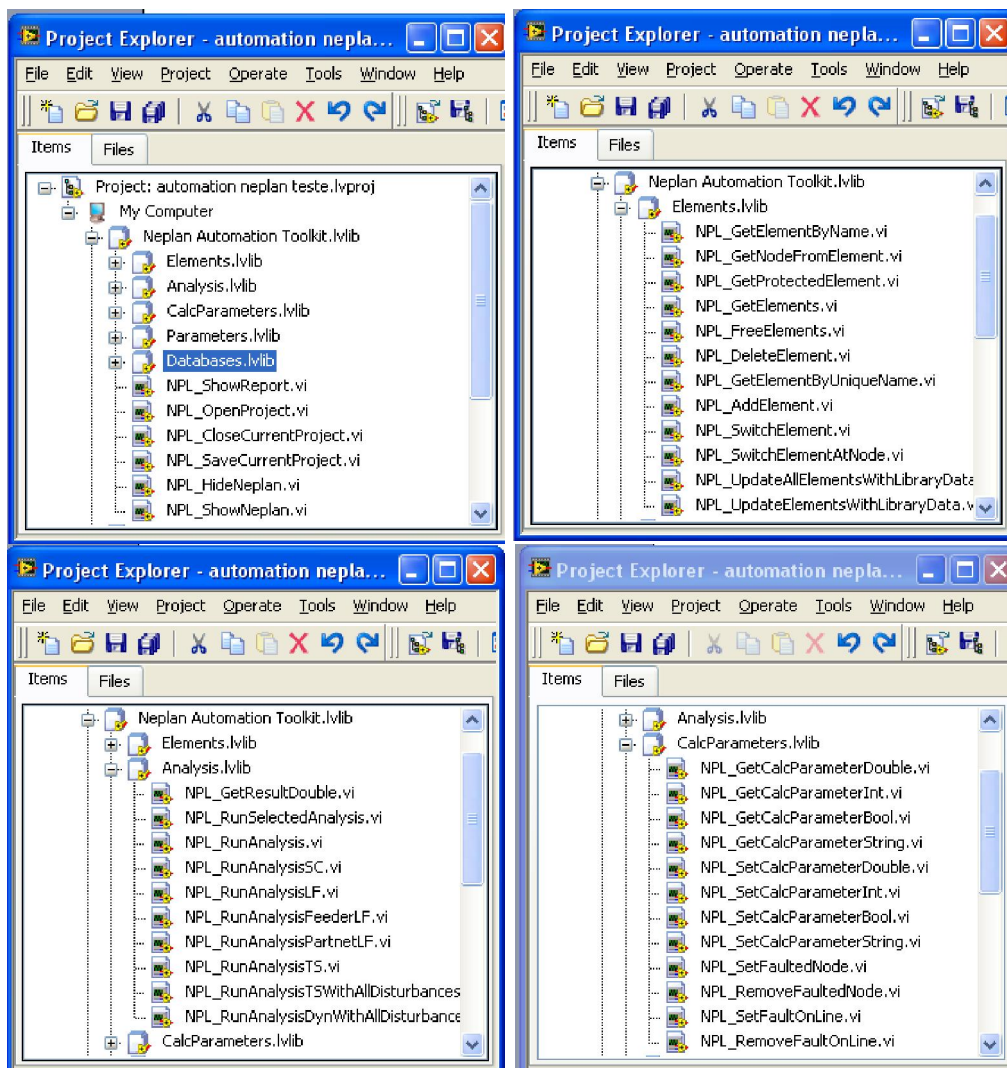


# AUTOMATED TESTING OF NETWORKS IN NEPLAN WITH LABVIEW

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This paper presents a toolkit based on LabVIEW development environment for automating tasks in NEPLAN. It's based on Neplan Programming Language and exposes all the functionality necessary for building and testing electrical networks. Automating tasks is very useful in optimizing networks parameters and teaching purposes.

