Automation tools for power system model creation and verification of RTDS models

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2 Oct 2019

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TasNetworks Developments

PSS/e to RSCAD User model conversion tool

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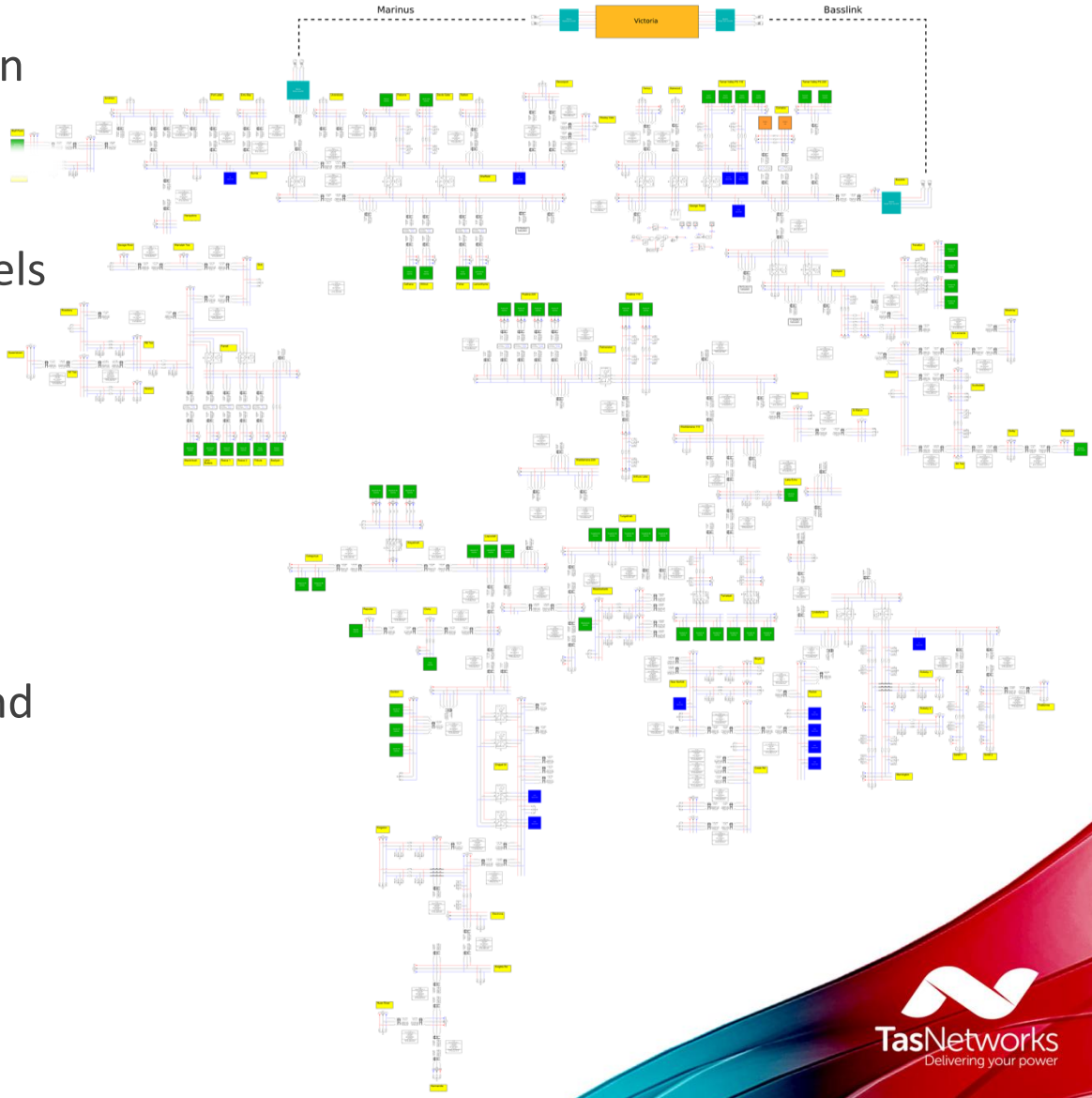
Modelling Challenge

- Model of the entire Tasmanian transmission network
- Majority of user written models
- Flexibility and repeatability
- Roughly geographical layout
- Premade faults, sequences and monitoring



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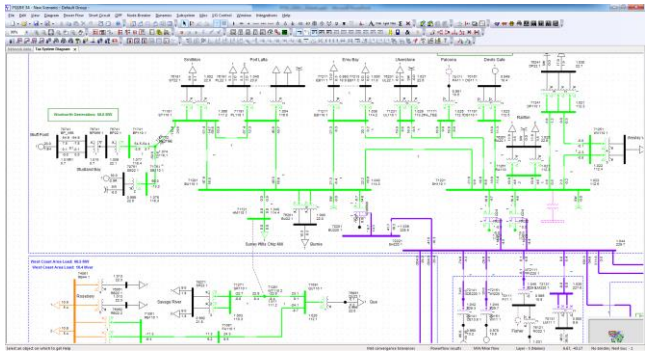

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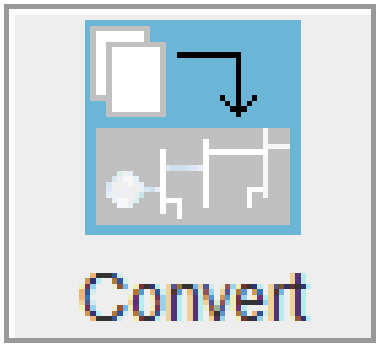

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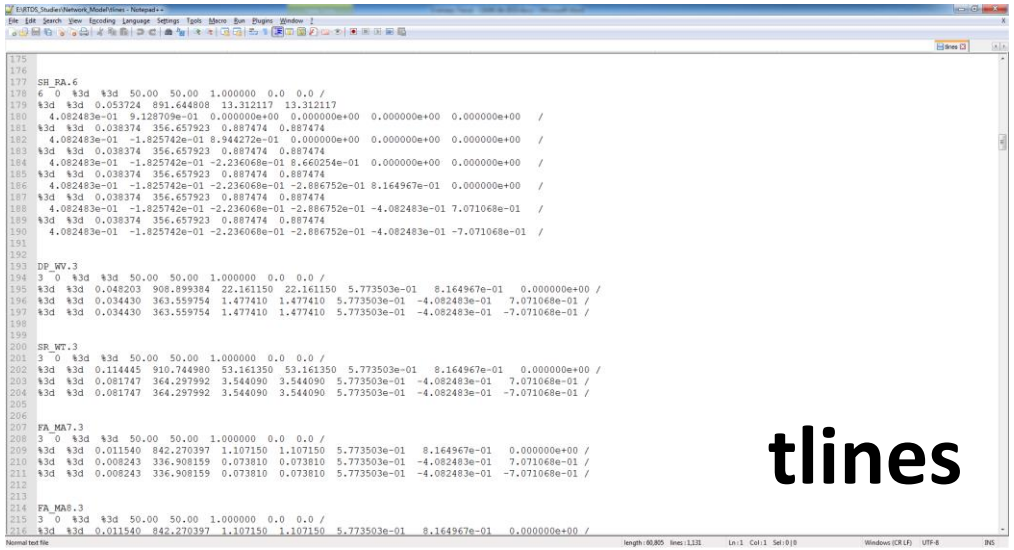

