

Project TransmiT



Load Factor Analysis

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Methodology

Base Case

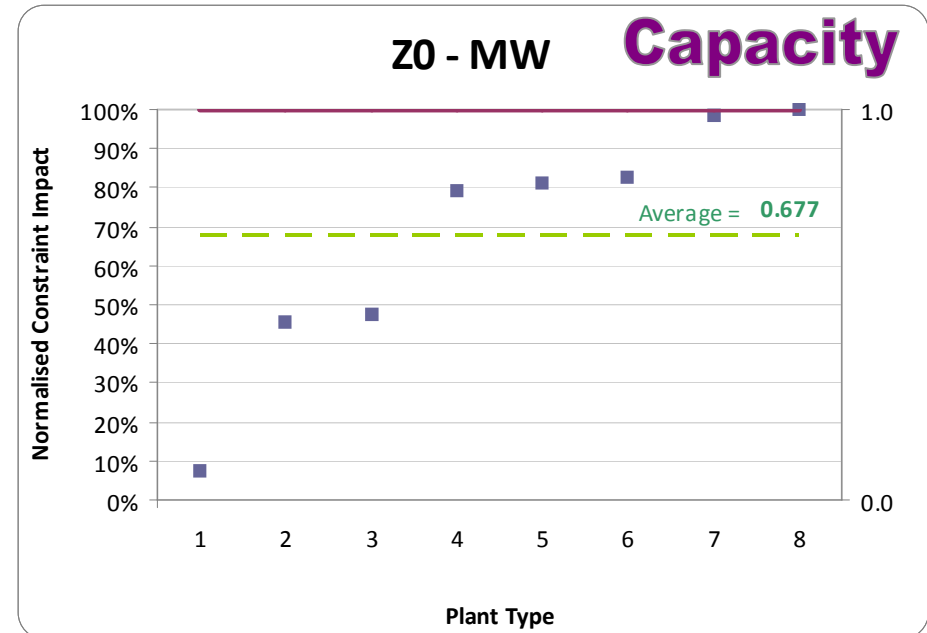
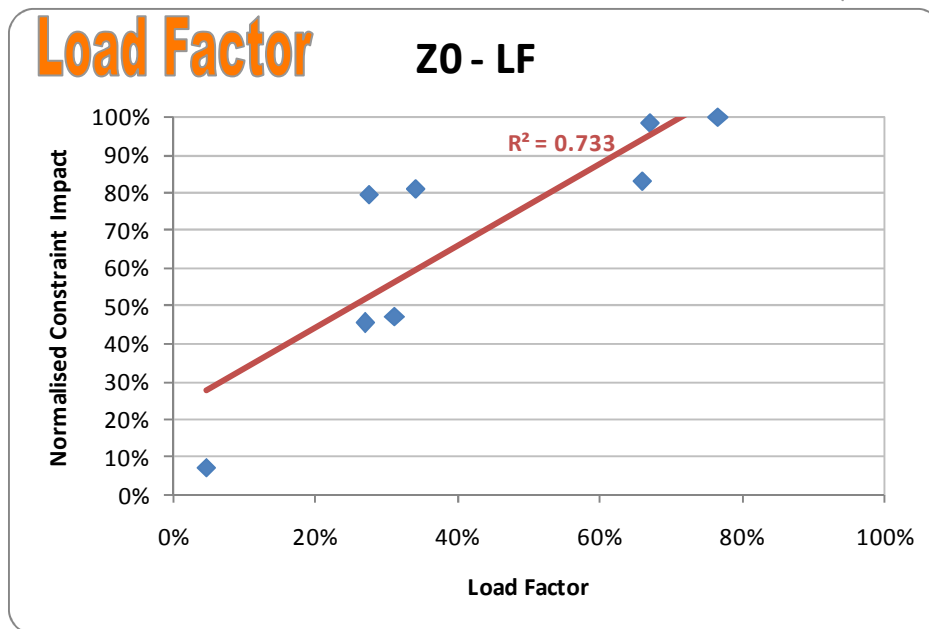
- Zonal economic model of transmission system
- Zonal connections representing boundary capability
- Generation capacity and type per zone
- SRMC and Bid/Offer assumptions
- Many iterations representing annual demand curve
- Constrained and unconstrained generation stack per iteration
- Calculate total annual cost of constraints

