

# Effective Net Load Reduction (ENLR) QC Counting for Wind and Solar Resources (Alternative Approach – “Simplified ELCC”)

Darius Shirmohammadi, GridBright, Inc.  
Technical Director, California Wind Energy Association

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## What Is Wrong with Exceedance?

- **No direct relationship between historical VER production and capacity reduction at the time of actual system need**
- **The selection of the exceedance level also totally arbitrary – mainly based on risk appetite?**



# VER QC using Exceedance Approach

Load (PU of peak)	VER Hourly Output (MW)	
	Sample 1	Sample 2
95%	100	100
90%	100	100
100%	100	100
75%	100	100
65%	1000	100
72%	1000	1000
82%	1000	1000
90%	1000	1000
62%	1000	1000
90%	1000	1000
55%	1000	1000

	VER QC (Exceedance Method) - MW			
	50%	60%	70%	80%
Sample 1	1000	1000	100	100
Sample 2	1000	100	100	100



# QC Calculation using Effective Net-Load-Reduction

**Effective Net-Load Reduction (Org-ENLR)** methodology for VERs' QC calculation is intended to capture the correlation between load and VERs' output:

- Original ENLR-based QC was calculated as the weighted average of the historical hourly VER output – weight is the ratio of the actual hourly load over maximum load for the time slice

## **Alternative Effective Net-Load Reduction (Alt-ENLR)**

- Simple average of the historical hourly VER output for those hours where the actual load is higher than a threshold value – in essence, a simplified ELCC



# VER QC: ENLR Approach

Load (PU of peak)	VER Hourly Output (MW)	
	Sample 1	Sample 2
95%	100	100
90%	100	100
100%	100	100
75%	100	100
65%	1000	100
72%	1000	1000
82%	1000	1000
90%	1000	1000
62%	1000	1000
90%	1000	1000
55%	1000	1000

	VER QC (Org ENLR) - MW	VER QC (Alt ENLR – Simplified ELCC) – MW			
		50%	60%	70%	80%
Sample 1	502	673	640	550	550
Sample 2	449	591	550	550	550



# VER QC: Exceedance Vs ENLR Approach Actual 2019-2021 Data

## ✦ 4 PM August Time Slice: (~Gross Peak Load)

	Exceedance Method			
	50%	60%	70%	80%
Solar QC:	70.8%	68.2%	66.8%	61.6%
Wind QC:	25.5%	20.9%	17.1%	13.9%

	Org-ENLR	Alt-ENLR (Simplified ELCC)			
		50%	60%	70%	80%
Solar QC:	54.9%	70.1%	70.2%	69.1%	67.1%
Wind QC:	21.0%	26.6%	26.6%	28.0%	26.3%

## ✦ 8 PM August Time Slice: (~Net Peak Load)

	Exceedance Method			
	50%	60%	70%	80%
Solar QC:	2.0%	1.4%	0.9%	0.7%
Wind QC:	43.3%	40.7%	36.4%	33.8%

	Org-ENLR	Alt-ENLR (Simplified ELCC)			
		50%	60%	70%	80%
Solar QC:	1.9%	2.2%	2.2%	2.3%	2.1%
Wind QC:	37.3%	44.1%	44.1%	44.3%	43.2%