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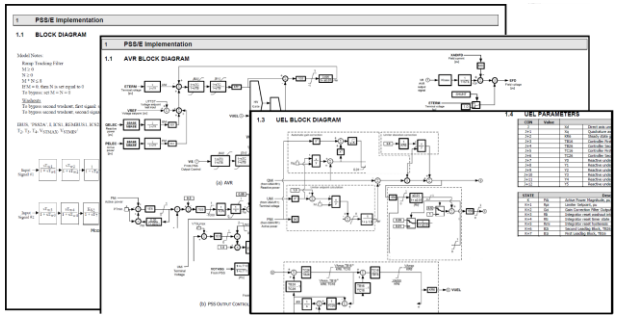
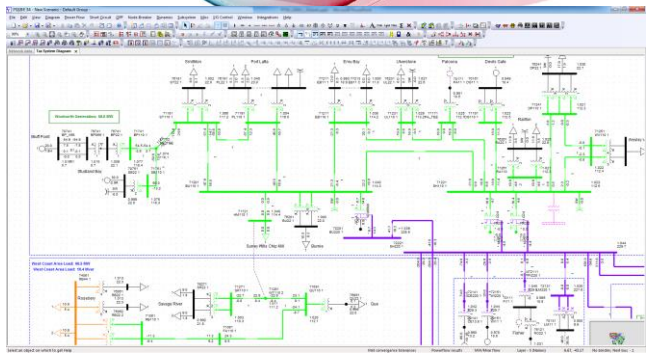
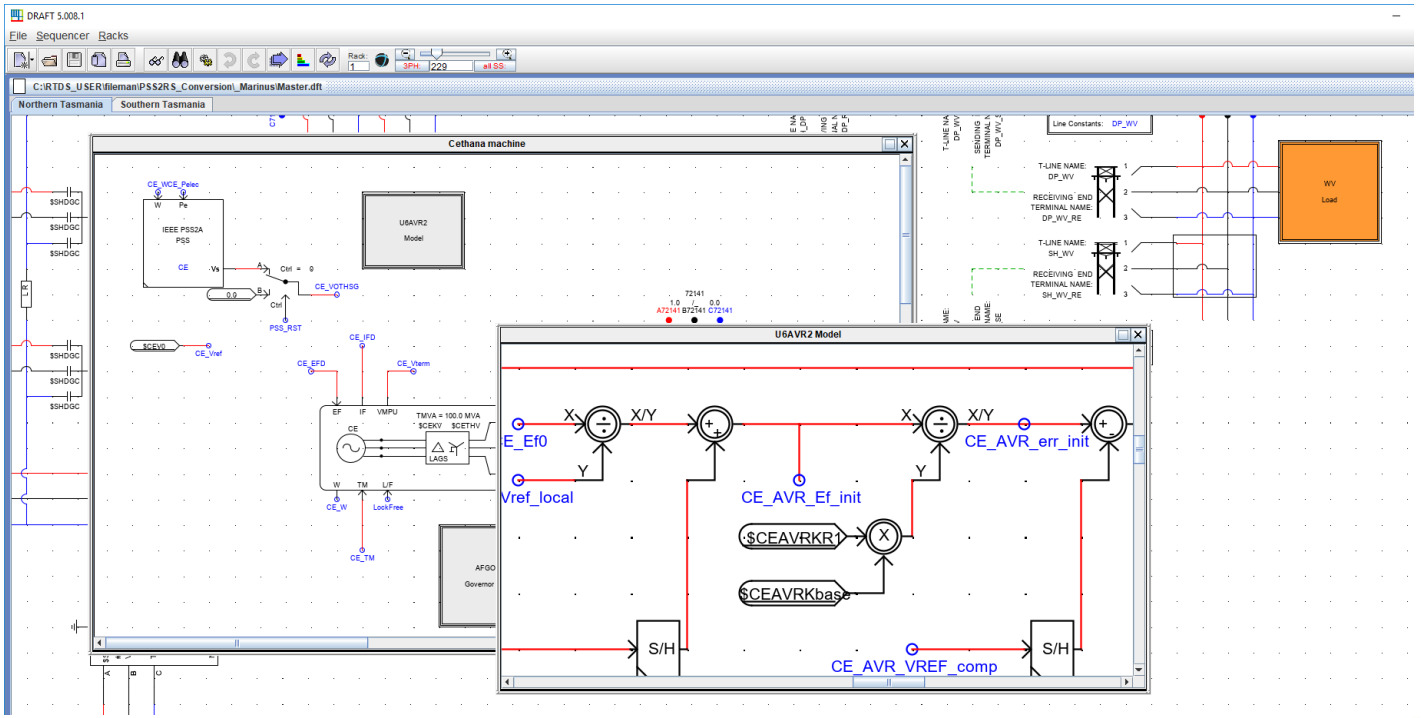
tlines

Process



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Northern Tasmania
Southern Tasmania
Cethana machine
U6AVR2 Model
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CE_AVR_err_init
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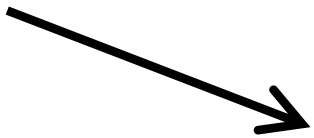
$CEAVRKbase
S/H
S/H

Mapping

$XXXYYYZZZZ

Generator identifier Model identifier Model parameter

$GO1GOVMSmax



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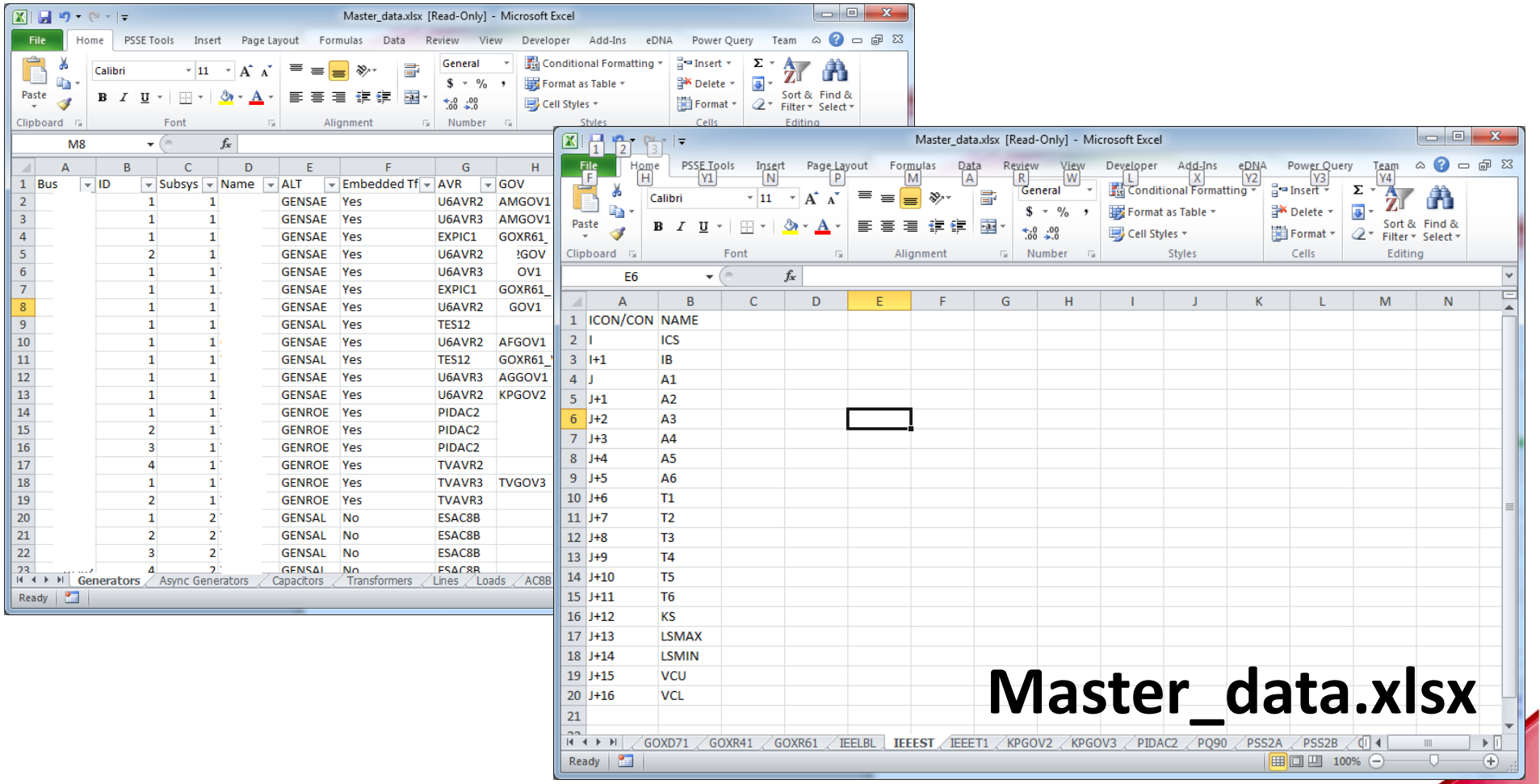
Process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Async Generators
Capacitors
Transformers
Lines
Loads
AC8B
Master_data.xlsx [Read-Only] - Microsoft Excel
GOXD71
GOXR41
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IEEEST
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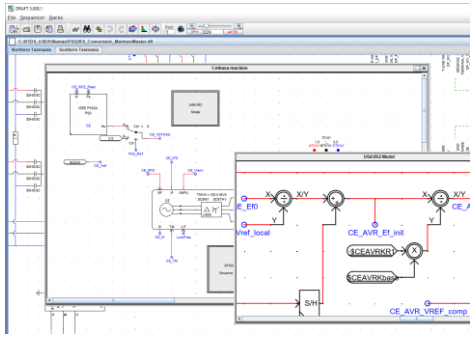
KPGOV3
PIDAC2
PQ90
PSS2A
PSS2B
Master_data.xlsx