Incremental

- +1MW of a generation type per zone and ascertain total constraints
- Difference between incremental and base case
- Normalise results to type with biggest impact
- Plot % increase in constraints to % load factor

Z0 – NW SHETL

SQSS Model



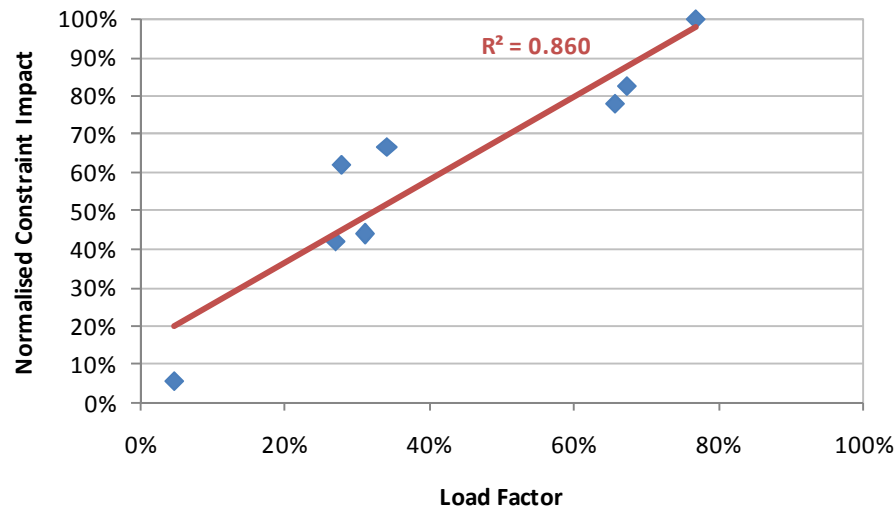
- **Load factor** vs. normalised constraint impact (left)
 - For perfect correlation $R^2 = 1.0$
- **Capacity** vs. normalised constraint impact (right)
 - For perfect correlation 1MW = same constraint impact for all plant types