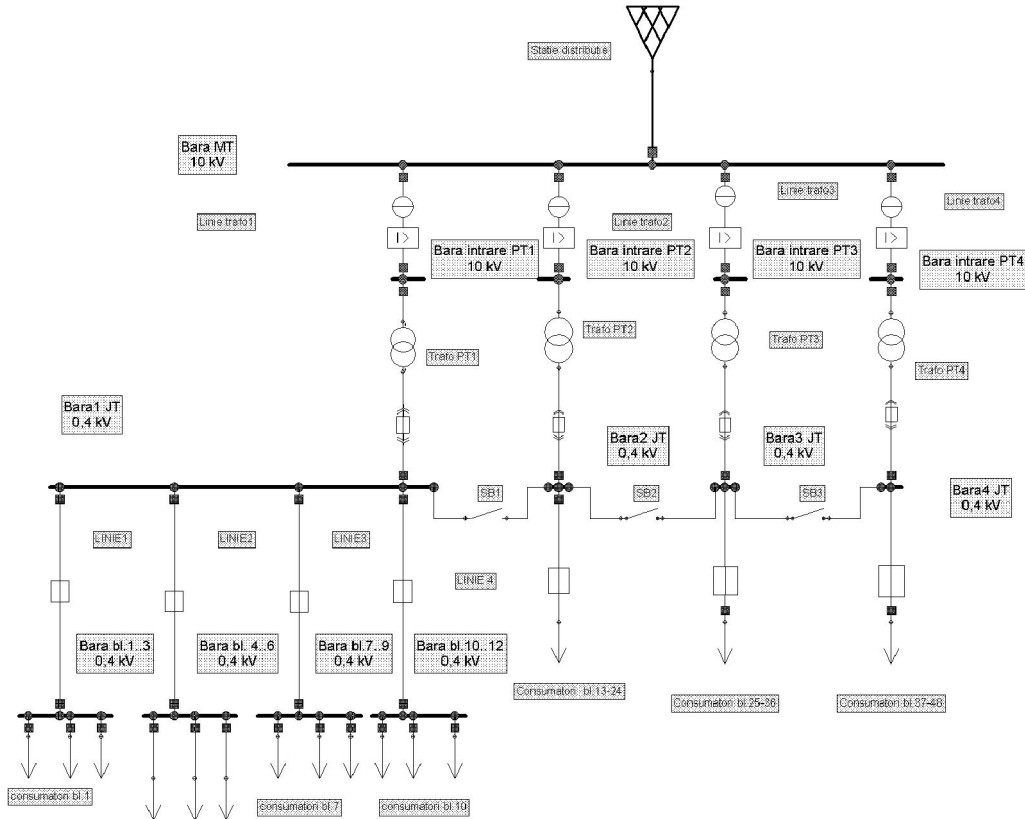
The toolkit, named *Neplan Automation Toolkit*, consists in 5 libraries, and others subVI's for general control of Neplan environment (Open Neplan, Close Neplan, Save Current Project, etc).



### View of Neplan Automation Toolkit in LabVIEW project

With this toolkit the user is able to create testing scenarios and convert them in a virtual instrument (VI). The VI is built in a dynamic link library and called from Neplan.

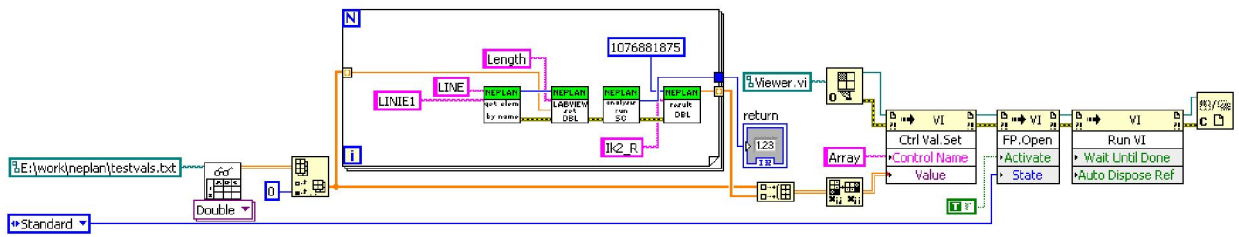
As an example, the network tested consists in an electrical network for residential homes.



