

Reserve Capacity Mechanism - Availability Curve Definition

Presentation Market Advisory Committee
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Issue Statement

“There is a lack of clarity in the formation of the Availability Curve. This has the potential to threaten system reliability”.

Definition Issue

Market Rule 4.5.10(e) defines the Availability Curve.

“a two dimensional curve for each of the 2nd and 3rd Capacity Years of the Long Term PASA Study Horizon describing the information referred to in clause 4.5.12”

Formulation Issue

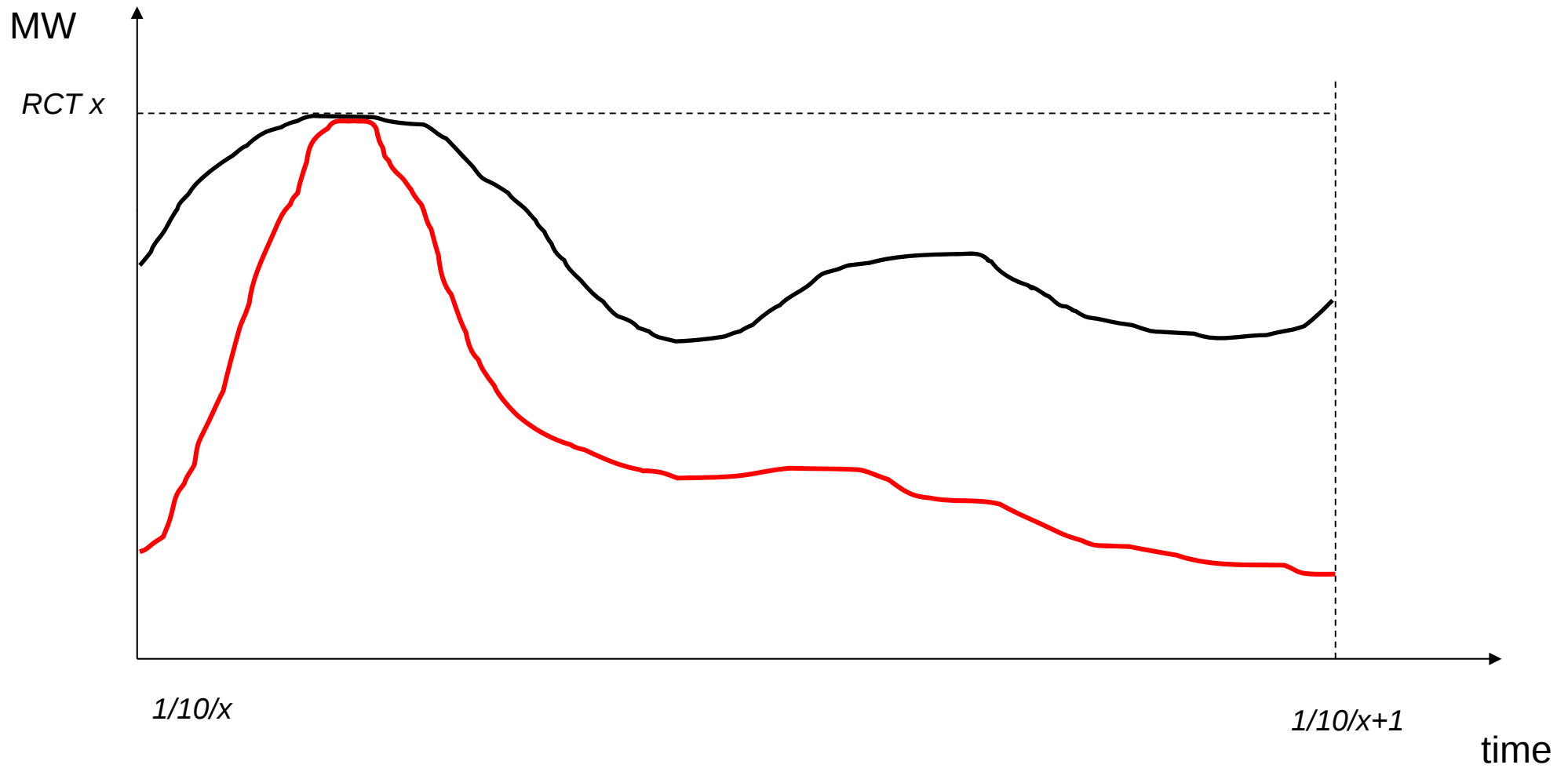
There is no guidance in the rules or procedures as to how to formulate the “Availability Curve”. The curve that forecasts the availability requirements of generation and demand side programs for the upcoming capacity year.