Process



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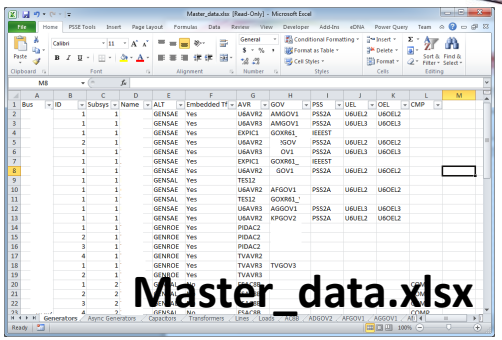

Master_data.xlsx

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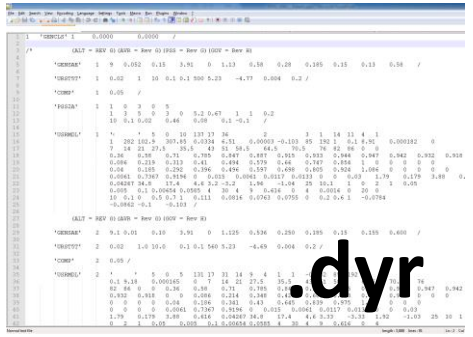

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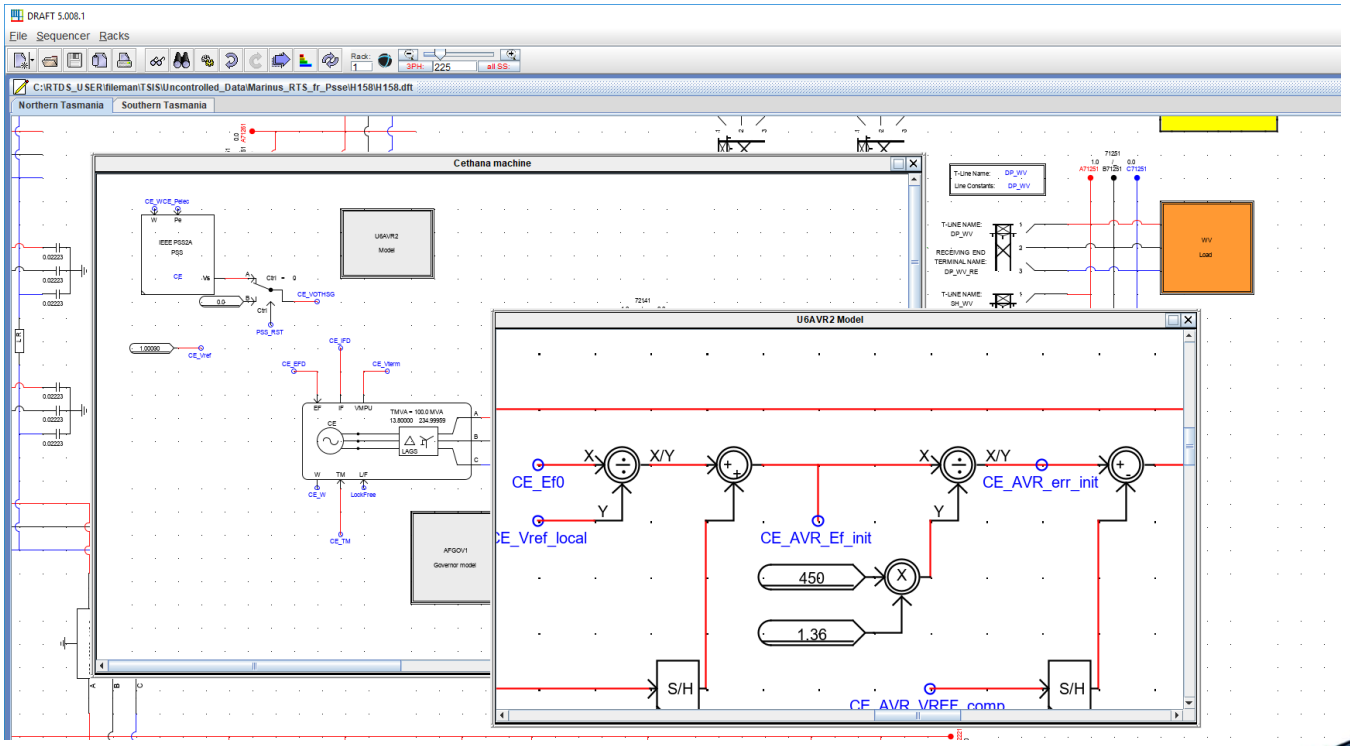

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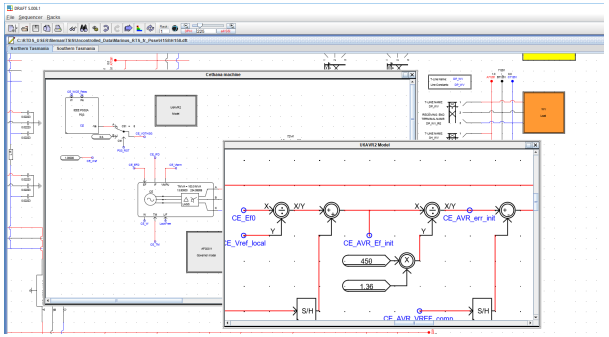

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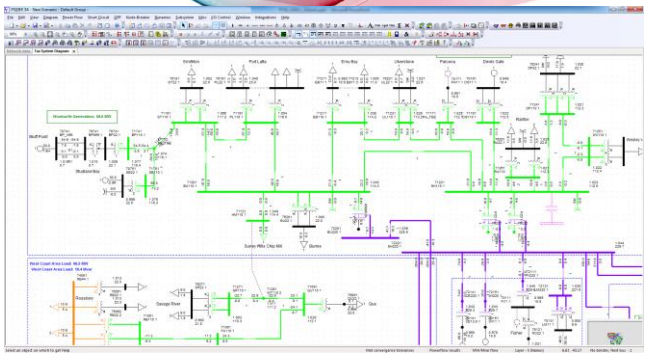