Z1 – SHETL

SQSS Model

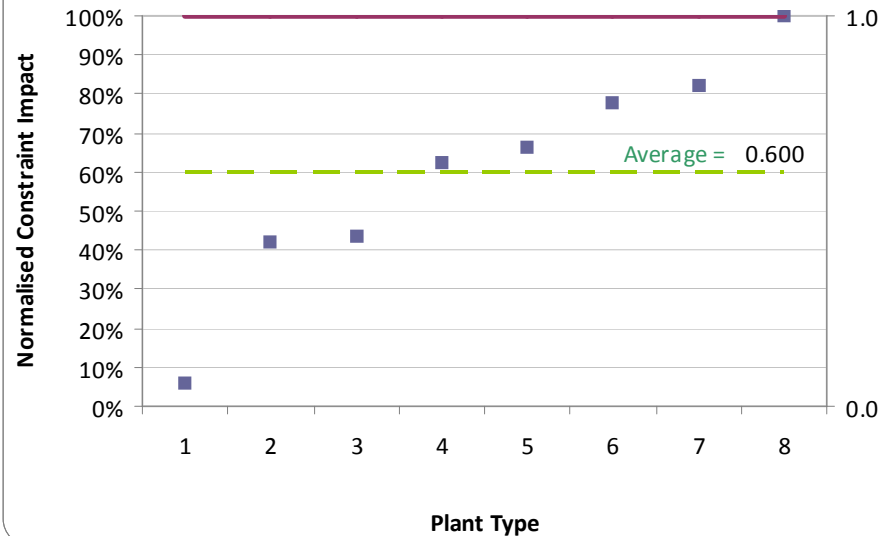
Load Factor

Z1 - LF



Z1 - MW

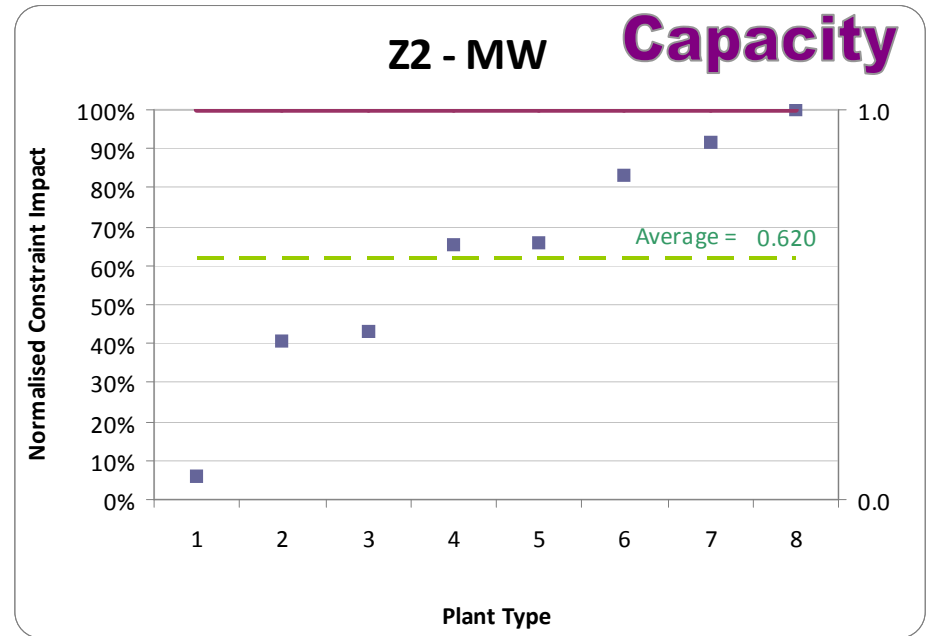
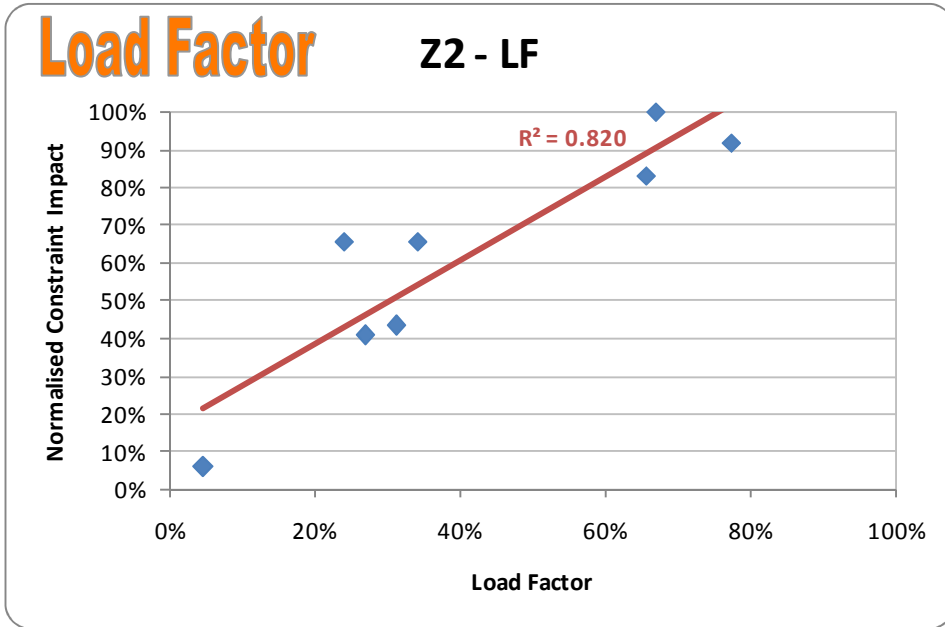
Capacity