The rules indicate that a graph should be produced covering a capacity year (12 months) , this gives the horizontal dimension, and the remainder is not defined.

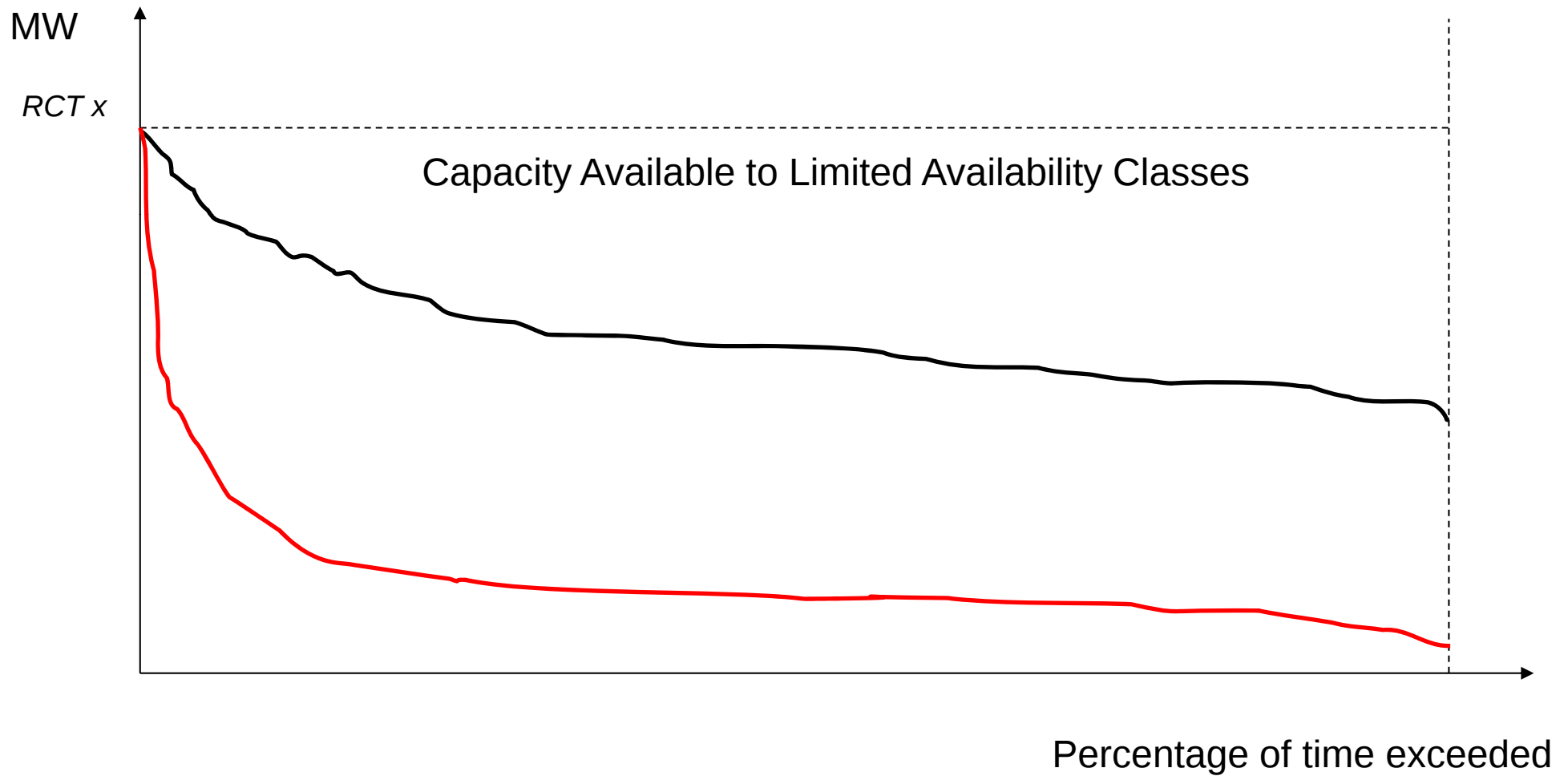
Market Rule 4.10.5(b) indicates that it should include the “Reserve Capacity Target” (RCT) only, this gives the vertical dimension and quantum.

