

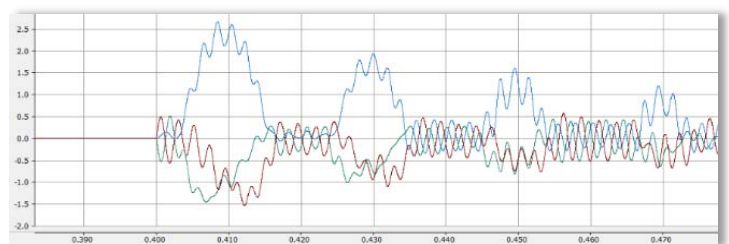
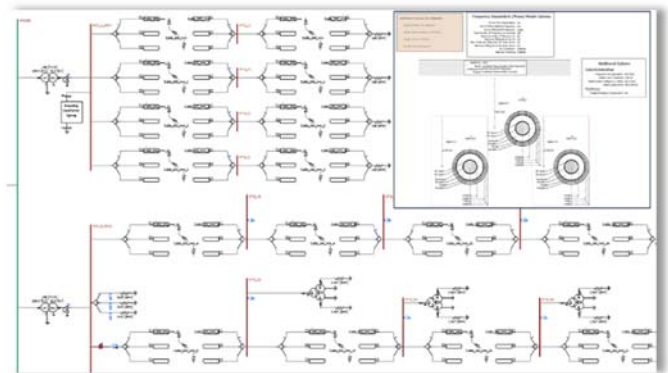
## PSCAD page

We have great experience in performing power system simulations using the industry's leading software to obtain reliable results and to offer flexible solutions upon our customers' requirements.

Ability to model the system and its components in a high level of detail is particularly important in electromagnetic transient (EMT) studies. This can be achieved by an established simulation tool like PSCAD, which offers stable and flexible compiler solutions. If there is request within this area, our team of experts with years of experience working with PSCAD and transient studies are available to offer the necessary technical support.

DanGrid offer EMT services to our customers such as the following:

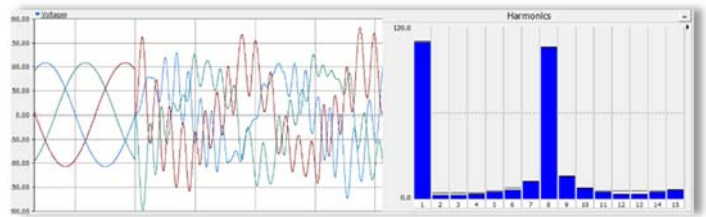
- Insulations coordination studies according to IEC 60071  
*To design and verify the insulation level of the components in the system to ensure optimal performance and reliability of the electrical system.*
- Frequency dependent model  
*To determine the electrical characteristics of components at frequencies other than the fundamental frequency.*
  - Cable
  - Transmission line
  - Circuit breaker
- Energization study  
*To assess the transient effects against planning and operation levels, when energizing a component or plant.*
  - Inrush current
  - Voltage sag/dip
  - Temporary overvoltage (TOV)
  - Point on Wave (PoW) switching
- Fault and lightning studies  
*To verify the reliability of components and the protective devices when the system is subjected to disturbances such as lightning.*
  - Design and protection
  - Surge arrester evaluation
  - Circuit breaker tripping ability
  - Temporary recovery voltage (TRV)
  - Windfarm islanding study



- Harmonics

*To evaluate the harmonic content at specific points in the network which may be susceptible to resonance phenomenon.*

- Fast Fourier Transform (FFT)



- Voltage distortions due to travelling waves

*This phenomenon is caused by discontinuity of the impedance characteristics in the transmission system e.g. connection between cable and overhead line. The voltage build-up at the points of discontinuity due to refraction and reflection of the waves may lead to significant temporary voltage distortions.*

Any further questions and inquiries do not hesitate to contact us.