Tutorial on GSO Preparation Based on AESO Rules

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Background

- AESO is preparing 2006 Loss Factors for implementation on January 1, 2006.
- Loss Factory Methodology via the AESO Rules requires seasonal base cases for determining the loss factor of each generator.
- Twelve cases of data (four seasons with a High, Medium and Low level per season) are developed to evaluate loss factors.
  - Nine cases (Summer, Winter, and Fall (H,M,L) have been evaluated and sent to owners of generation.
- 12 seasonal base cases are prepared from Net-To-Grid (NTG) amount at the Point of Supply (POS). ISD's included.
- NTG amount are obtained from AESO metering database and processed.

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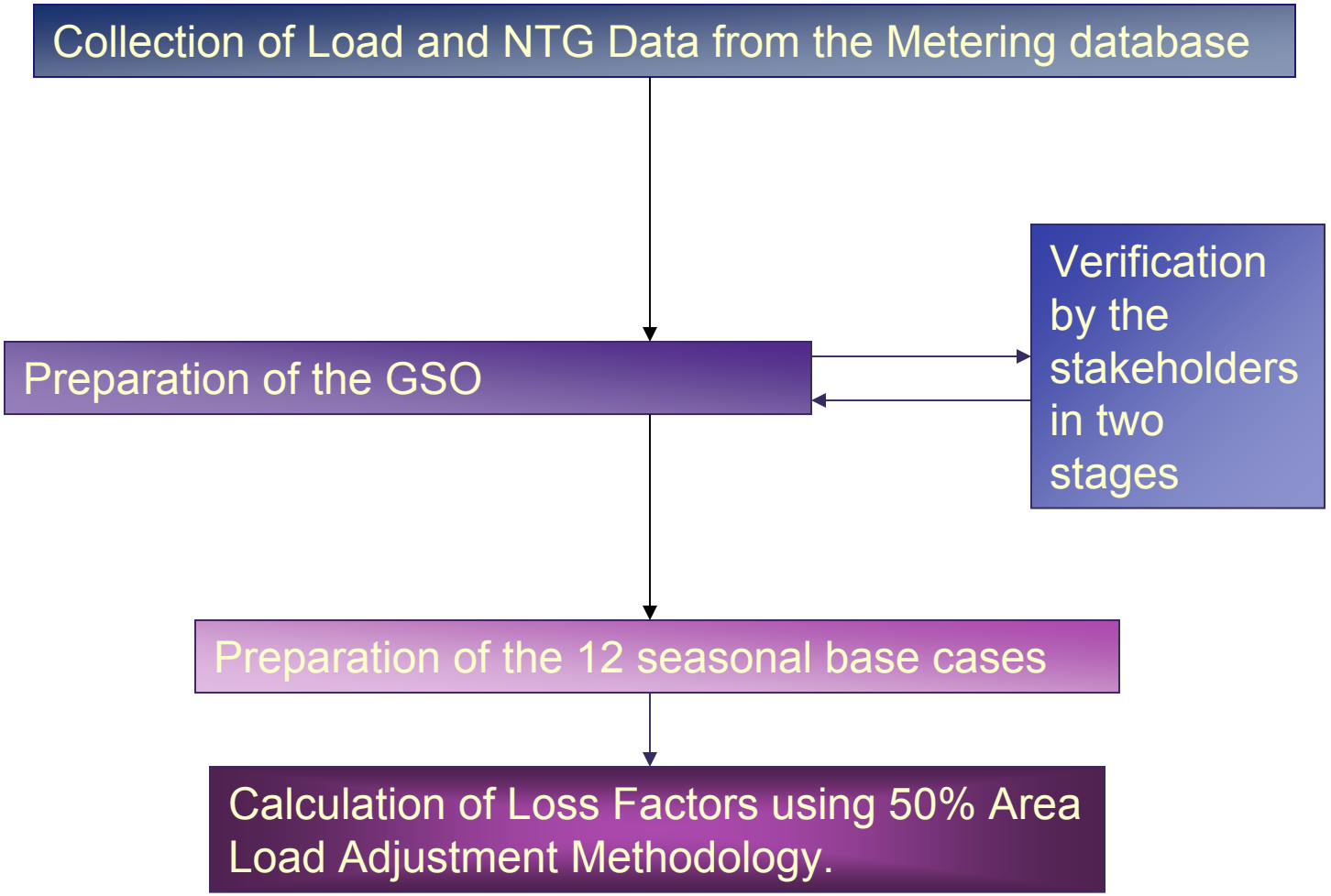
Background