Possible curves can be postulated that meet this criteria

Possible Availability Curve #1 (Chronological format)



Possible Availability Curves (LDC Format)



Reliability Issue

The Availability Curve formulation is crucial for reliability and defines the capacity that is available to the various capacity classes. Its lack of definition is not transparent and can lead to less than adequate system reliability

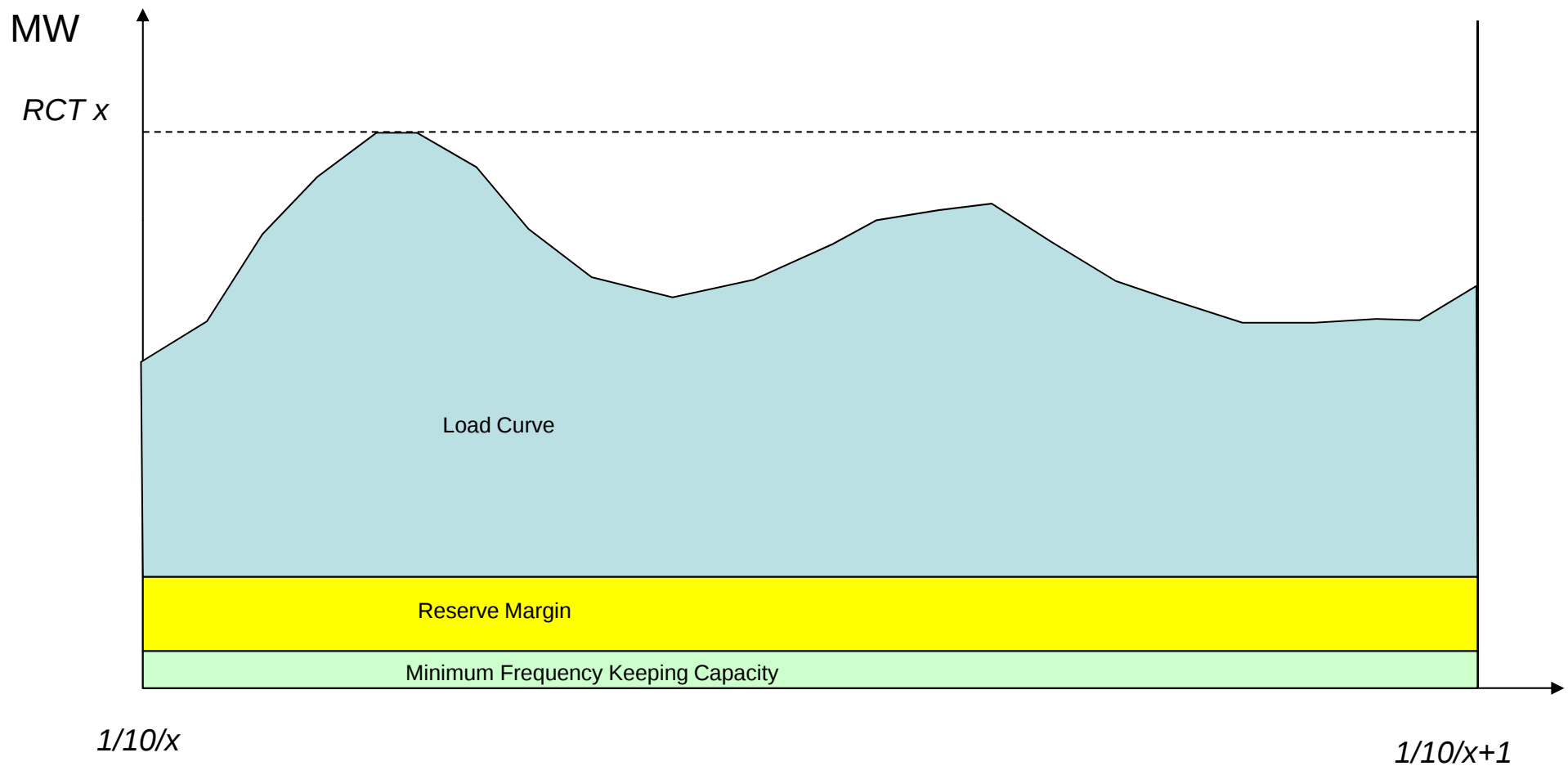
Proposed Solution

System Management believes that this can be addressed by proposing a rule change which defines explicitly how the “Availability Curve” is defined and to be formulated.

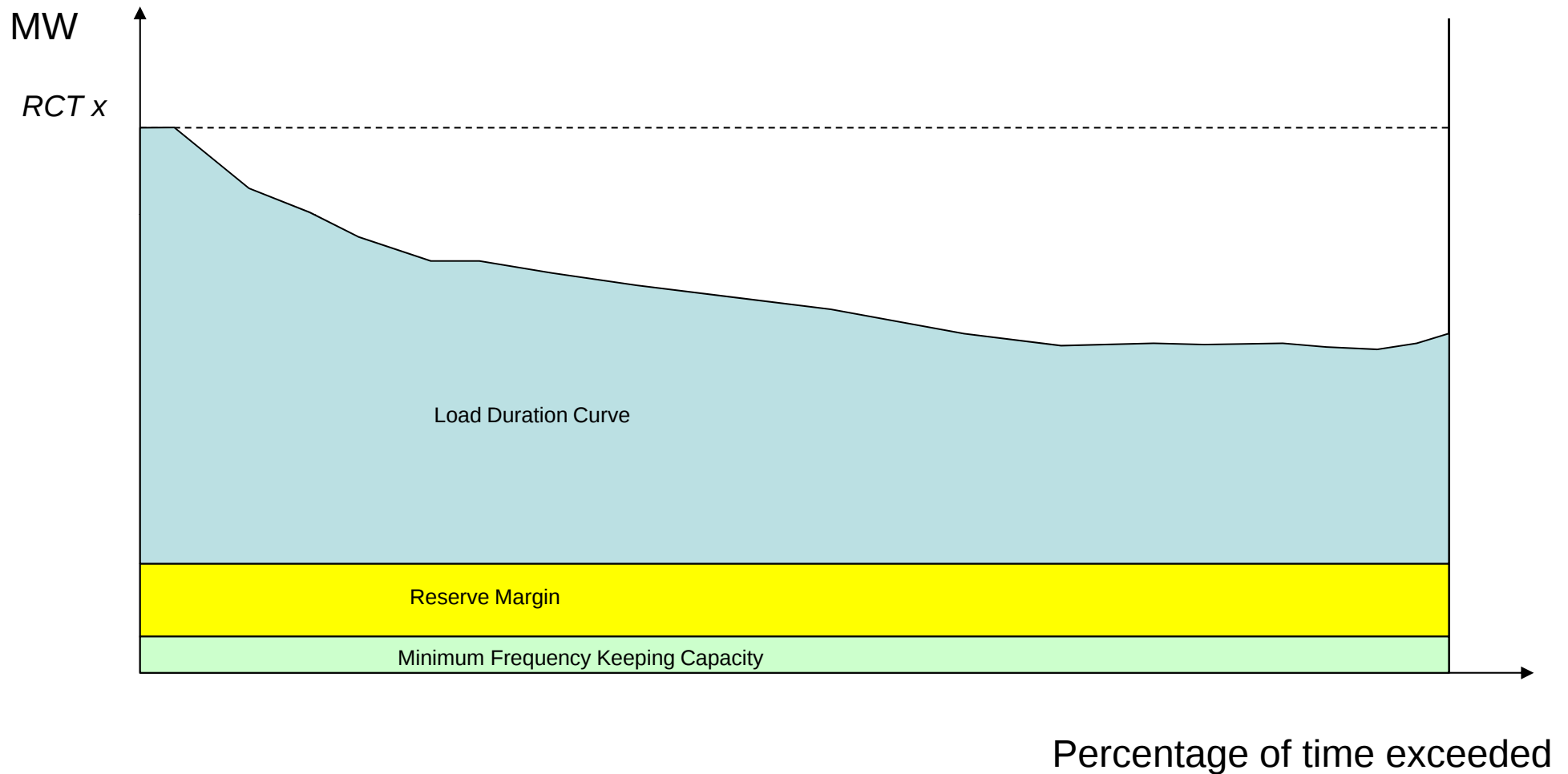
It is proposed that this will be achieved by defining each component of the availability curve based on the planning criterion given in Market rule 4.5.9 being