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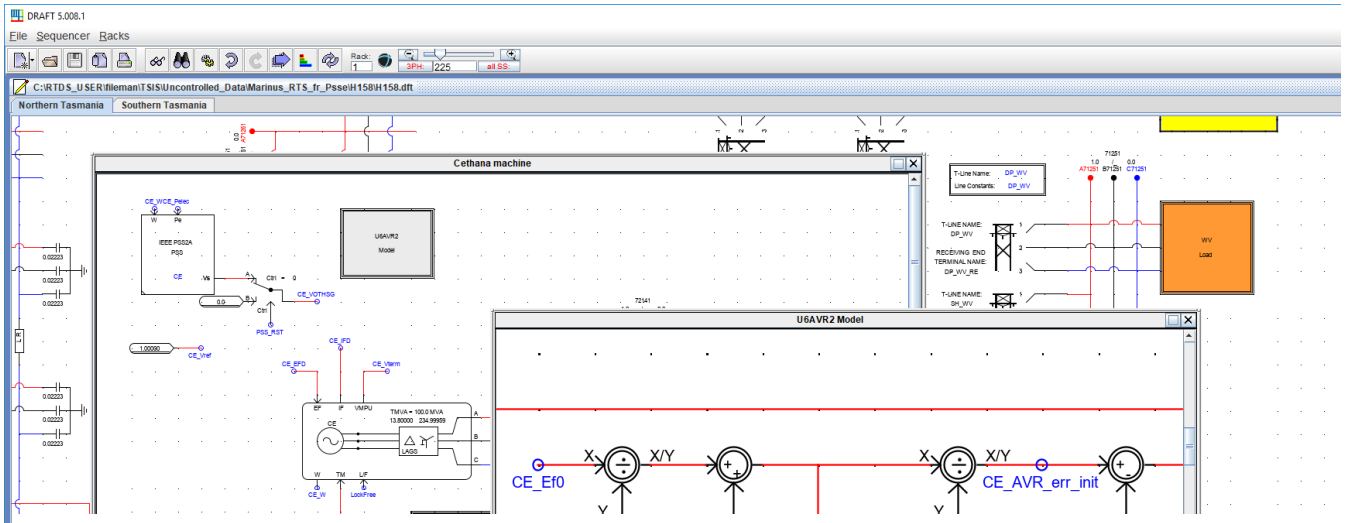
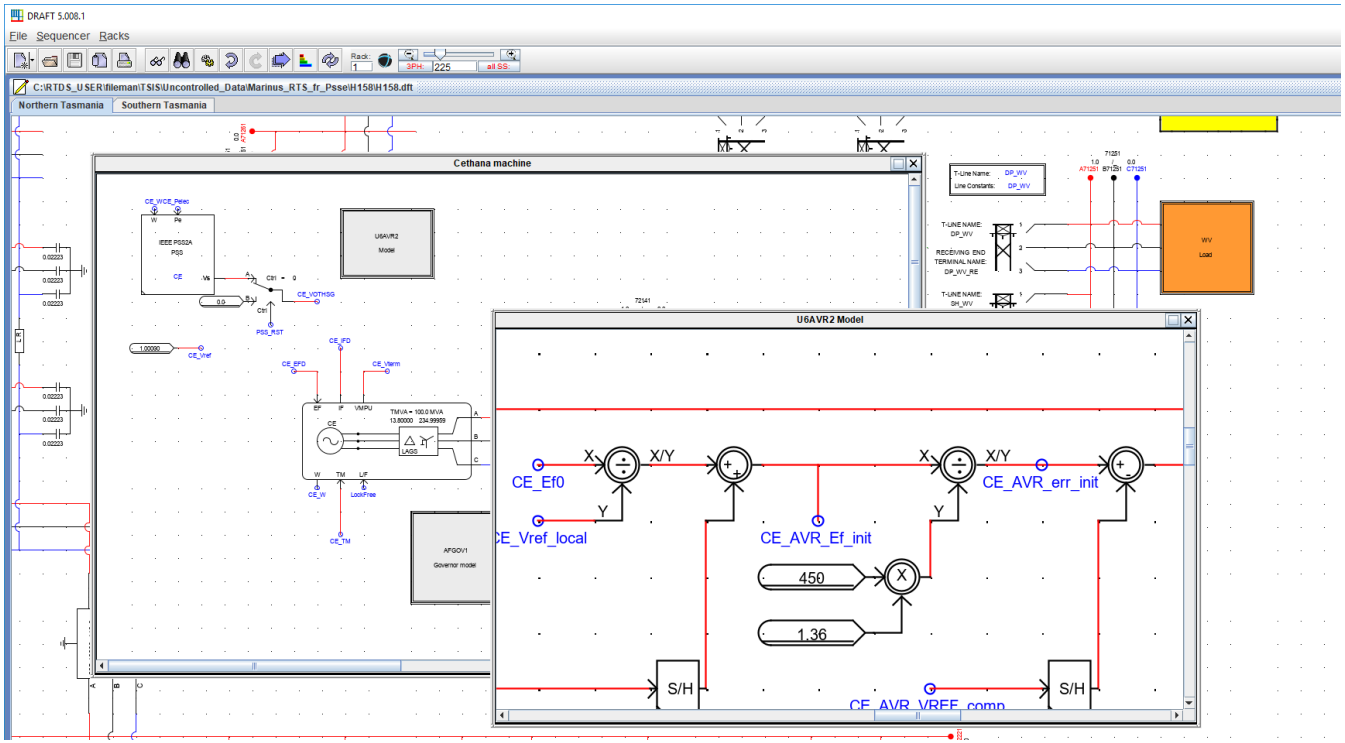
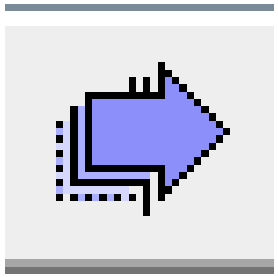


Loadflow values:

Machine P0, V0 and status, line outages, capacitor bank status, load P0 and Q0, DC link power

Process





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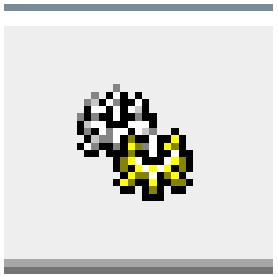
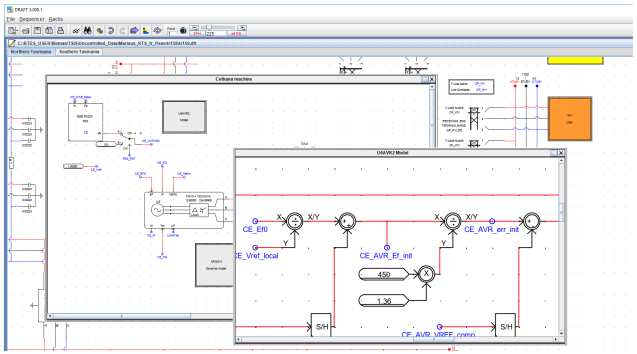


Loadflow **Compile**

Process



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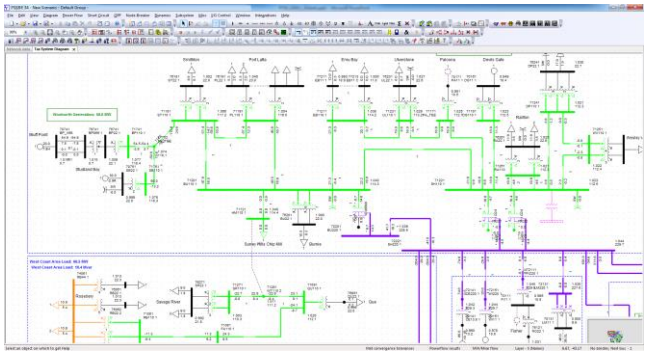
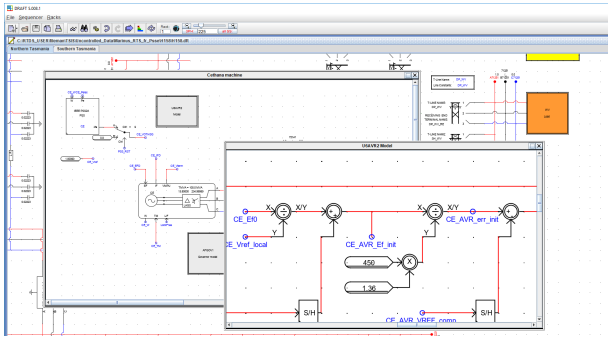


- **Swing bus error**
- **Top 10 bus voltage errors**
- **Selected line flow errors**

Process



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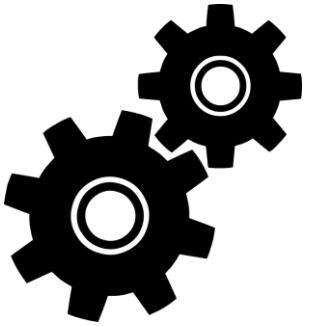

