Tightening nameplate rating tolerance below 5%: Can it be rationally and objectively required in test standards?

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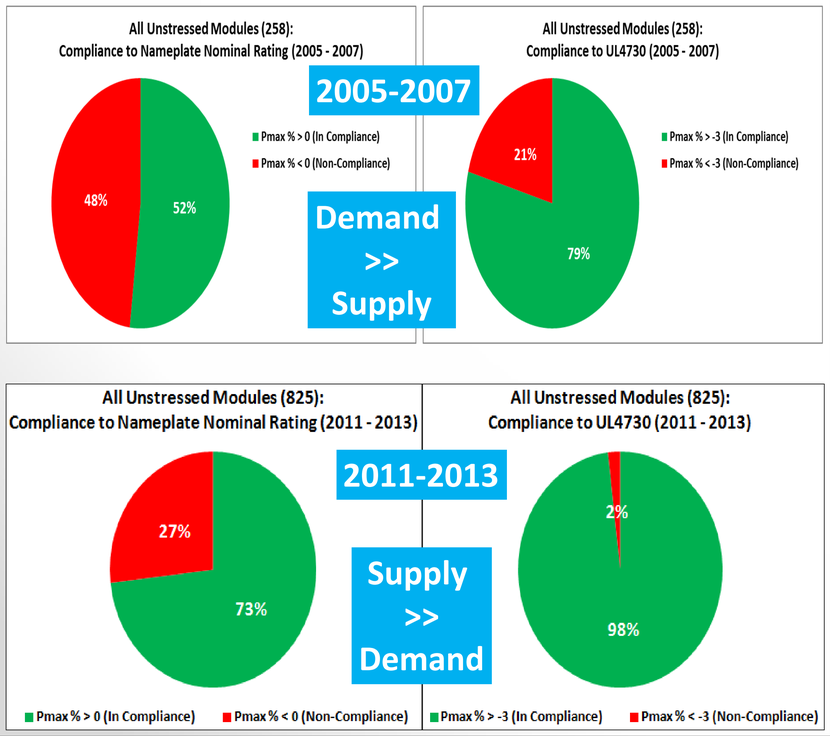
1. PROBLEM

- SITUATION: Nameplate NOMINAL power rating is used for incentive calculations and the energy estimation
- PROBLEM: WIDE TOLERANCE or NO TLERNACE LIMIT in power rating (IEC 61215 or EN 50380) unduly allows over incentive compensation, over energy estimation and higher module mismatch issues in the arrays
- POTENTIAL SOLUTION: Tighten the nameplate rating tolerance below 5%
- QUESTION: Can it be practically tightened below 5%?
- ANSWER: A data-driven objective evidence is needed

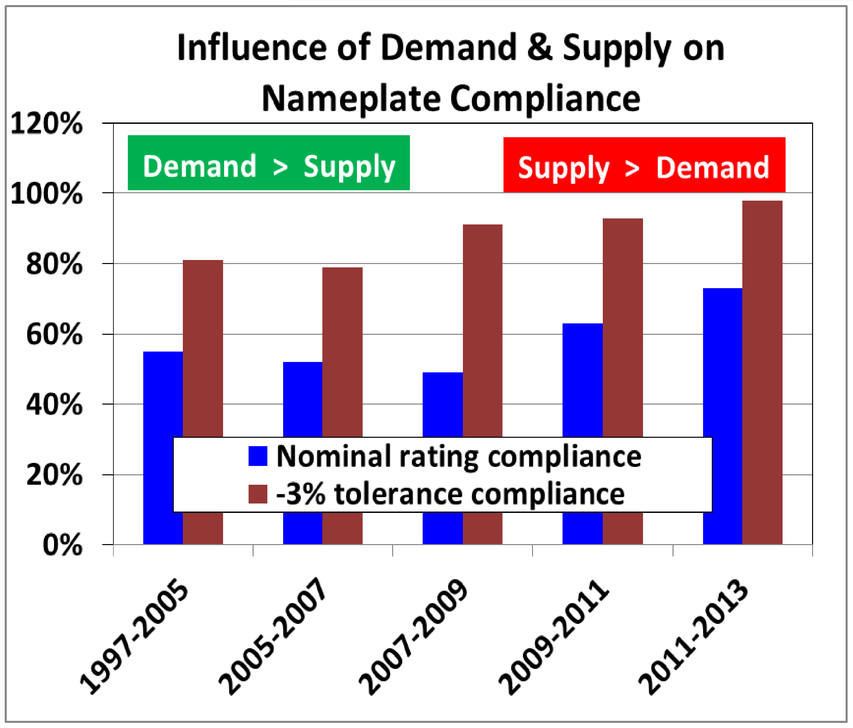
2. DATA ANALYSIS APPROACH

- TUV Rheinland PTL (formerly Arizona State University PTL) is an independent, accredited testing laboratory. TUV-PTL has statistically and chronologically compared the measured Pmax with the nameplate Pmax data of about 2000 modules for the past 17 years.
- Statistical comparison was done using Minitab based on the Access Database
- Chronological comparison was done in five periods (1997-2005; 2005-2007; 2007-2009; 2009-2011; 2011-2013) to observe the influence of demand & supply on the "$/watt" and hence on the "nameplate tolerance limits"

3. COMPLIANCE TO NOMINAL RATING & -3% TOLERANCE LIMIT



4. DEMAND/SUPPLY vs. NAMEPLATE COMPLIANCE



- If lower tolerance limit is NOT set by the standards, then the consequences are….