$$\begin{aligned} &\text{Reserve Capacity Target} = \\ &\text{The Forecast Demand Shape} \\ &\quad + \\ &\text{The Reserve Margin and its availability requirement} \\ &\quad + \\ &\text{The Frequency Keeping Capacity and its availability requirement} \\ &\quad (\text{These components are shown graphically overleaf}) \end{aligned}$$

Formulation of the Availability Curve (Chronological Format)



Formulation of the Availability Curve (LDC Format)



Reasons for Availability Durations

The availability curve defines what resources are required to ensure reliable operation of the SWIS.

The load curve must be met and so resources must be available for the same duration as the forecast load. This uses benchmark load profiles plus an allowance for 1 in 10 year events and an allowance for intermittent loads

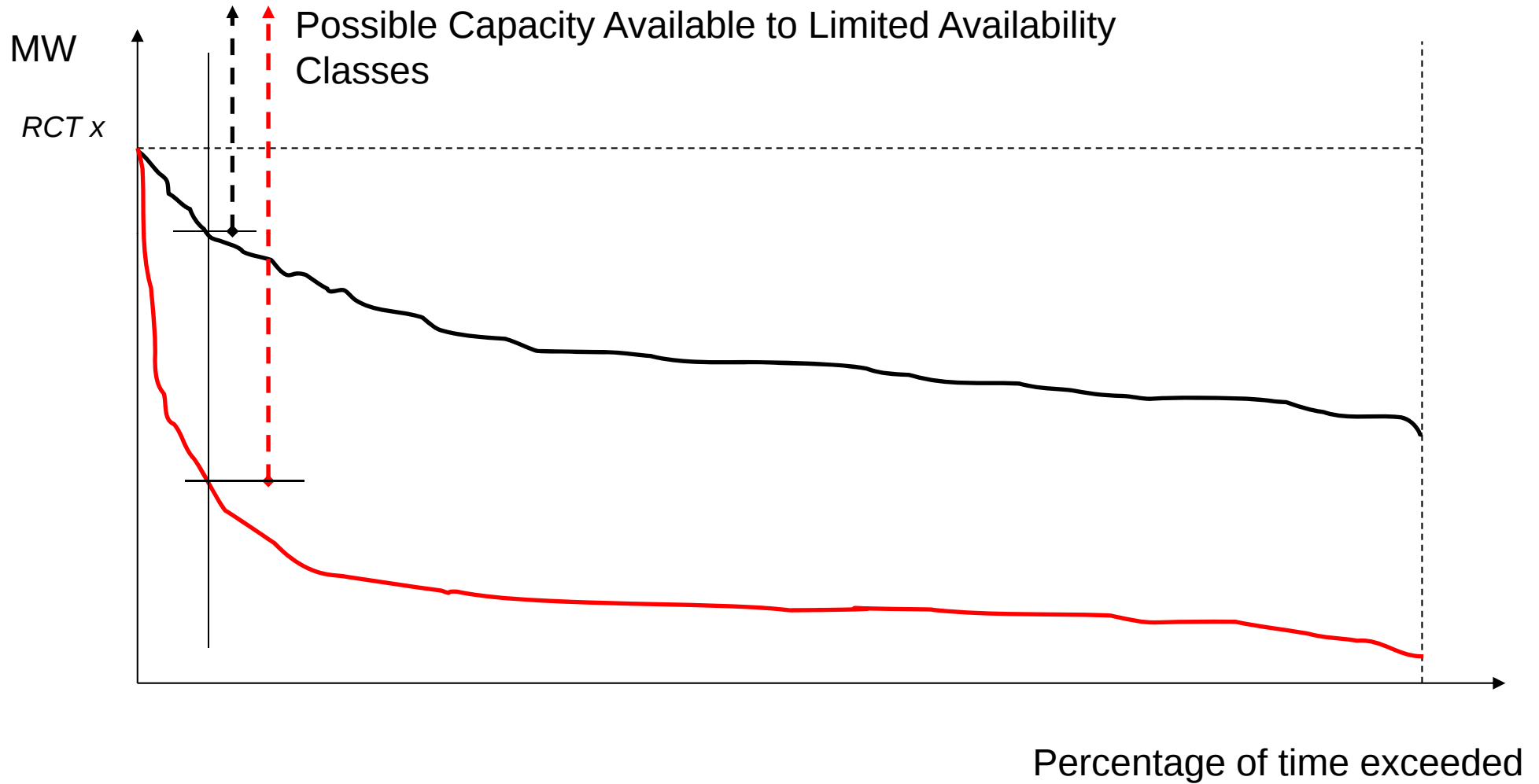
The Minimum Frequency Keeping Capacity, e.g extra capacity to meet load and non scheduled variations, must be available at all times as variations in load and non-scheduled generation can occur at peak load times (day time) and off peak times (night time), hence resources must be available 24/7

The Reserve Margin, e.g extra capacity to meet the Forced Outages of scheduled generators, Fuel Restrictions and Network Restrictions. This must be available at all times as reduction in the delivery of scheduled generation can occur at peak load times (day time) and off peak times (night time), hence resources must be available 24/7

What this does

- Ensures the correct mix of facilities with different availability classes are selected to meet the planning criteria

Possible Availability Curves (LDC Format)



What this does not

- Change the Reserve Capacity Target or change the cost of capacity credits to the market
- Limit the amount of capacity procured by the various availability classes

Draft Wording of 4.5.10(e).

“develop a two dimensional curve for each of the 2nd and 3rd Capacity Years of the Long Term PASA Study Horizon describing the information referred to in clause 4.5.12 (“Availability Curve”). This curve shall be the minimum capacity that must be made available from facilities holding capacity credits for each trading interval in the capacity year and calculated as the sum of:

The forecast demand for each trading interval of the Capacity Year with a peak demand equal to the forecast peak demand given in 4.5.9(a),
and

The Reserve Margin equal to the reserve margin given in 4.5.9(a) and is required to be available at this value for the entire Capacity Year,
and

The Minimum Frequency Keeping Capacity given in 4.5.9(a) and is required to be available at this value for the entire Capacity Year.”