Approach proposed to classify transmission costs between demand and energy

The following methodology is proposed to determine the share of costs classified as demand and energy in the preferred rate design, as presented at Session 5 on March 25, 2021. The AESO is sharing this further information to increase understanding on this aspect of the preferred design.

Premise

The minimum system is that required to meet peak load and is classified to demand related billing determinants. Infrastructure beyond the minimum system is that required to support the in-merit flow of energy across the province and is classified to an energy related billing determinant.

The following methodology has been developed to characterize the share of costs attributable to the minimum system required to meet peak load (demand) and the share of costs attributable to facilitating the in-merit flow of energy (energy).

Methodology

Peak demand and peak generation in a year is identified from hourly metered DTS load and hourly metered generation by planning area. The hour at which an area experiences peak demand may or may not be different from the hour when the area experiences peak generation, and these hours may or may not differ by planning area. Planning areas are described in the map below.

The aggregated peak load and positive differences between peak load and peak generation by area estimates the proportion of the minimum system relative to the actual system and the resulting cost classification for Alberta:

- If peak generation minus peak load is negative, then for this classification methodology the transmission system is deemed to primarily serve load for this area. The system in the area is the minimum system, resulting in the transmission for this area being 100% demand related, since the demand related transmission is at least as large as the energy related transmission. (Example area 1)

- If peak generation minus peak load is positive, then for this classification methodology the transmission system is greater than the minimum system and is deemed to both serve peak load and to facilitate in merit flow of energy for this area. The incremental peak generation above peak load is used to characterize the amount of system, above the minimum system, facilitating in merit energy and represents the portion classified to energy. In other words, the actual system in this area is deemed to be greater than the minimum system needed to serve demand. (Example area 2)

This information from each planning area is aggregated to determine the share of network costs (currently referred to as Bulk & Regional costs) classified to demand and energy.

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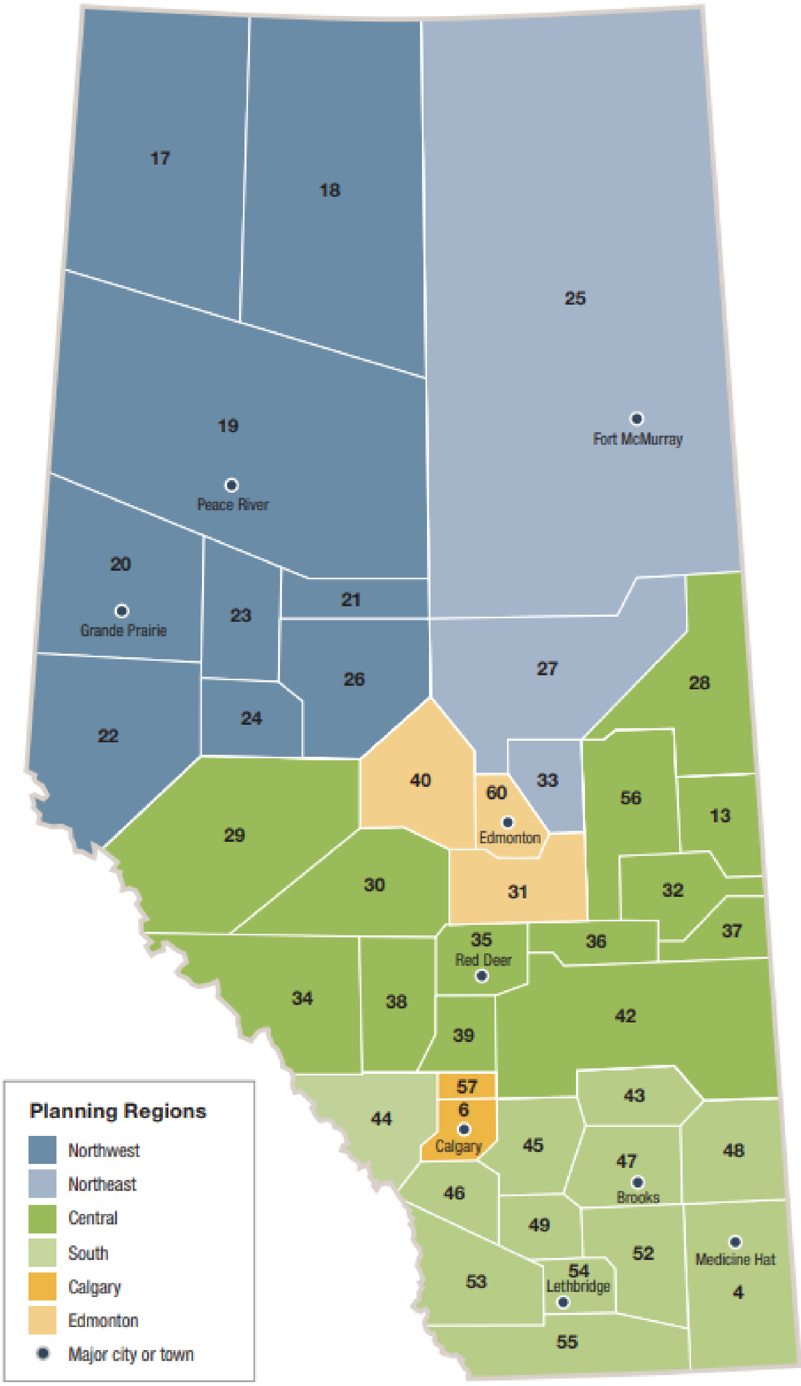


