

Worked Example

Scenario

Network has 5 generation plants, with types and capacities given below:

Plant	Type	Capacity	Initial Scaling Factor
1	Intermittent	200	0.7
2	Intermittent	300	0.7
3	CCGT	100	Variable
4	Hydro	100	Variable
5	Interconnector	100	1

N.B. Initial scaling Factors are applied by using those given in CUSC 14.15.17 as per current baseline.

- Total Installed Generation Capacity = 800MW
- ACS Peak = 400MW

Step 1: Calculate total scaled capacity from Plant 1, 2 and 5 (all plant with non variable scaling factors):

Total scaled fixed capacity = (200MW x 0.7) + (300MW x 0.7) + (100MW x 1) = 450MW

Step 2: Confirm if Initial Scaling Factor is below 10%:

In this example as the total scaled capacity from generation with fixed scaling factors (450MW) is already above the ACS Peak (400MW), we know that the variable scaling factors would be negative straight away. However, for illustration to calculate the exact values if using the existing methodology only:

Variable Factor x Variable Generation + Total Scaled Capacity = ACS Peak Demand

Variable Factor = (ACS Peak Demand – Total Scaled Fixed Capacity)/Variable Generation

Variable Factor = (400MW – 450MW)/200MW = -0.25 (-25%)

If Variable Scaling Factor is above 10% no further action is required, if below then proceed to step 3

Step 3: Set Variable Scaling Factor at 10% and calculate adjustment required to equal ACS Peak

$$Adjustment = \frac{ACS_{Peak} - \sum(Capacity \times 10\%)_{variable\ Plant}}{\sum(Capacity \times Scaling\ Factor)_{Direct\ Plant}}$$

$$Adjusted\ Fixed\ Scaling\ Factor = Adjustment \times Scaling\ Factor$$

Adjustment = (400 – (200MW x 0.1))/450MW

Adjustment = 0.844

Step 4: Multiply initial Fixed Scaling Factors by 0.844 to give final position:

Plant 1 and 2 = $0.7 \times 0.844 = 0.591$ (59.1%)

Plant 5 = $1 \times 0.844 = 0.844$ (84.4%)

This gives a final set of scaling factors:

Plant	Type	Capacity	Initial Scaling Factor
1	Intermittent	200	0.591
2	Intermittent	300	0.591
3	CCGT	100	0.100
4	Hydro	100	0.100
5	Interconnector	100	0.844

Verifying against the ACS Peak of 400MW:

$(200\text{MW} \times 0.591) + (300\text{MW} \times 0.591) + (100\text{MW} \times 0.1) + (100\text{MW} \times 0.1) + (100\text{MW} \times 0.844) = 400\text{MW}$