

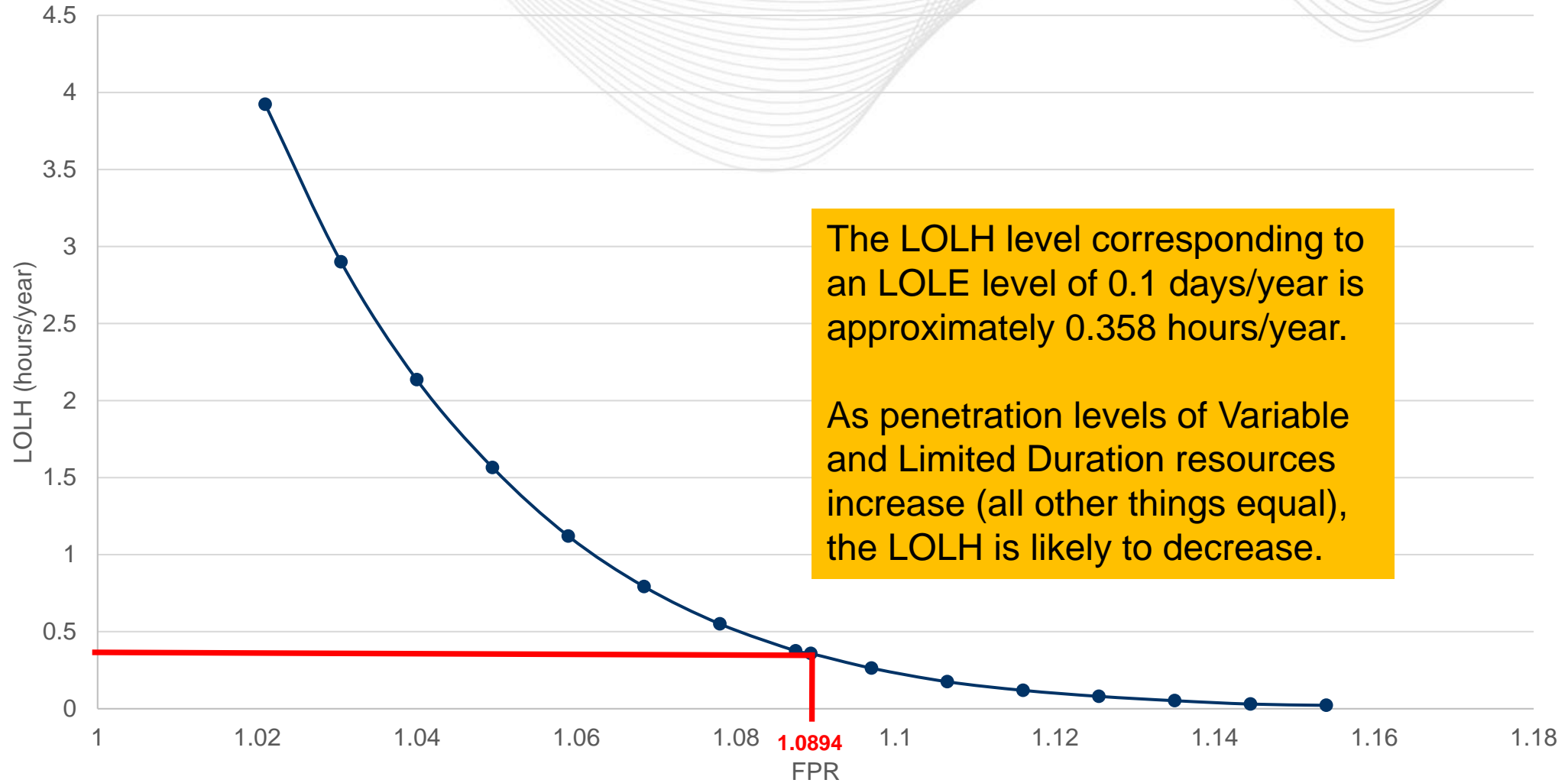
Education: Other Resource Adequacy Reliability Metrics – Part III