Initialise

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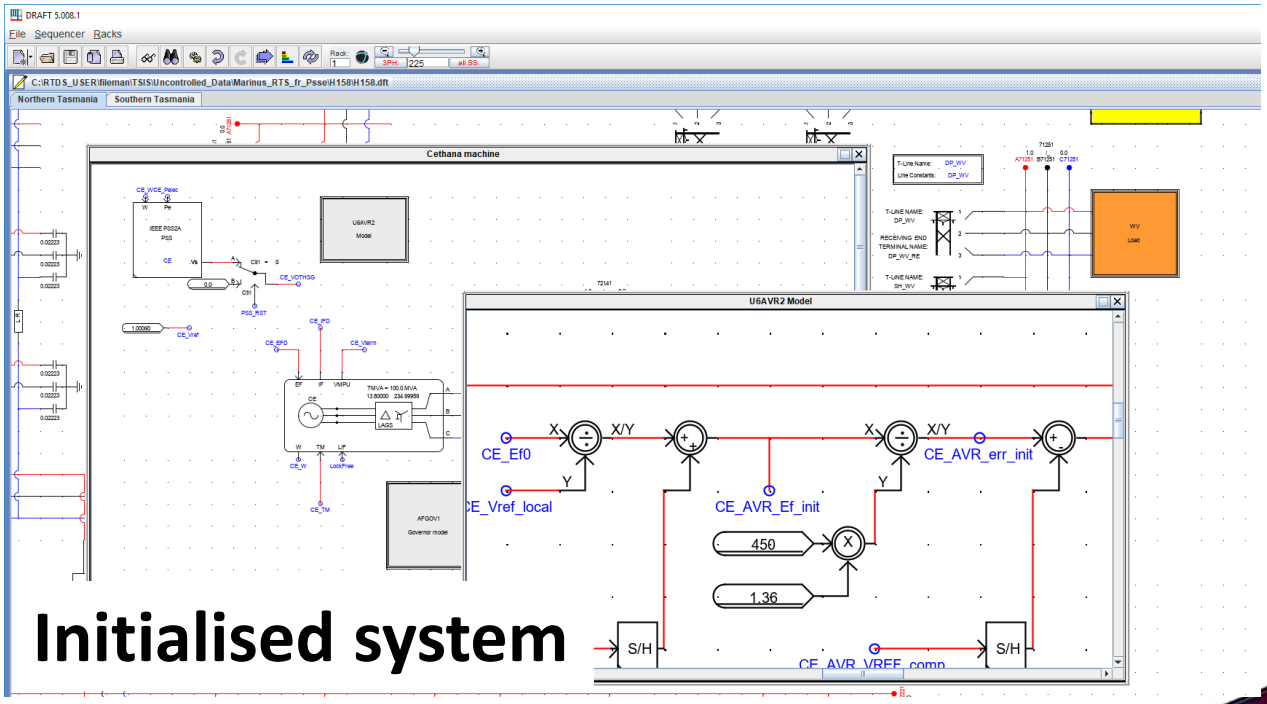
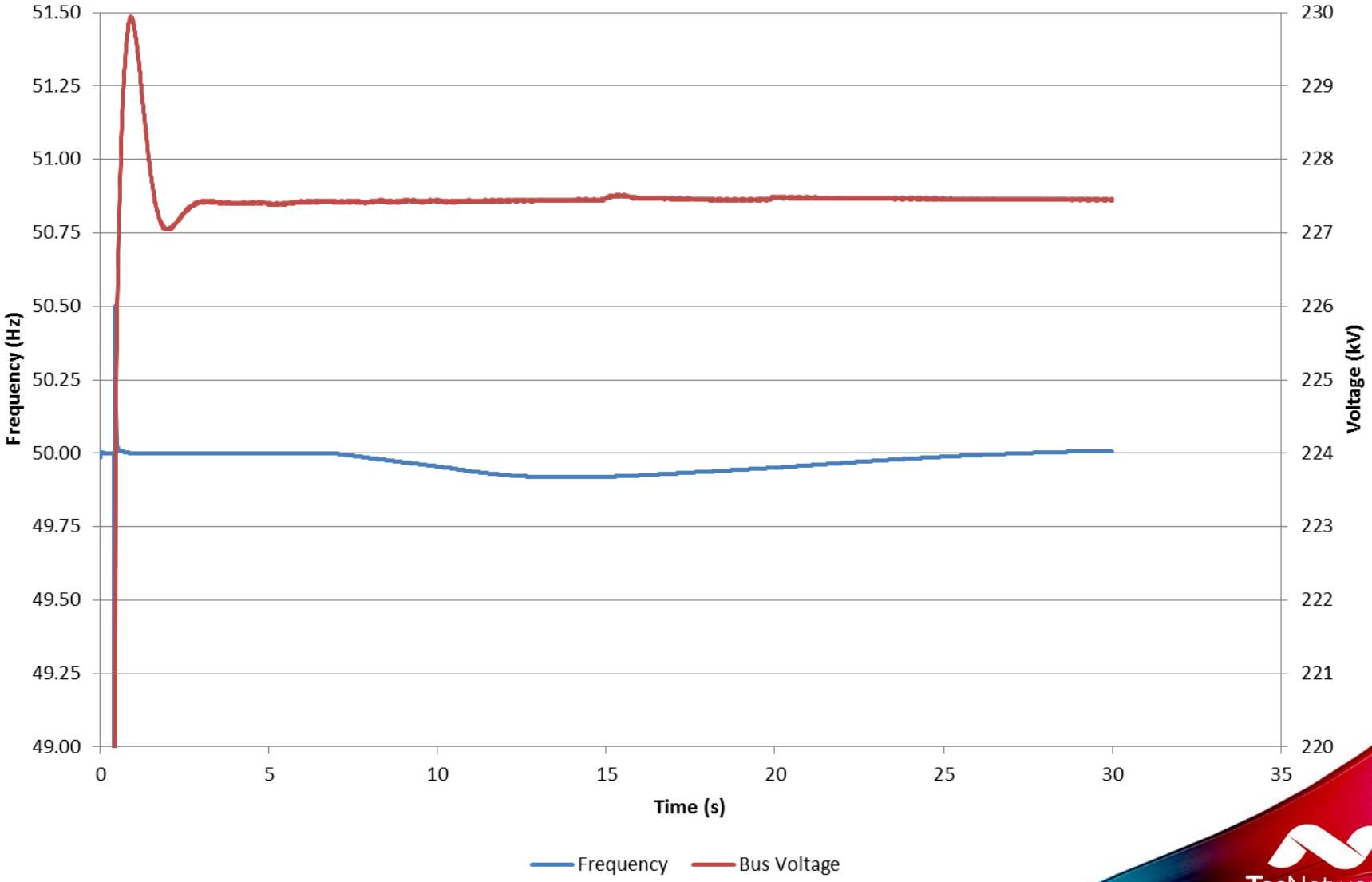


Initialised system

Case start up



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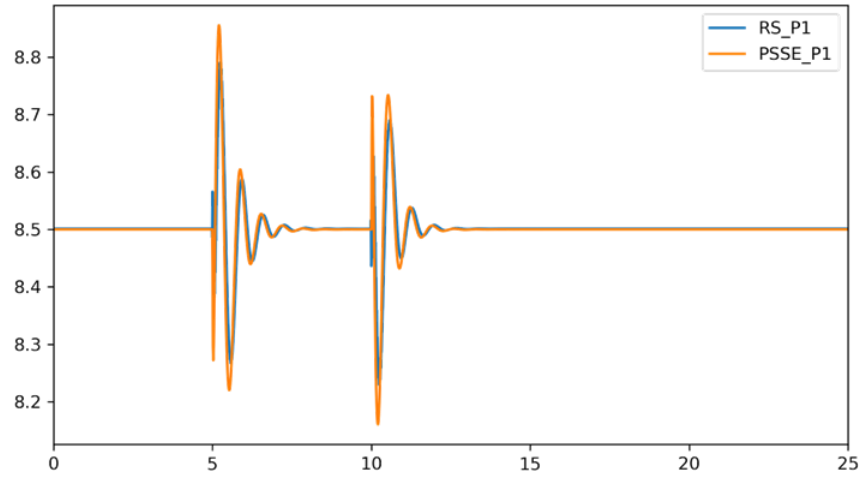
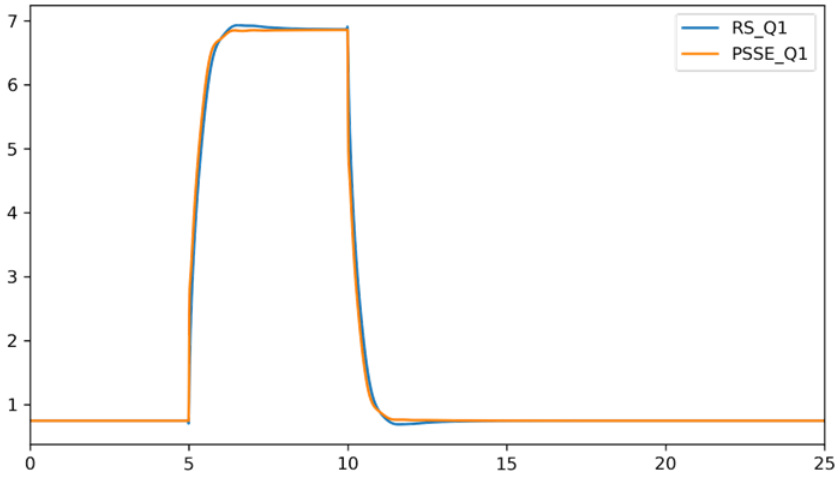
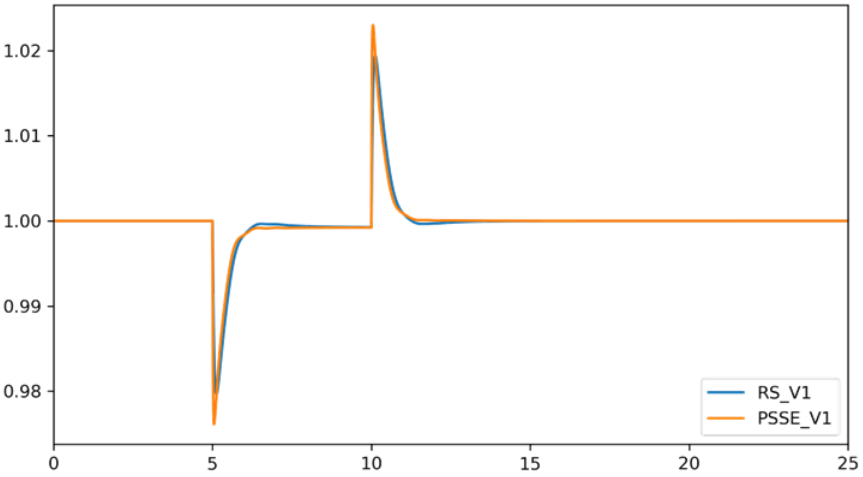
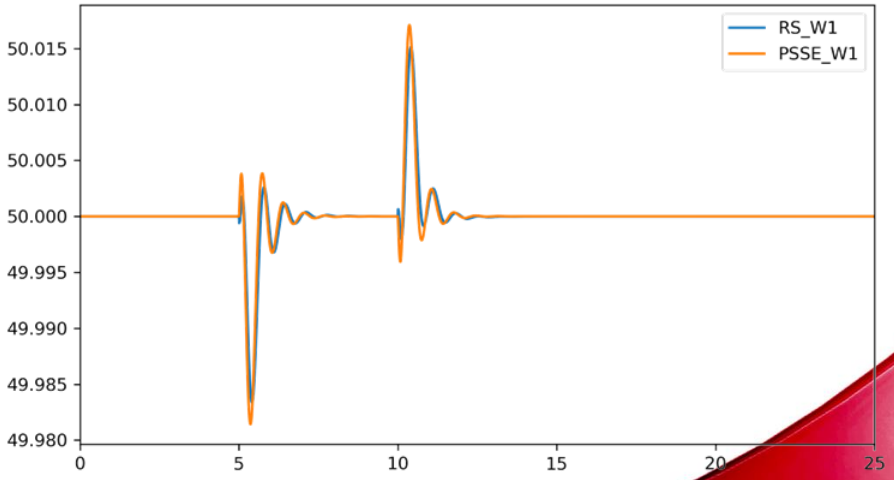
Results comparisons









