



# SMR Powered Microgrid

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# Current Utility Environment

- Electricity demand is not growing in most regions
- Gas prices are cheap and expected to stay low
- Regulations are more challenging for nuclear
- Current policies and incentives are stimulating wide-spread deployment of renewables, affecting grid requirements
- Electricity markets do not value many of nuclear energy's attributes; grid stability, carbon-free, highly reliable, good jobs, stable fuel supply and price

It is difficult to justify funding technology innovation and large capital expenditures in an uncertain demand, revenue & regulatory environment

# Grid Vulnerability Problem Statement

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- Computing & analysis are now essential to National Security
- These capabilities consume lots of electricity
- The U.S. has several large (>50MW) bases/facilities with mission-critical infrastructure dependent on reliable electricity
- Reliable electricity is likely to increase in importance to national security over the next several decades
- The U.S. Government should consider making these facilities less vulnerable to:
  - Natural phenomena (i.e. tornados, floods, etc.)
  - Intentional destructive acts (i.e. aircraft impact, sniper, cyber attack etc.)



# An SMR-powered Microgrid: A Solution to Both Challenges

- SMR Features:
  - Self supporting (SMR does not require offsite power – Island Mode and black start capable)
  - Less vulnerable to natural phenomena / intentional destructive acts
  - Can provide power long term during an extended event (fuel on site)
- SMR-powered microgrids could improve reliability and resiliency of the grid and facilities it could serve near the SMR
  - Ability to operate connected to or isolated from the main electric grid
  - “Smart Grid” applications (Uninterruptable Power Supply type features)
  - Operational limitations (never schedule all units off at the same time)
  - Robust transmission and distribution (e.g. armor, underground)

The U.S. Government should consider “ordering”  
a couple SMR-Powered Microgrids

- DOE/DoD would get enhanced reliability / grid resiliency at critical facilities
- SMR vendors get needed private – public partnership to “jump start” their industry, addressing start-up challenges
- Utilities get an option developed for future deployment of reliable baseload generation in more affordable increments
- U.S. citizens benefit from good paying U.S. jobs, American-made exports, improved electric grid, and enhanced national security