# Adjusting the aim of capacity mechanisms: future-proof reliability metrics and firm supply calculations

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**Abstract-**

**Capacity mechanisms are now deemed a regulatory mainstay in liberalised power system Remuneration in capacity mechanisms depends on so-called firm supply (calculated from de-rating factors or capacity credits), taken as a proxy for each resource&rsquo;s expected long-term contribution to system adequacy. Most adequacy assessment and de-rating methods used to calculate security of supply were developed for power systems very different from today&rsquo;s and tomorrow&rsquo;s, in which renewables account for a higher share of the mix and demand is more elastic. Regulators the world over are already revising these methods, although that seldom involves an overall rethink of their general approach. Drawing from theoretical considerations and international best practice, this article defines an updated theoretical framework for the resource adequacy problem against the backdrop of the challenges ahead for the power sector. The conclusions include recommendations for resilient reliability metrics and de-rating calculation methods.**

**Index Terms- Reliability; Adequacy; Capacity mechanisms; Firm supply; Firm capacity; Firm energyde-rating; Security of supply; Extreme weather events; Flexibility**

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