All points on red line = effective TNUoS charging proxy

Z2 – SPT

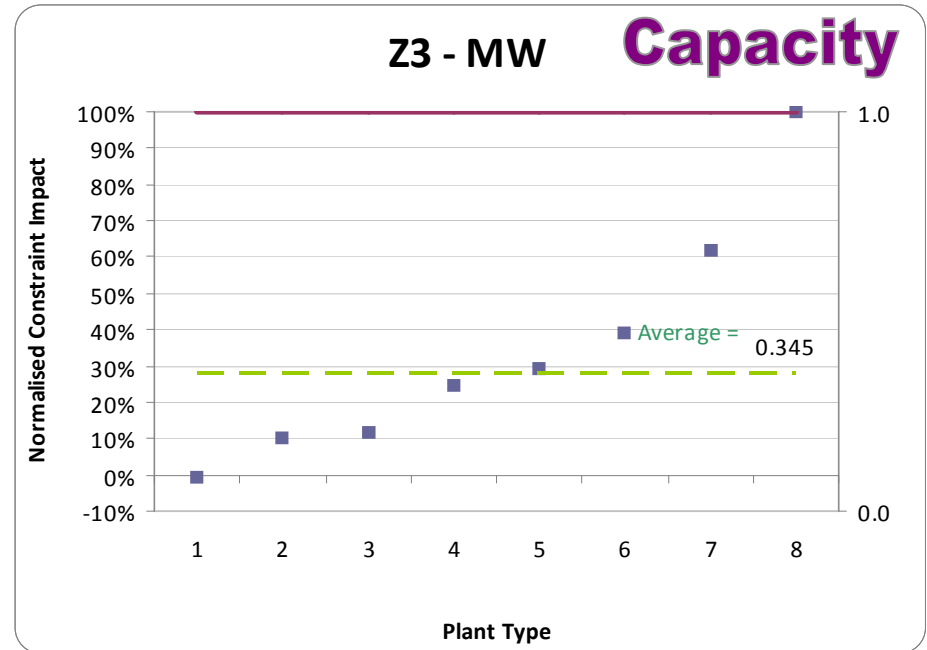
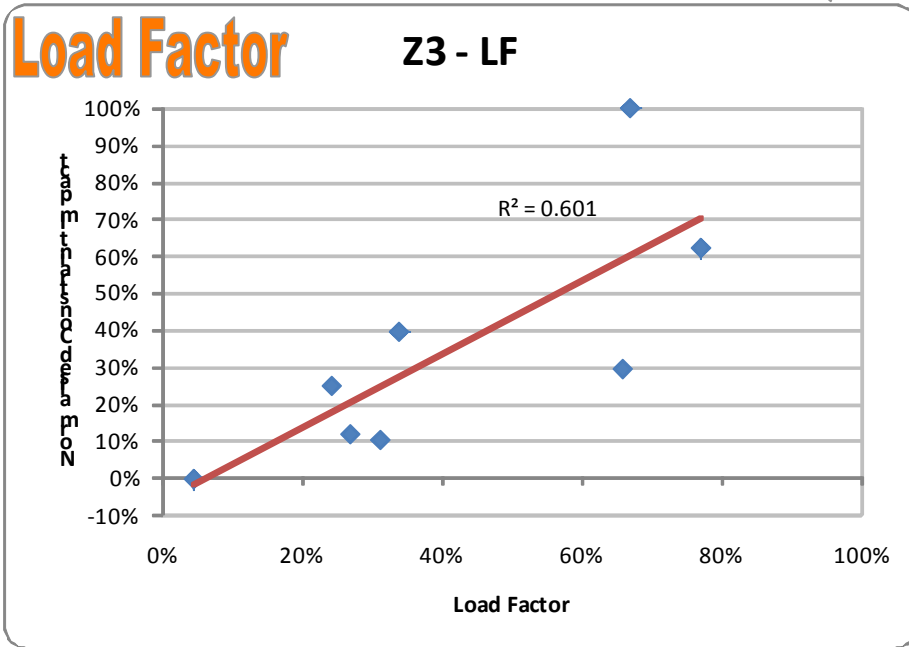
SQSS Model