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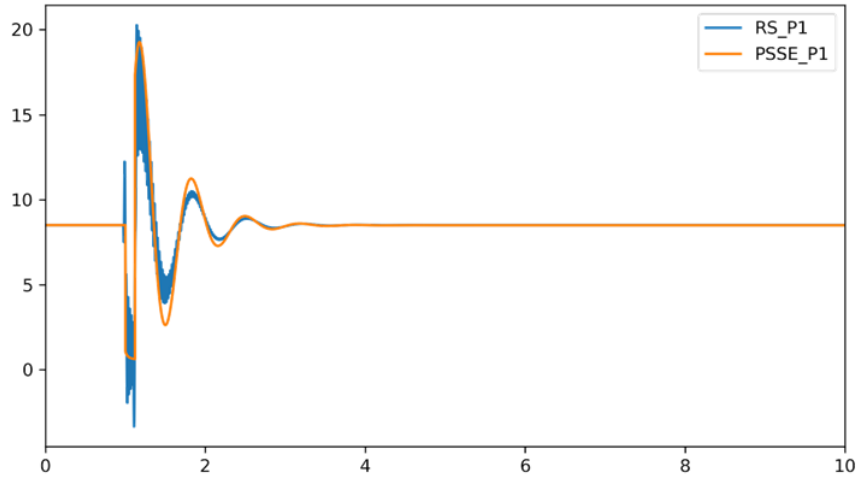
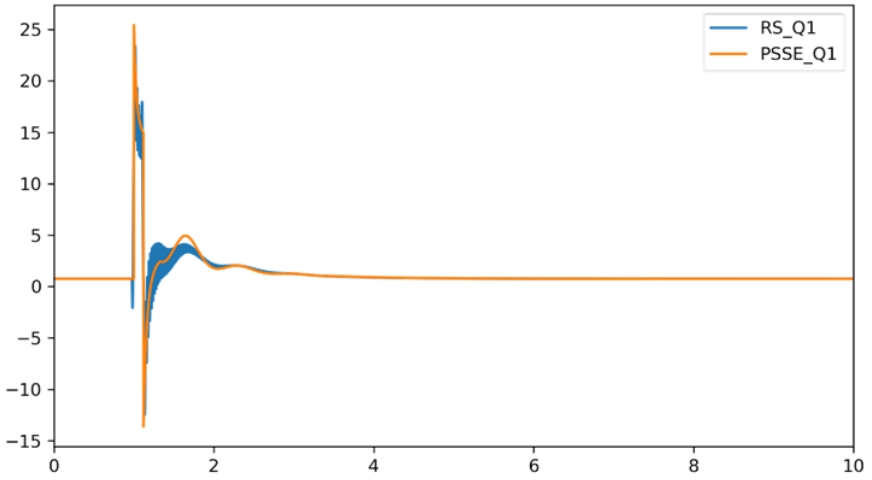
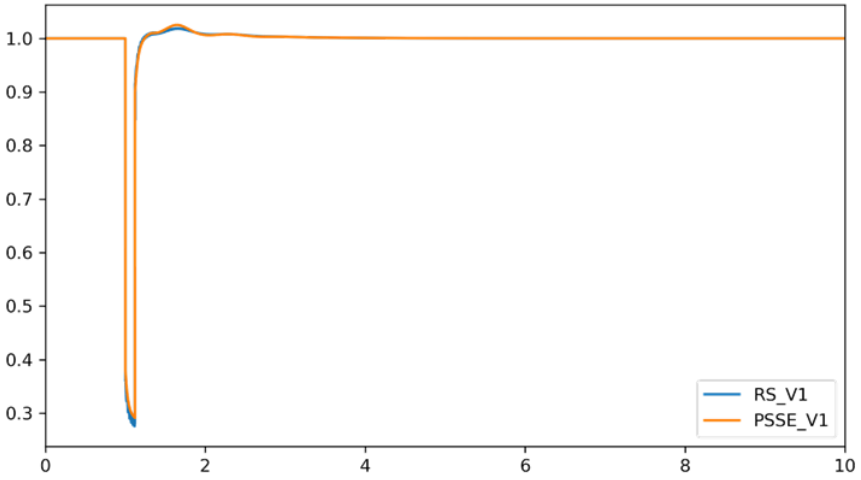
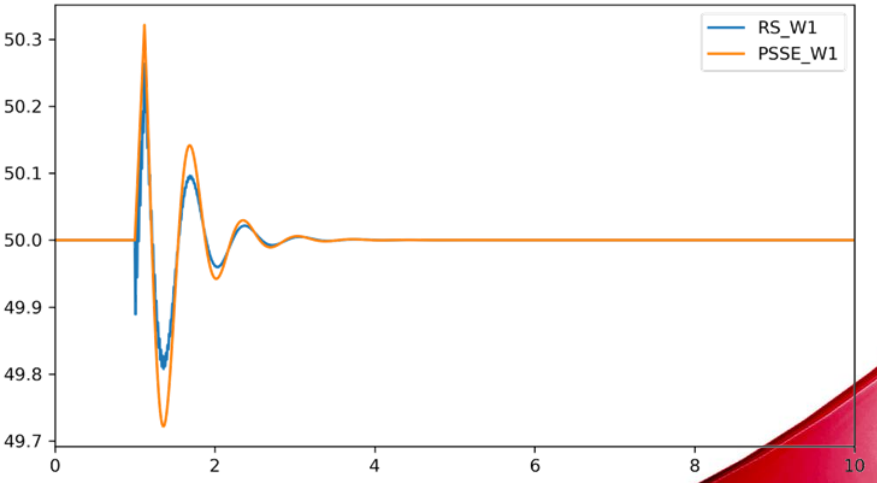
Results comparisons