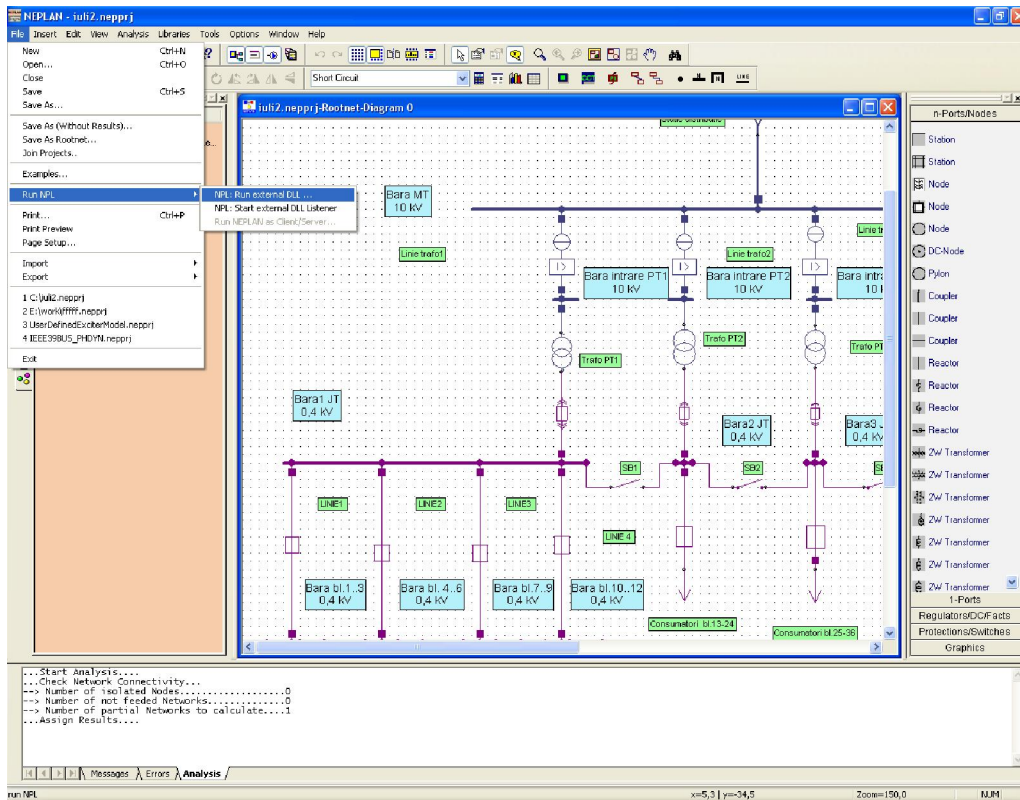
### NEPLAN network for electrical distribution system

With the toolkit all kinds of testing can be implemented. Elements can be added or deleted from networks, parameters can be modified and all the analysis can be started. As an example for this network, the testing scenario consists of determining the effect of cable length to short-circuit currents steady state values.

The VI that implements this scenario is:







### Calling the DLL from NEPLAN

The sequence of test is started and the report is generated automatically.

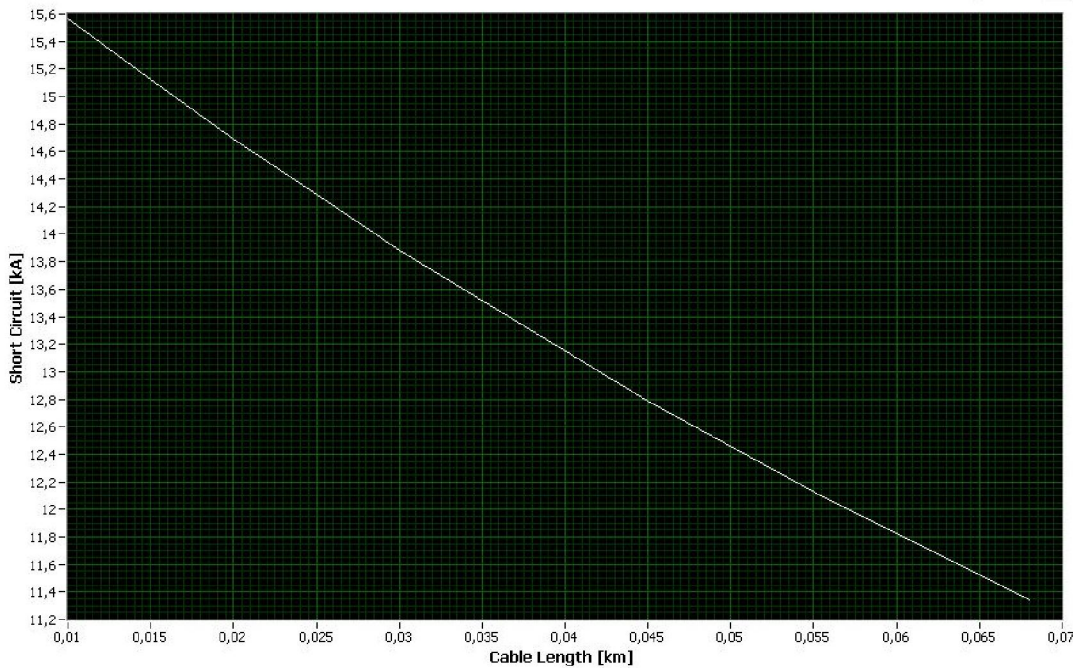


Chart showing the influence of cable length on SC current