All points on red line = effective TNUoS charging proxy

Z3 – Upper Northern England

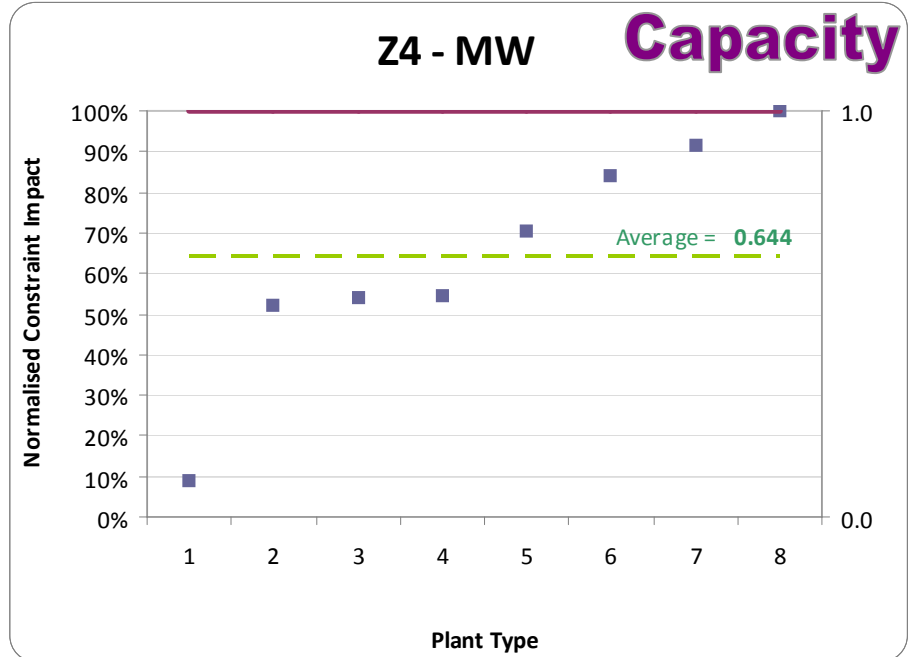
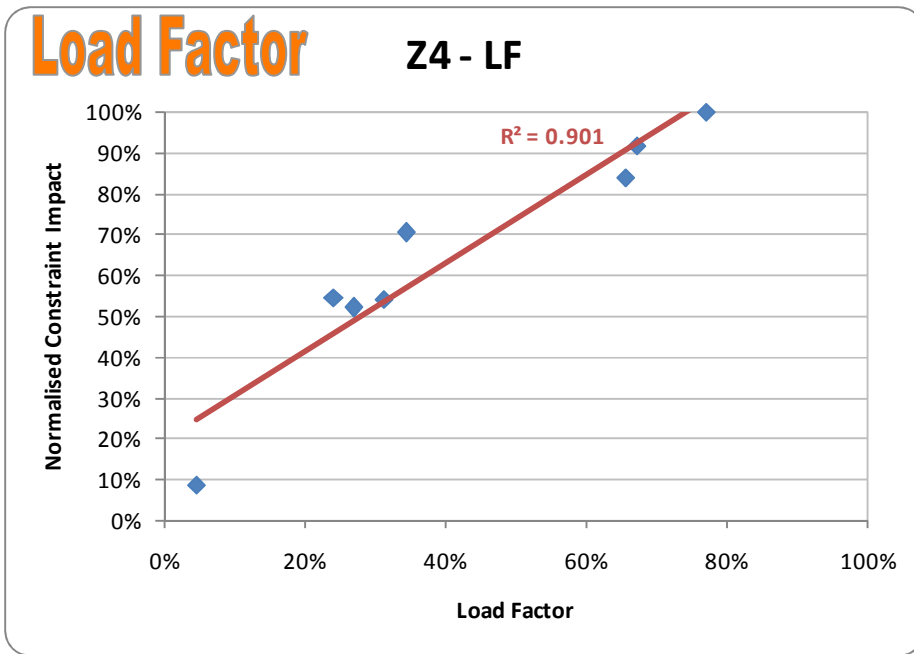
SQSS Model