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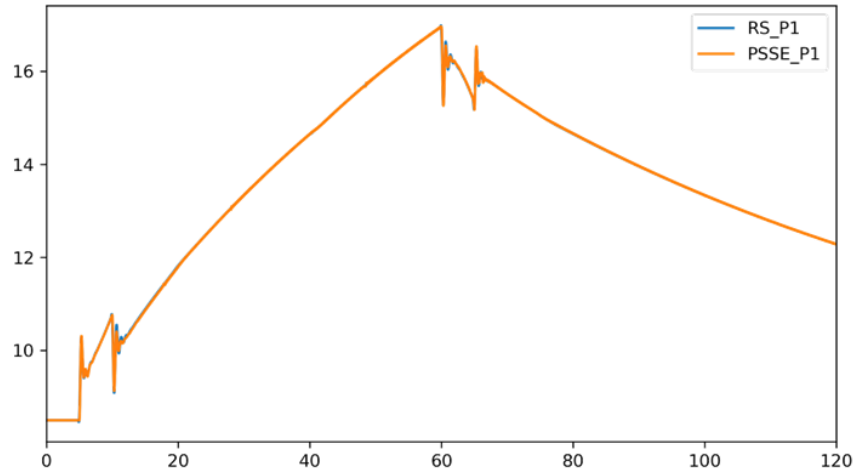
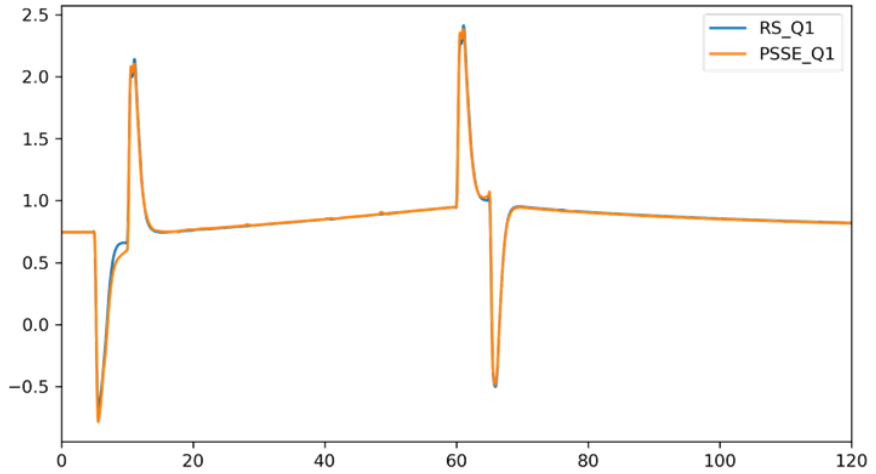
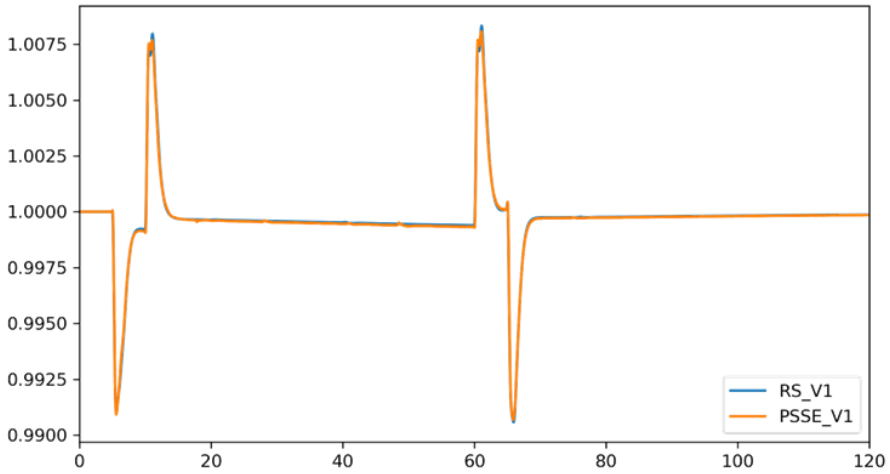
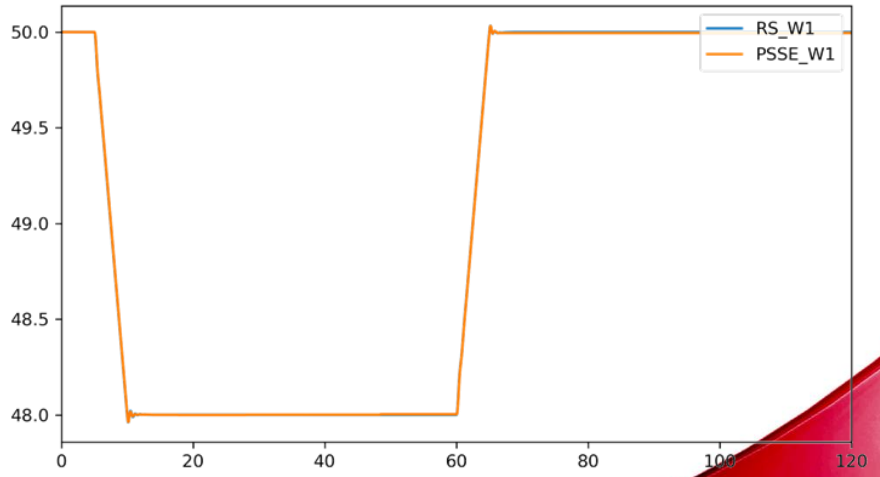
Results comparisons









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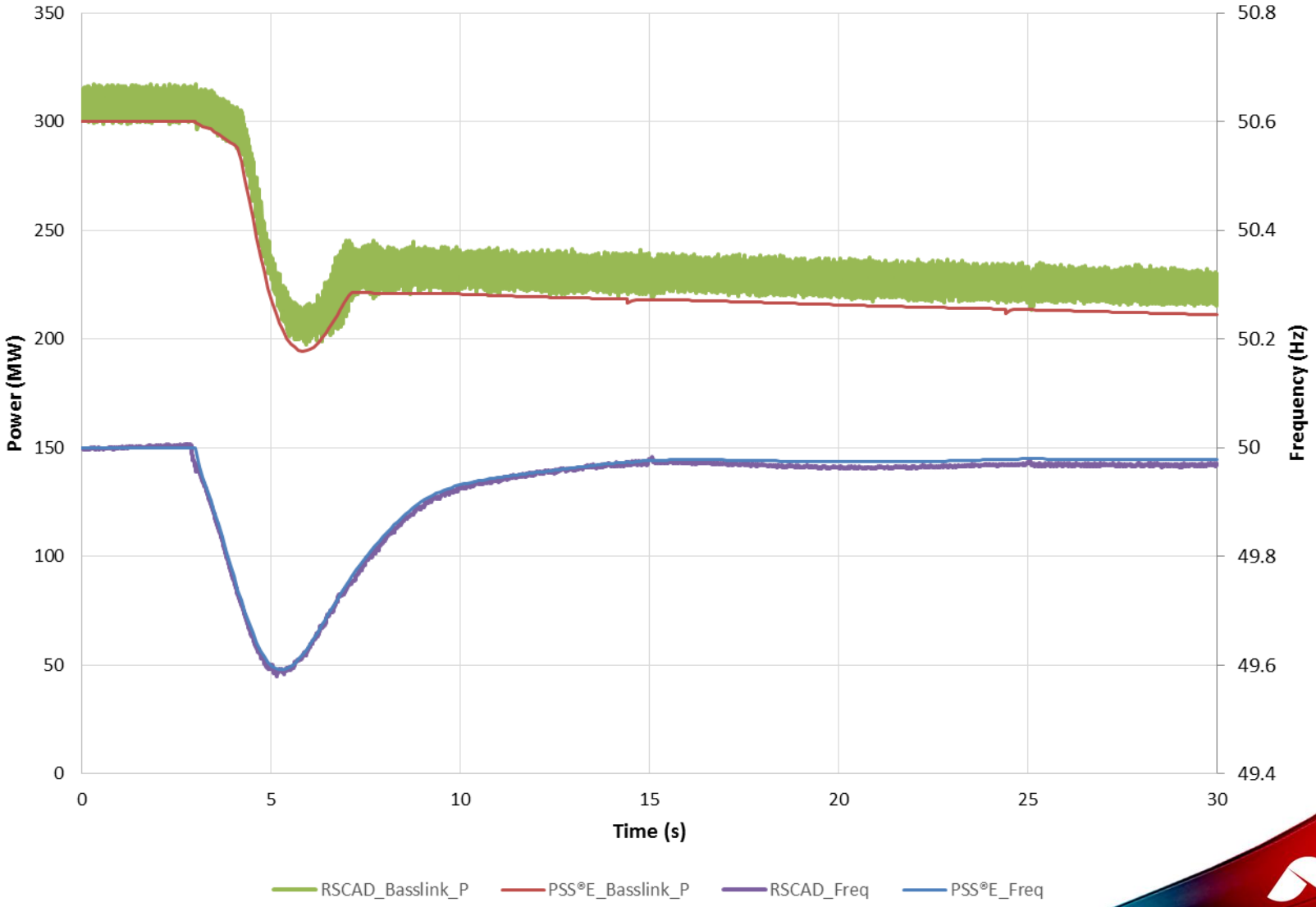
Generator Contingency



