## Problem Formulation

When a fault happens inside the system the GFMs and GFLs turn into a current source with the current value of the current limiter threshold. Therefore, the goal is to determine the necessary current limiter criteria of the inverters with constraint of functioning at the farthest possible point in the system.

### MINLP first form

### MINLP Flipped form

### MINLP Final form

### NLP relaxed form

### NLP relaxed form (Quadratic)

|  |  |
| --- | --- |
| Oobjective Function |  |
| GFM |  |
| GFL |  |
| Normal Bus |  |
| Faulted Bus |  |
| Capacity Constraint |  |
| Load Flow Real |  |
| Load Flow Imaginary |  |
| Variables |  |

### NLP relaxed form (Extended)

|  |  |
| --- | --- |
| Oobjective Function |  |
| GFM |  |
| GFL |  |
| Normal Bus |  |
| Faulted Bus |  |
| Capacity Constraint |  |
| Load Flow Real |  |
| Load Flow Imaginary |  |
| Variables | Why don’t we have iI? |

## Case Study

1

2

3\item \textbf{Computer Skills}

\begin{itemize}

4\item \textbf{Computer Skills}

\begin{itemize}

5\item \textbf{Computer Skills}

\begin{itemize}

6\item \textbf{Computer Skills}

\begin{itemize}

Fault

Last Status:

Constraints are running well

Objective is running Well

Dimensions are checked

Model creation failed (See https://yalmip.github.io/squareroots/)

Next Step: Linearize square roots

* Load-Flow constraint has to be written for the faulted bus.
* The last two Formulations have not considered the situation of Load busses.

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* A constant current representing the maximum current of the inverter is added to the load flow constraints of the inverter type busses. So, the equation is as follow:

I\_Rfault + I\_R + Itresh =0

The code written is like that:

Imaxinv=0;

If MPC.F == 1 || MPC.F == 3 || MPC.F == 5

Imax\_inv==Itresh

Else Imax\_inv==0

End

What is this? I mean the

What is Normal Bus in the documentation?

There is a mistake in the command line 83: s(i)==1 ????

Line 93, The last constraint with I\_R(i) and I\_I(i)??