Patricio Rocha Garrido
Resource Adequacy Planning
RASTF
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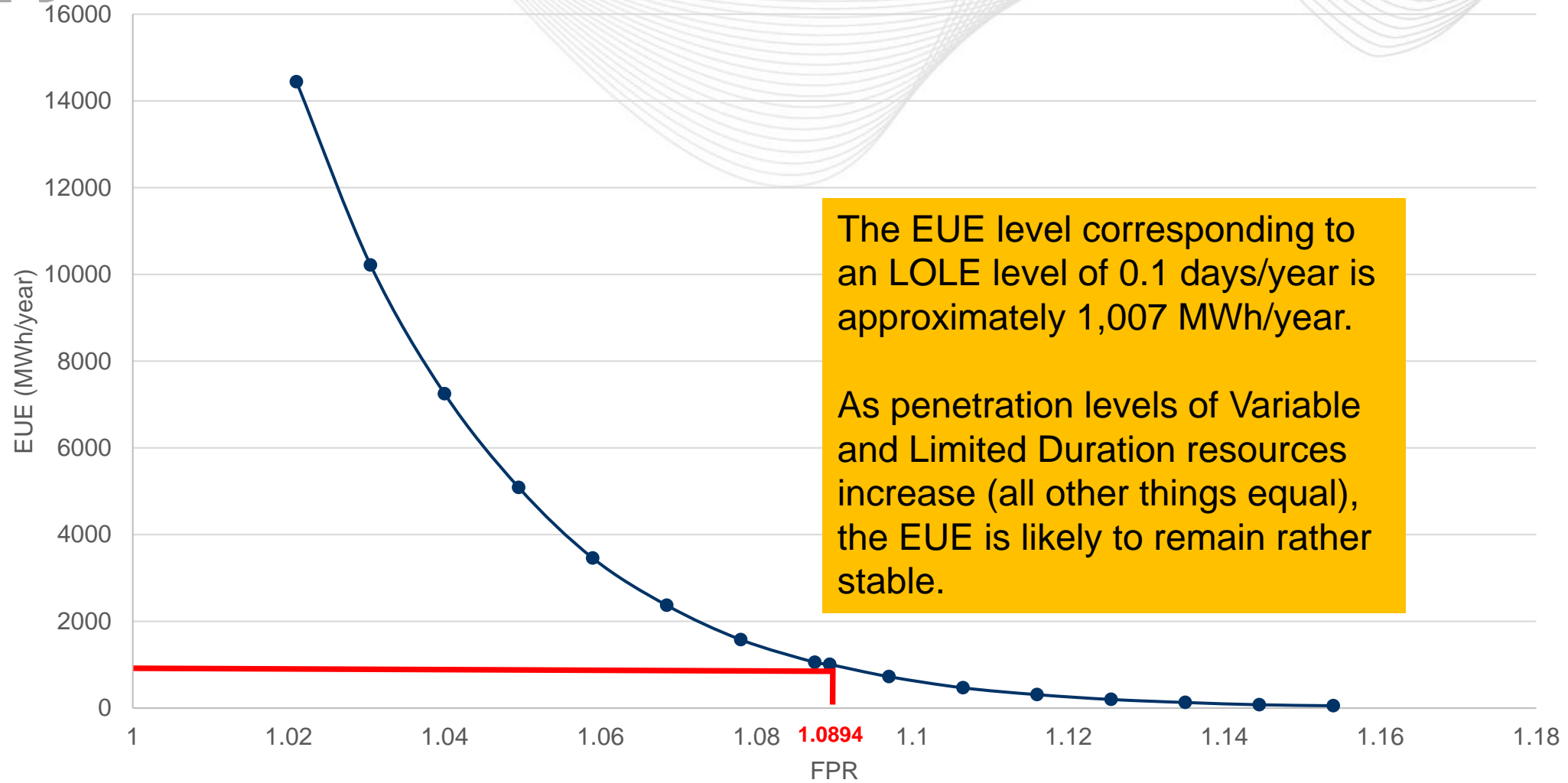
- By 1960, the electric power industry started to widely recognize the LOLE index of 1 day in 10 years
 - C.W. Watchorn was one of the main proponents of the criterion around that time
 - The derivation of the criterion was mainly justified on numerical grounds (probably constrained by computational capabilities at the time)
- At PJM, the 1 in 10 criterion was proposed and approved by stakeholders in the early 1970's
 - Subsequently, the 1 in 25 criterion for LDAs was proposed and approved by stakeholders in the mid-1990's

- Criterion is often interpreted in mathematically inconsistent/incorrect ways
 - Example 1: 2 loss of load events in the same day count as 1 day with loss of load or 2 days with loss of load
 - Example 2: 0.1 days/year = 2.4 hours/year
- PJM is not aware of any study justifying the criterion from a cost/benefit of avoiding unserved energy perspective

Resource Adequacy Levels - LOLH vs FPR (RTO)



Resource Adequacy Levels - EUE vs FPR (RTO)



The EUE level corresponding to an LOLE level of 0.1 days/year is approximately 1,007 MWh/year.

As penetration levels of Variable and Limited Duration resources increase (all other things equal), the EUE is likely to remain rather stable.



Resource Adequacy Target Levels in Other RTOs/ISOs

RTO/ISO	Origin
MISO	LOLE = 0.1 days/year
NYISO	LOLE = 0.1 days/year
ISO-NE	LOLE = 0.1 days/year
SPP	LOLH = 2.4 hours/year
Alberta	EUE = 800 MWh/year
Australia NEM	EUE = 0.002% of annual energy

SME / Presenter:

Patricio Rocha Garrido,
patricio.rocha-garrido@pjm.com

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Member Hotline

(610) 666 – 8980

(866) 400 – 8980

custsvc@pjm.com

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