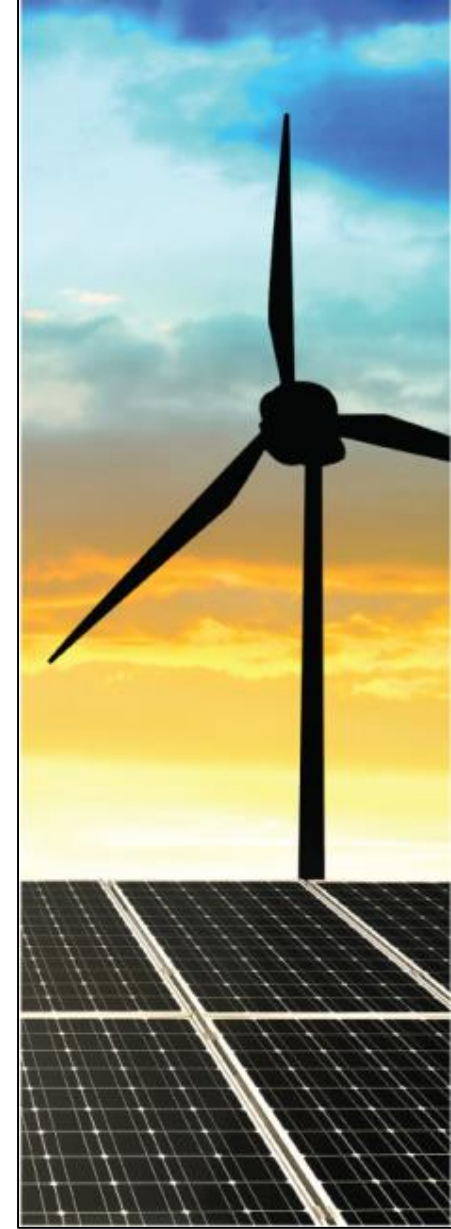


# Changing Needs for Ancillary Services: Reliability and Resiliency Services

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Utility Variable-Generation Integration Group

*Charting the Future of Wind and Solar Power Integration and Operations*



An engineer is someone who uses scientific knowledge to solve practical problems, such as implementing plans or building machines.

It is not just technical expertise that makes an engineer, but also ability to develop solutions that are sensible and realistic.

*As I have heard said, "An engineer is someone who can build for ten cents what any fool can build for a dollar."*

Russ Philbrick  
UVIG Blog: Change is Hard  
October 2, 2017

# Engineering Approach: Essential Reliability Services

- 1) Premise: *“The changing resource mix may affect services that are needed to maintain our current level of reliability.”*  
*NERC initiates investigation of “Essential Reliability Services”*
- 2) Propose resource attributes that could affect reliability  
*NERC ERS Task Force Concept Paper (2014)*
- 3) Gather actual data and test the relationship with reliability  
*NERC ERS Task Force - Measures Framework Report (2015)*
- 4) If promising, encourage the capability of providing such attributes (if cost is reasonable)  
*FERC Order 827 (2016), FERC Primary Frequency Response NOPR (2017)*
- 5) Conduct a more detailed analysis on measuring, monitoring, and quantifying the amounts of the attribute that are necessary for desired levels of operational reliability  
*NERC ERS Working Group Sufficiency Guidelines (2017 and in process)*
- 6) When the attributes actually become needed, procure them at costs that are commensurate with their contribution to reliability

# Questions about “Resilience” and “Resiliency”

- What is the definition of the words?  
*The capacity to recover quickly from difficulties*
- What is the difference between reliability and resiliency?  
*The inference: resilience relates to low-probability, high-impact events*
- Hasn't NERC been considering low-probability, high-impact events for years?  
*Yes*
- Aren't both reliability and resiliency affects already captured in reliability metrics and assessments?  
*Yes*
- Why does the English language have both “Resilience” and “Resiliency” when both are nouns and used interchangeably?  
*I have no idea, but many things about resilience aren't making sense...*
- Wouldn't it be logical for FERC to ask NERC to address resilience just like Essential Reliability Services?  
*Yes*

# Discussion

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