All points on red line = effective TNUoS charging proxy

Z4 – Northern England

SQSS Model



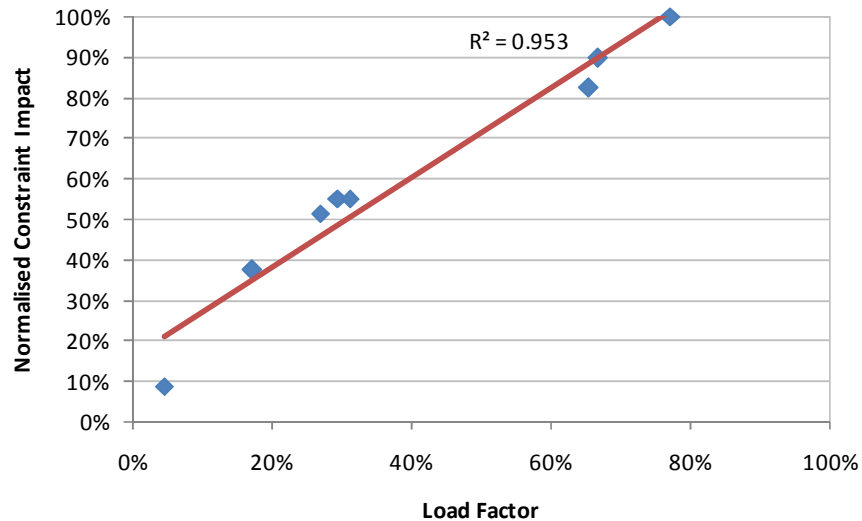
All points on red line = effective TNUoS charging proxy