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Preparation of GSO
Step 1

- Based on AESO Rules.
- Obtain Alberta load data for the most recent 12 months.
- Organize the load data according to seasons.
- Seasons are defines as –
  - Winter (December – February)
  - Spring (March – May)
  - Summer (June – August)
  - Fall (September – November)
- Create Load Duration Curve (LDC) for each season.
- Obtain High, Medium and Low segments from LDC.

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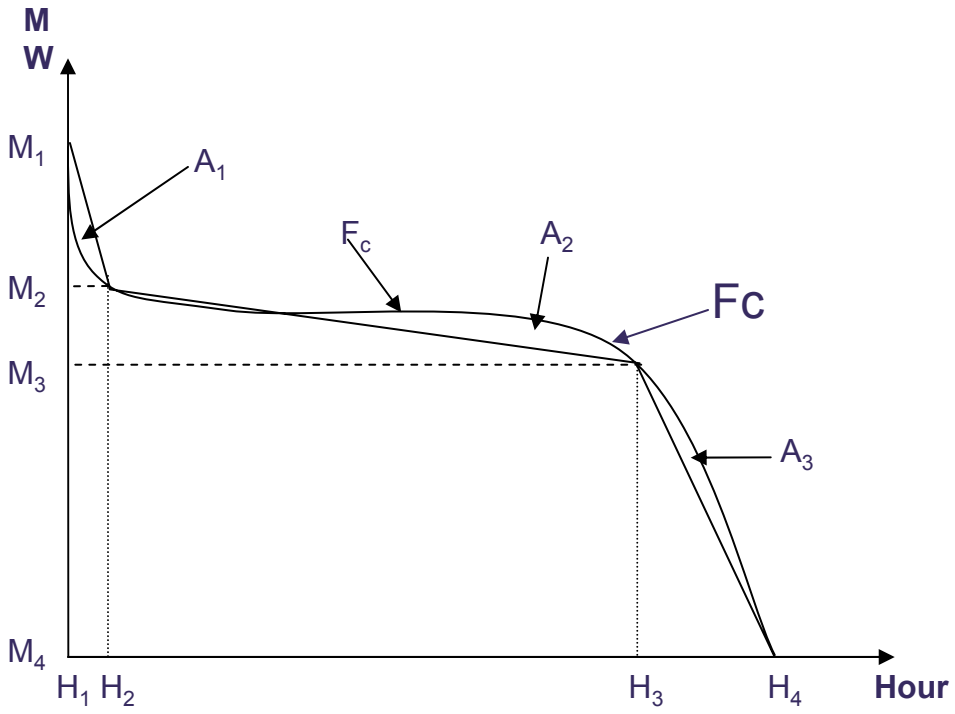
Preparation of GSO
Step 2

- High, Medium and Low segments from LDC.



- Load Duration Curve and Determination of H_2 and H_3
- M_4 is a non-zero value

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Preparation of GSO
Step 2

- Why 3 segments only –
  - To comply with the rules – in Alberta, the three segments results in an optimized and efficient result.
- 3 segments represents linearized simulated LDC
- For each of the segment obtain the area under the straight line and duration curve Fc.
- Find the difference between these two areas (A_x).
- Find all three A_xs and add their squares ($A_1^2 + A_2^2 + A_3^2$).
- Find H_2 and H_3 so that the sum of the squares of A_xs becomes minimum ,i.e. Minimize ($A_1^2 + A_2^2 + A_3^2$).