AESO transmission planning areas

NUMERICAL

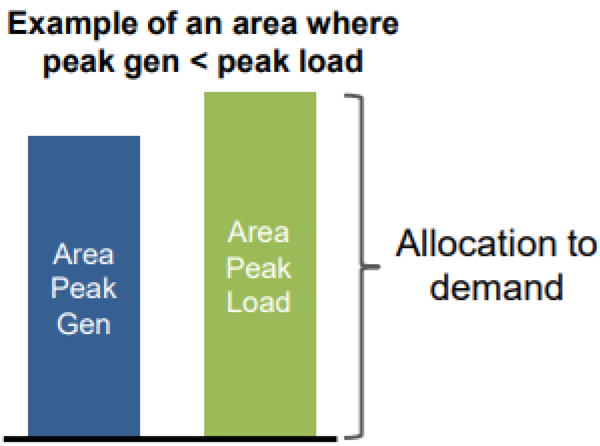
4 Medicine Hat
6 Calgary
13 Lloydminster
17 Rainbow Lake
18 High Level
19 Peace River
20 Grande Prairie
21 High Prairie
22 Grande Cache
23 Valleyview
24 Fox Creek
25 Fort McMurray
26 Swan Hills
27 Athabasca/Lac La Biche
28 Cold Lake
29 Hinton/Edson
30 Drayton Valley
31 Wetaskiwin
32 Wainwright
33 Fort Saskatchewan
34 Abraham Lake
35 Red Deer
36 Alliance/Battle River
37 Provost
38 Caroline
39 Didsbury
40 Wabamun
42 Hanna
43 Sheerness
44 Seebe
45 Strathmore/Blackie
46 High River
47 Brooks
48 Empress
49 Stavely
52 Vauxhall
53 Fort Macleod
54 Lethbridge
55 Glenwood
56 Vegreville
57 Airdrie
60 Edmonton

ALPHABETICAL

34 Abraham Lake
57 Airdrie
36 Alliance/Battle River
27 Athabasca/Lac La Biche
47 Brooks
6 Calgary
38 Caroline
28 Cold Lake
39 Didsbury
30 Drayton Valley
60 Edmonton
48 Empress
53 Fort Macleod
25 Fort McMurray
33 Fort Saskatchewan
24 Fox Creek
55 Glenwood
22 Grande Cache
20 Grande Prairie
42 Hanna
21 High Prairie
18 High Level
46 High River
29 Hinton/Edson
54 Lethbridge
13 Lloydminster
4 Medicine Hat
19 Peace River
37 Provost
17 Rainbow Lake
35 Red Deer
44 Seebe
43 Sheerness
49 Stavely
45 Strathmore/Blackie
26 Swan Hills
23 Valleyview
52 Vauxhall
56 Vegreville
40 Wabamun
32 Wainwright
31 Wetaskiwin

As further description, a simplified example considering Alberta is made up of two areas is included below.

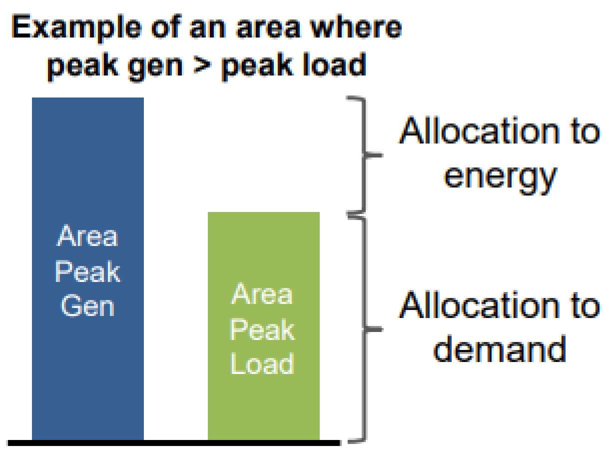
Example Area 1:



	Hour of Occurrence	Area Load (MW)	Area Generation (MW)
Area Peak Load	X	120	80
Area Peak Gen	Y	100	100

Peak generation (MW)	Peak Load (MW)	Difference (MW, if negative, then 0)	Area Classification to Demand (Peak Load) (MW)	Area Classification to Energy (Difference) (MW)
100	120	0	120	0

Example area 2:



	Hour of Occurrence	Area Load (MW)	Area Generation (MW)
Area Peak Load	A	50	120
Area Peak Gen	B	40	150

Peak generation (MW)	Peak Load (MW)	Difference (MW, if negative, then 0)	Area Classification to Demand (Peak Load) (MW)	Area Classification to Energy (Difference) (MW)
150	50	100	50	100

The above is completed for all 42 planning areas to determine the overall classification to demand and energy. In this example there are just two areas.

	Classification to Demand (MW)	Classification to Energy (MW)
Area 1	120	0
Area 2	50	100
Total	**170**	**100**
System Classification	**63% (170/270)**	**37% (100/270)**

This estimates the classification to demand and energy applied to the network cost (the bulk and regional portion of wires costs). The resulting classification for 2020 are 60 per cent demand and 40 per cent energy, and have changed minimally since 2015. The AESO is proposing to update the estimate of the percentage classification once every five years, and use that estimated percentage in the annual rates updates.