Area selection to apply shifting methodology

Draft

The purpose of this paper is to generate a brainstorming discussion among the ICS members to discuss the current methodology to select the NYCA areas to which the shifting of capacity is applied.

Policy 5 methodology calls for removing the excess capacity from capacity rich zones. This methodology removes basically all the fat that is not needed for reliability.

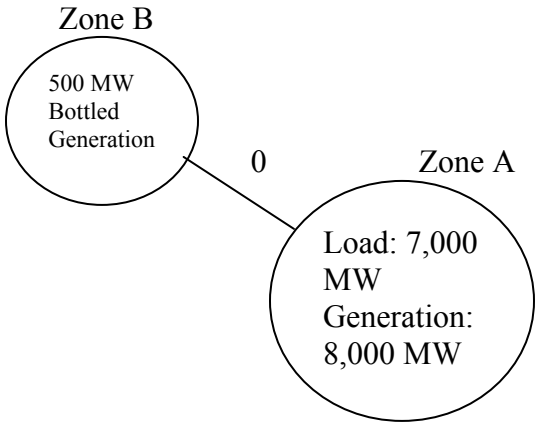
Policy 5, **Appendix A, 3.1:** Add or remove capacity from zones west of the Total East Interface that have excess capacity reserves (capacity rich zones), proportional to their existing excess capacity, until the statewide capacity to peak load ratio equals a desired IRM study point.

This methodology is also consistent with the methodology used by the IESO to calculate their reserve margin. They use a series of resource mix in which the remove mostly bottled generation, see link below.

http://www.ieso.ca/imoweb/pubs/marketReports/Ontario-Reserve-Margin-Requirements-2010-2014.pdf , Section 3. Results.

The following are a series of extreme examples for discussion:

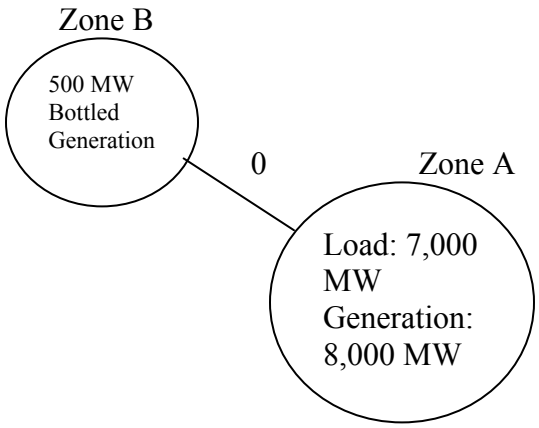
1) Total load: 7,000 MW
Total Generation: 8,500 MW
To represent bottle generation of 500 MW the line joining zone A and B is set to 0
LOLE = 0.09



According to Policy 5, generation should be removed first from the capacity rich zones, in this case Zone B. Because removing all the generation in Zone B (500 MW) does not affect the LOLE, thus the system reserve margin becomes equal to 111.4% after

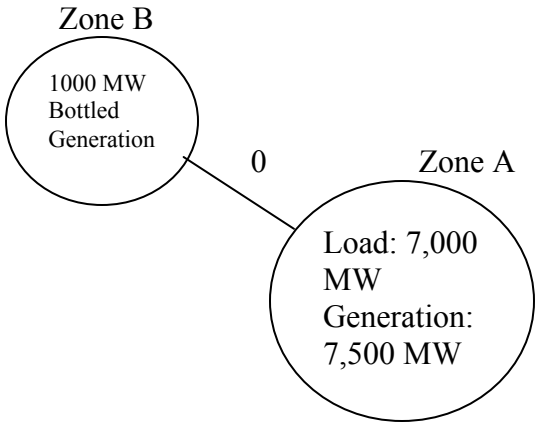
removing an additional 200 MW from zone A. Therefore, 7,800 MW are sufficient to meet the system LOLE criteria.

2) Total load: 7,000 MW
Total Generation: 8,500 MW
To represent bottle generation of 500 MW the line joining zone A and B is set to 0
LOLE = 0.09



If we remove generation proportionally to the total generation available in each zone then as soon as we remove 200 MW of generation from Zone A and 12.5 MW from zone B (8000 to 500 proportion) the LOLE criteria of the system is met and the reserve margin is ~118.4%. Therefore 8, 287.5 MW of generation is required to meet the system LOLE requirement.

3) Total load: 7,000 MW
Total Generation: 8,500 MW
To represent bottle generation of 500 MW the line joining zone A and B is set to 0
LOLE = 0.11

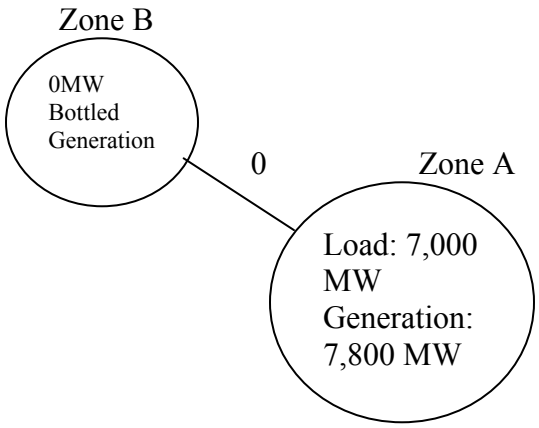


Here the system has 8,500 MW but it requires 7,800 MW in Zone A to meet the LOLE criteria.

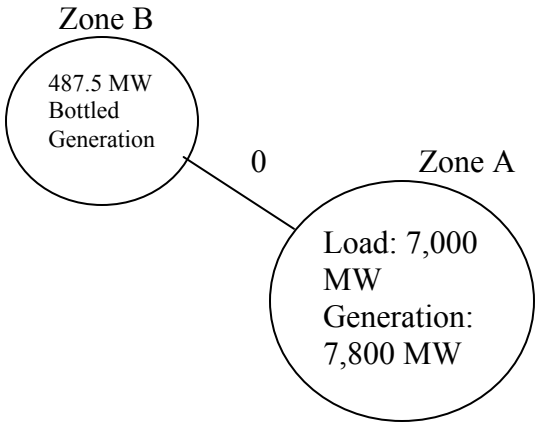
DISCUSSION

The question is which reserve margin is correct? In both examples the system meets the LOLE criteria with 7,800 MW in zone A, however in example 2 the system has an extra 487.5 MW.

System example 1 at an LOLE of 0.1:



System example 2 at an LOLE of 0.1:



Market considerations: If in example 1 says that the excess needed is 11.4 % and the total reserves are 21.4%. The market signal is that there is plenty of excess generation, while in the example 2 the excess is smaller.