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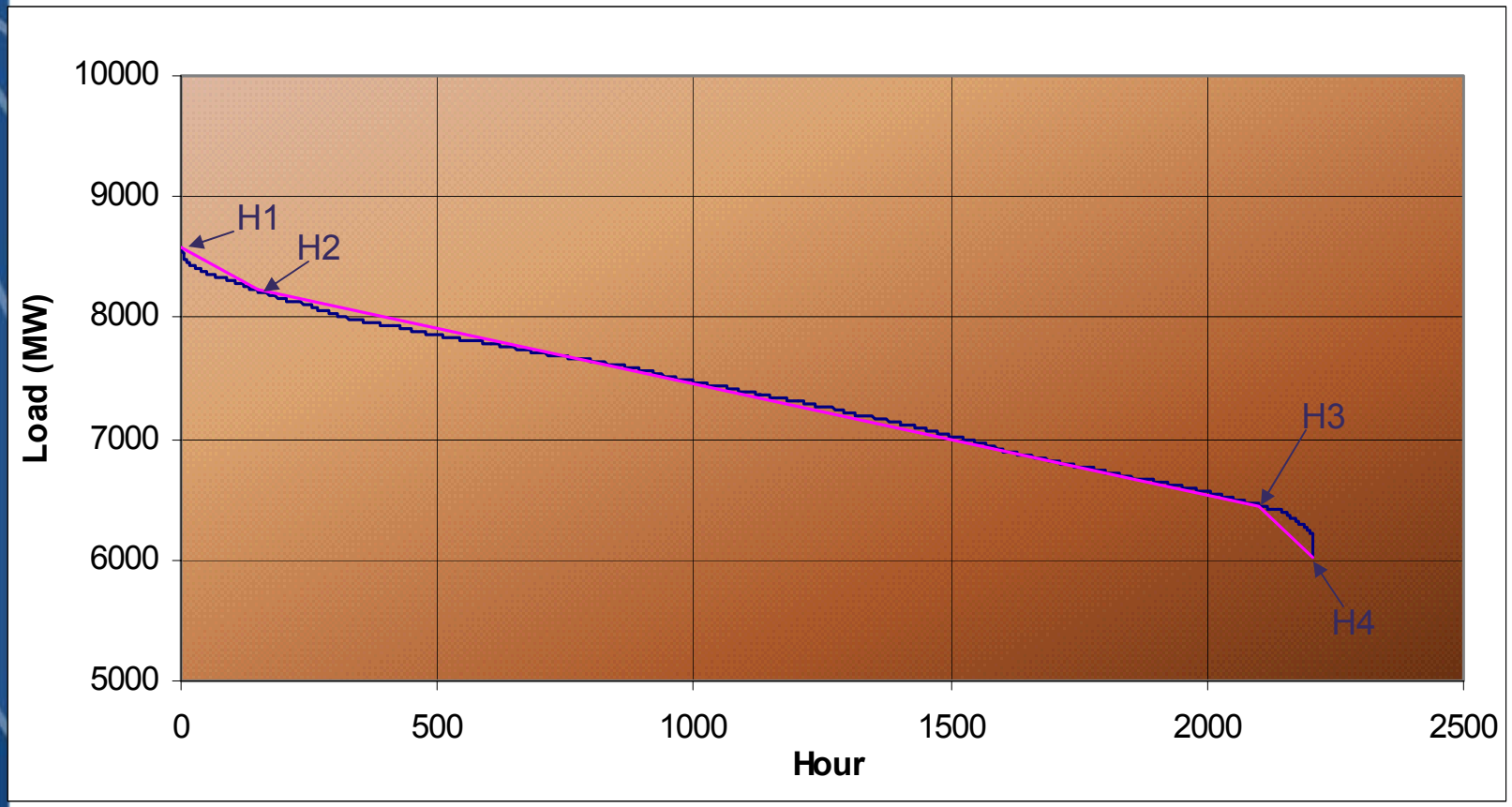
Preparation of GSO
Step 2 – Seasonal Load Duration Curve