Z5 – Midlands

SQSS Model

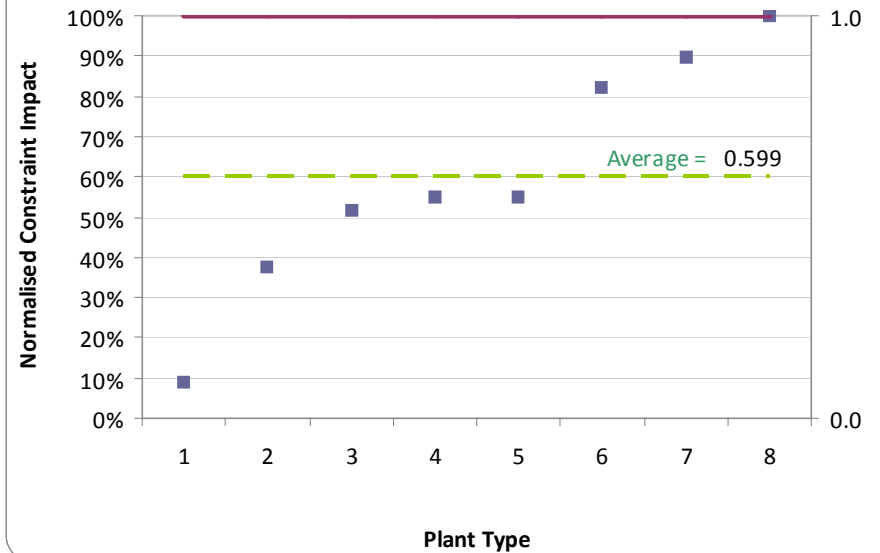
Load Factor

Z5 - LF



Z5 - MW

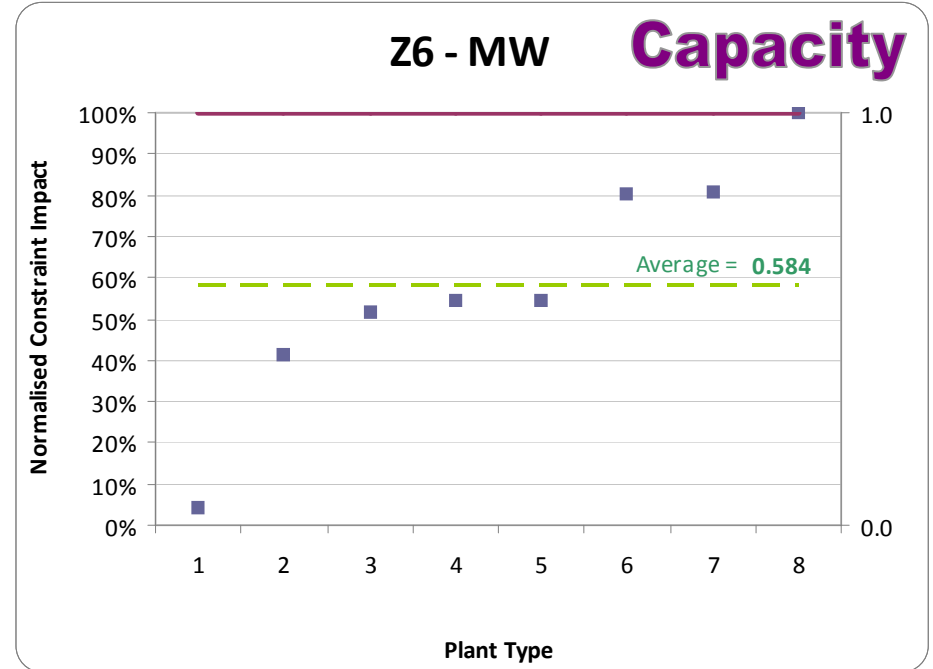
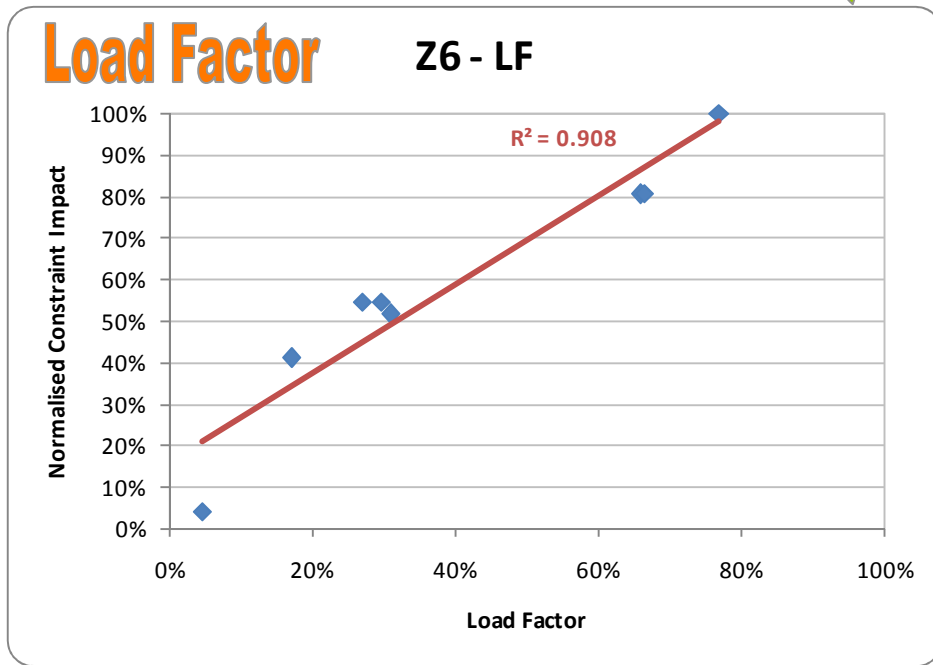
Capacity



