The fault current from the power system side is normally much higher than the fault current from the RES side→the influence of network non-homogeneity is low. Eventhough there is a phase shift between both local and remote currents, the angle between the current at the fault point and the current at the power system side will be low.

Figure 1 shows the pure fault positive-sequence network. A is the RES side and B is the power system side. Let´s assume that the angle of ZS1A is higher than 90º but the angle of the rest of the impedances is 90º. Pf means "pure fault", that is prefault removed. I1Apf will lag I1Bpf but as I1Bpf is much higher than I1Apf, the angle between I1Bpf and I1F will be low so I1Bpf will be a good polarization phasor for the reactance line. The same will happen with the negative-sequence network.

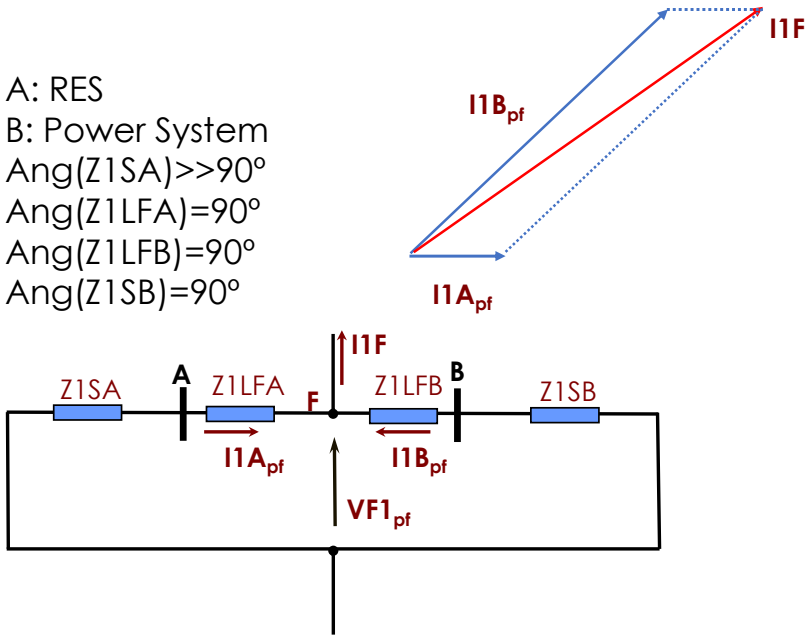

Figure 1. Pure fault positive-sequence network and vector diagram of pure fault positive-sequence currents

Therefore it can be concluded that conventional reactance line polarizations will work well.

As I1Bpf is similar to I1F and I2B is similar to I2F, the angle between I1Bpf and I2B will be similar to the angle between I1F and I2F, therefore, the current based phase selectors will work well.

Note that the latter statements are only true if the power system is strong enough. If the power system is weak, conventional reactance line polarization and conventional current-based phase selectors may fail.