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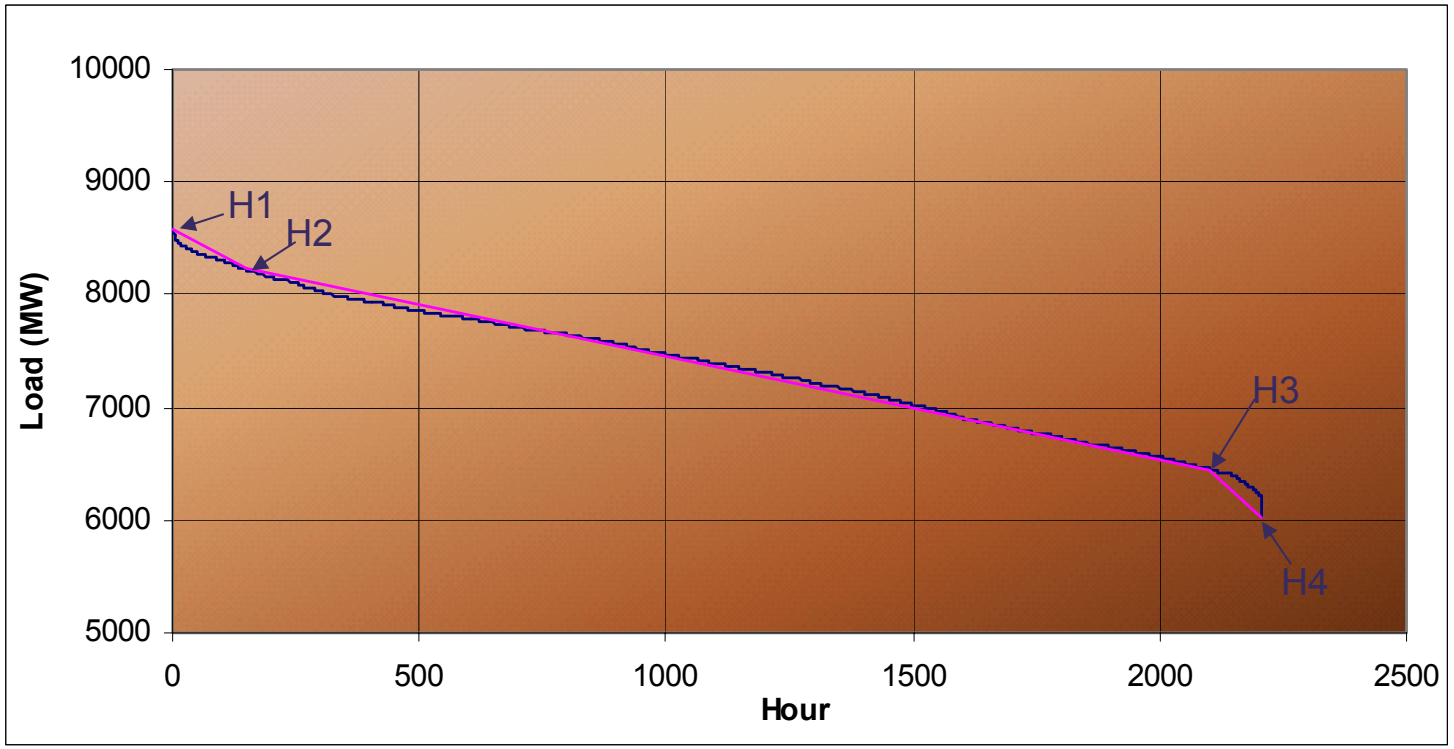
Preparation of GSO
Step 2 – H, M, and L breakdown

		MW		
	Hr	Actual	Avg	Percentile
H1	1	8578		100.0%
H2	150	8225	0	93.3%
H3	2100	6455	0	4.9%
H4	2208	6017	0	0.0%



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Preparation of GSO
Step 3

- LDC is used to obtain the sequence of hours in a season according to load sorted in descending hours.
- NTG data of each generator for each season are stored chronologically.
- NTG data of each generator for each season are sorted according to the sequence of hours obtained from LDC.
- Segments obtained from LDC analysis is used to find average NTG for each MPID for the High, Medium and Low segments.

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Conclusion

- Analysis consistent with Rule to obtain capacity values for base cases
- It is possible to have output values less than the minimum generator output
- Capacity values calculated are truly historic with no forward maintenance embedded
- AESO has sent 9 values to owners for signoff for 3 seasonal cases.
- AESO will send 3 numbers for final seasonal case (Spring) in mid July.

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Further Actions

- AESO will correct headings to read ‘PAvail’
- Confirm with companies we are contacting the right people and they know the intent of the request
- Signoff confirms best information to build base cases and calculate loss factors

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