All points on red line = effective TNUoS charging proxy

Z6 – Thames Estuary

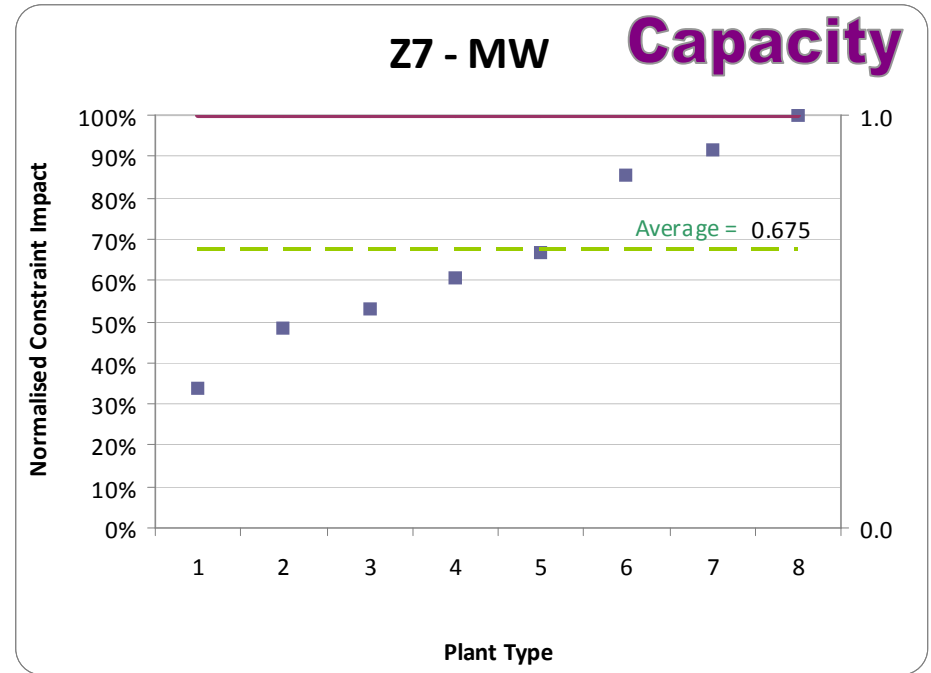
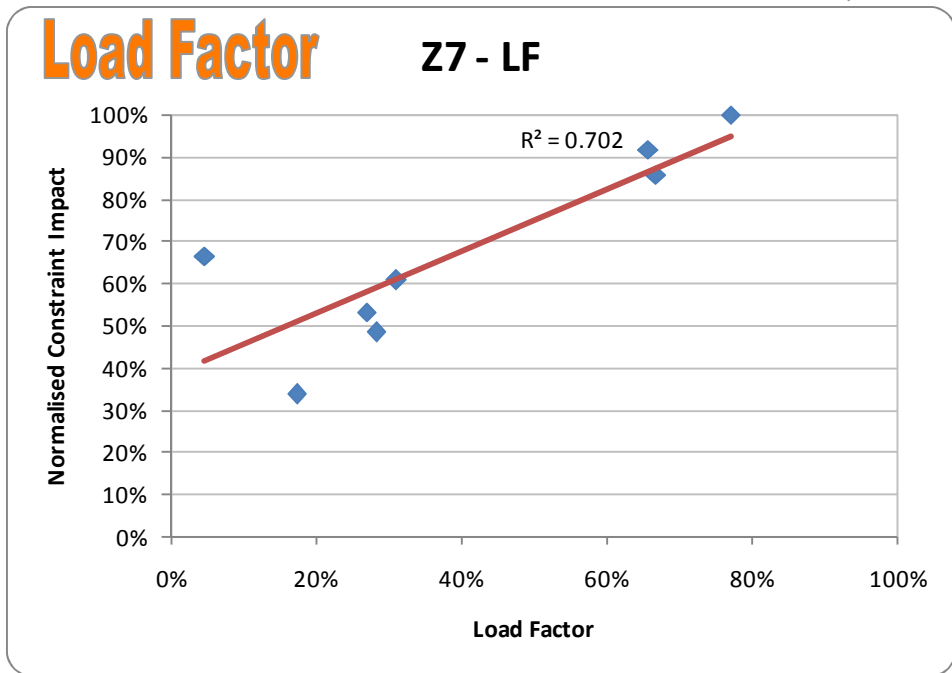
SQSS Model



All points on red line = effective TNUoS charging proxy

Z7 – Southern England

SQSS Model



All points on red line = effective TNUoS charging proxy