Uninformed consumers (e.g. homeowners) may pay for the nominal power which is over rated (**Blue column**; 25% of them are overrated in 2013)

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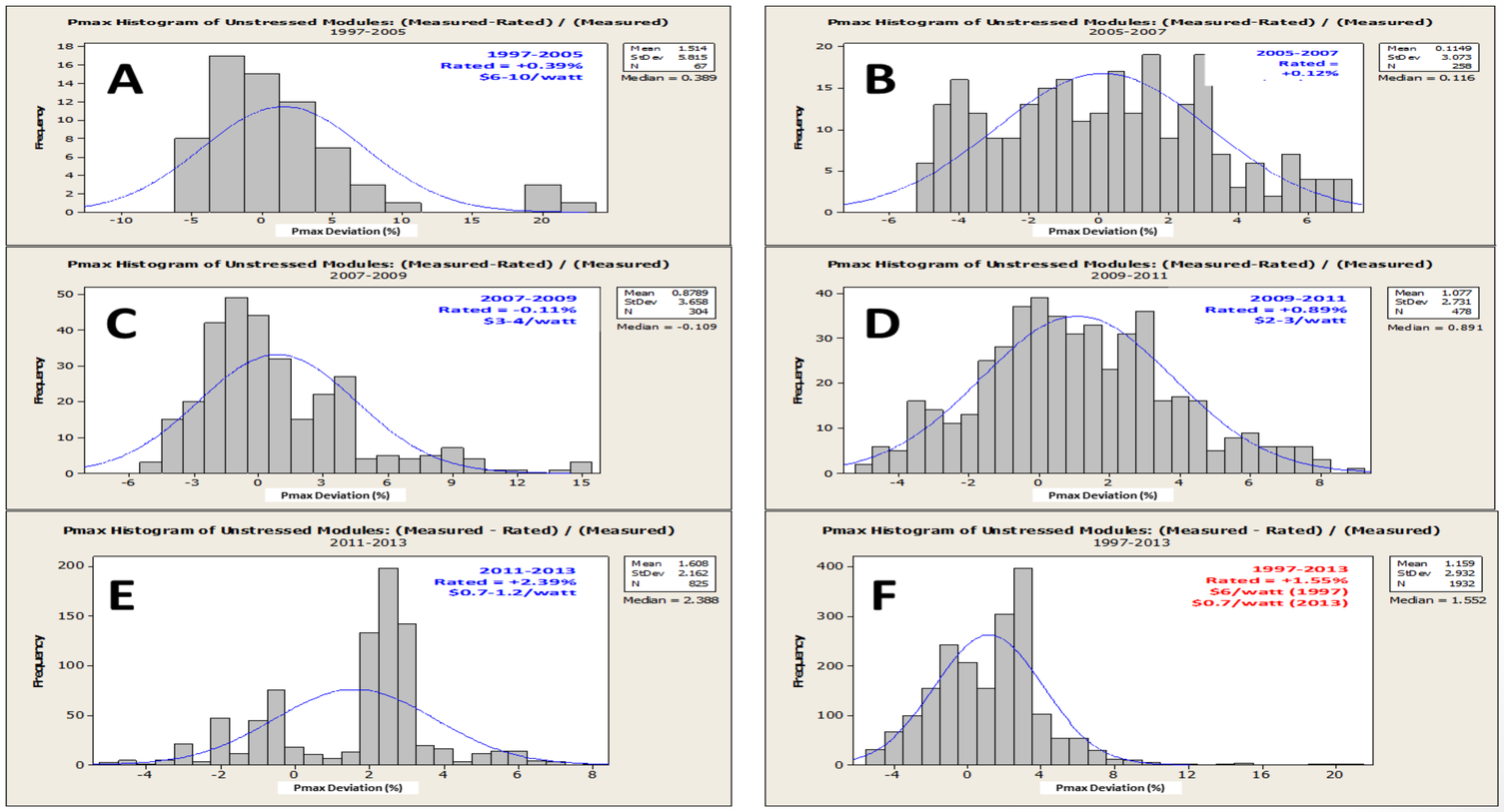
Informed consumers (e.g. large project) may demand for the minimum power which is not practically over rated (**Maroon column**; only 2% of them are overrated in 2013)

➢ **Not good for the industry reputation!**

5. "$/watt" Pressure on "Median Deviation"



6. CONCLUSIONS

- If no lower tolerance limit set by the test standards, the demand/supply ratio will certainly dictate the marketplace nameplate tolerance limit which is not good for the reputation of the industry and the consumers.
- Based on the positive nameplate tolerance maintained by the manufacturers since 2011, it is recommended that the nameplate tolerance in the test standards can easily be tightened below 5%.

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