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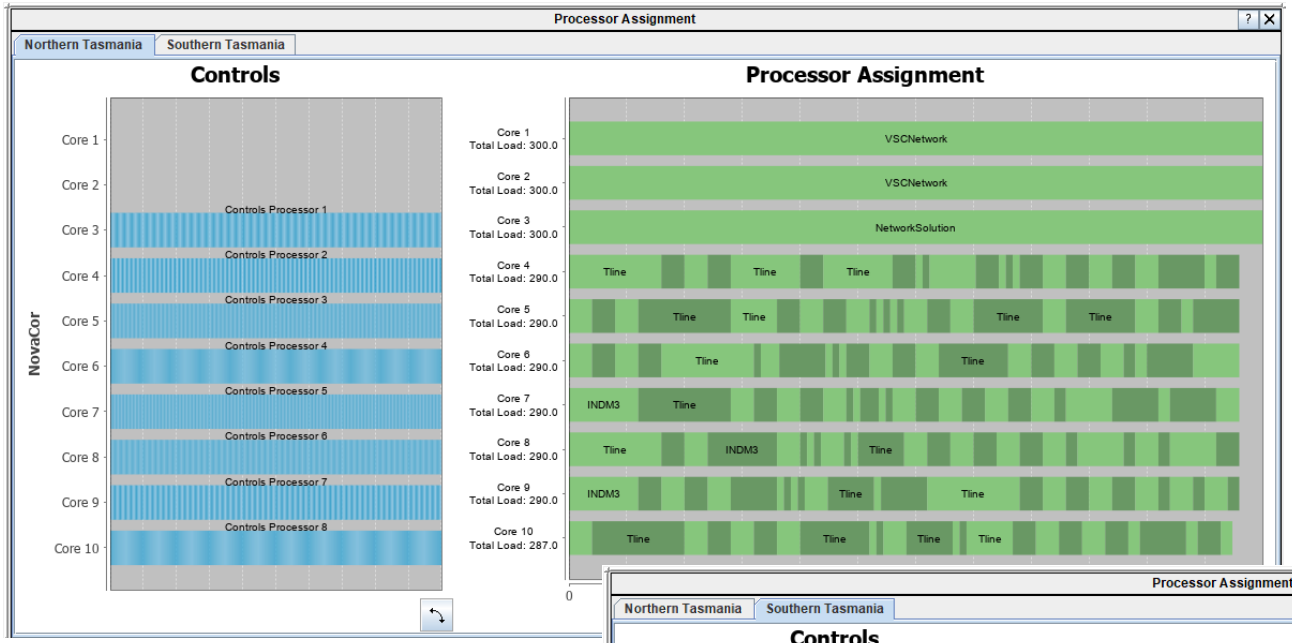
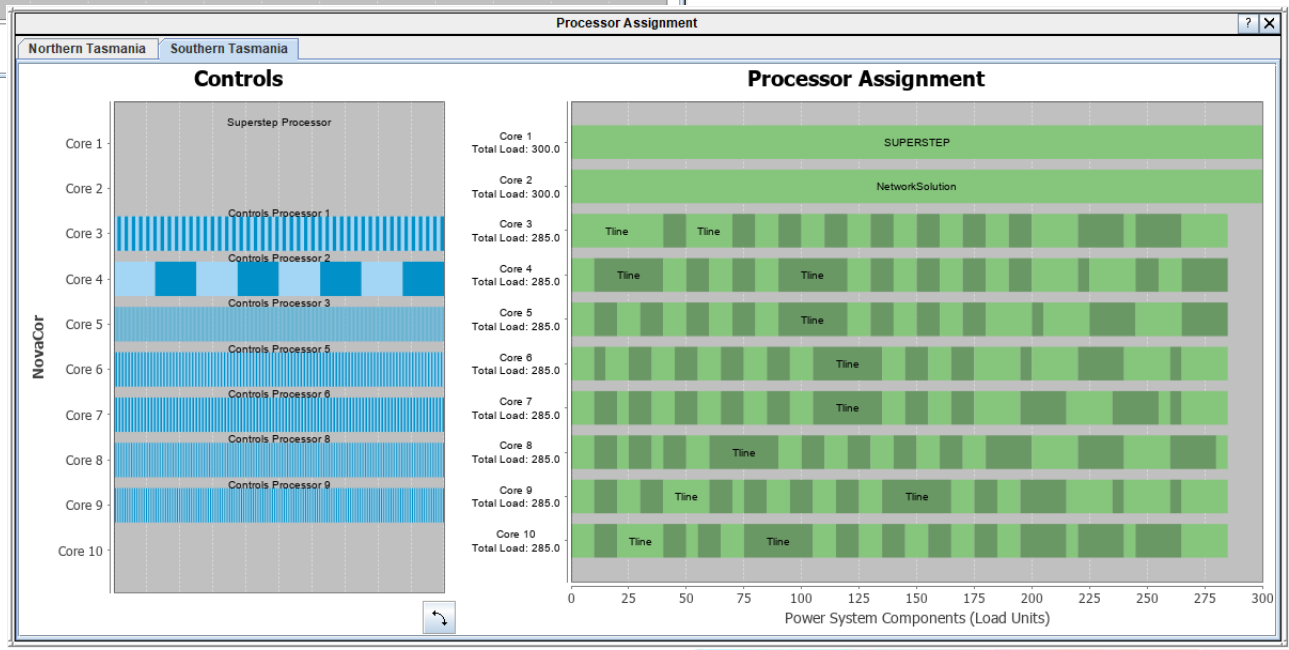
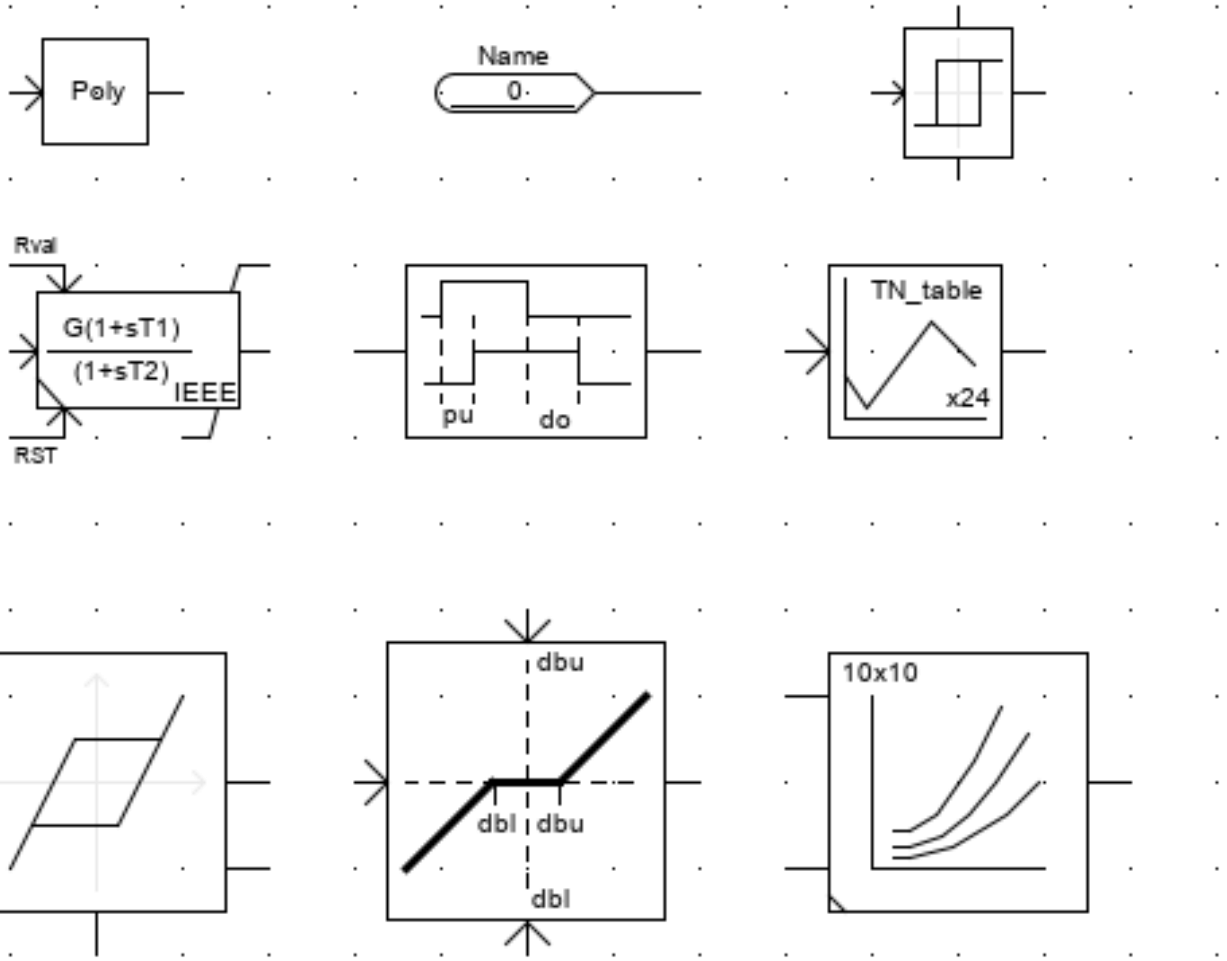
Observations





Observations



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Thank you