

Integrated Energy and Communications Systems Architecture (IECSA)

The Value Proposition for IECSA



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*Electricity
Innovation
Institute*

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Electricity Marketplace Reality Check

Infrastructure Constraints



Grid Constraints
Operational Constraints
Market Constraints
Aging Infrastructure

Vulnerability



Security
Maintenance
Vandalism

Natural Disaster



..... Acts of God

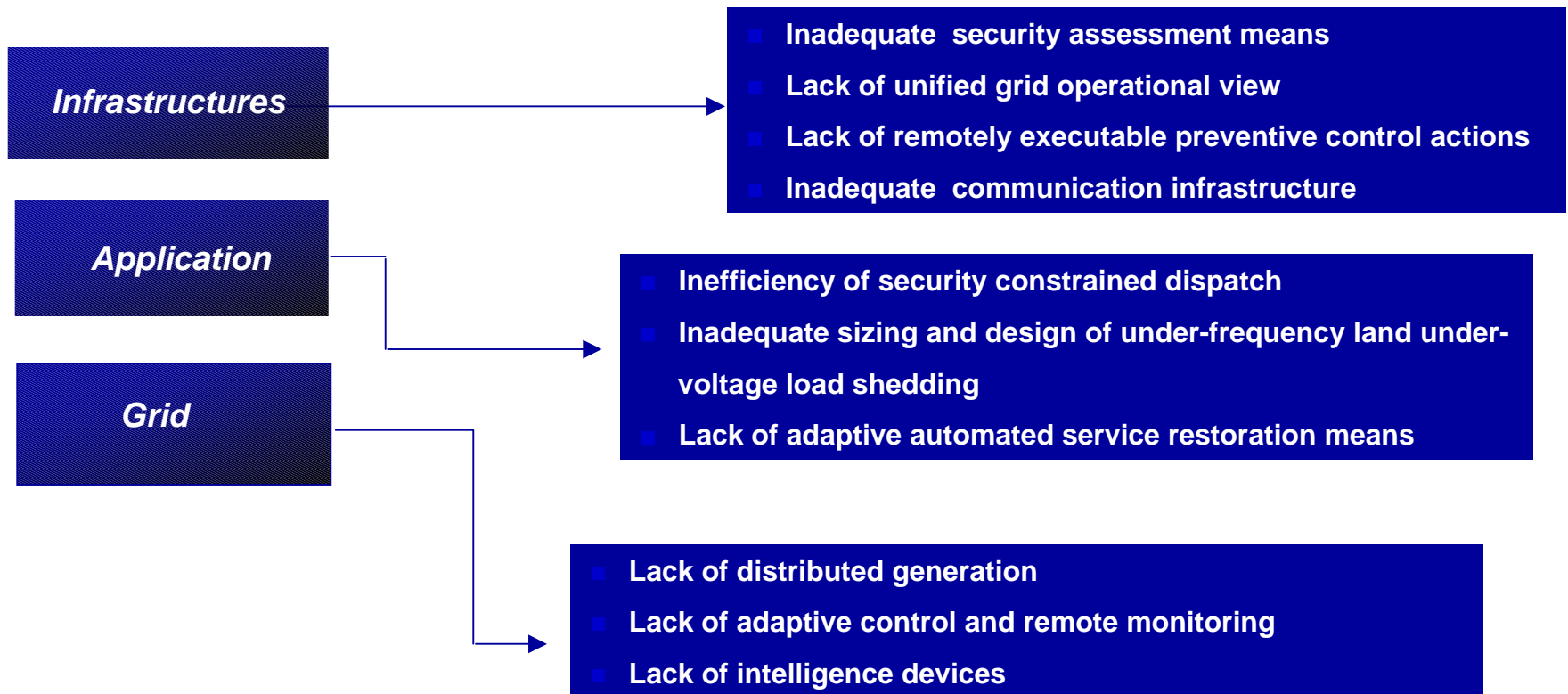


Blackout *A Dark Outcome*





BlackoutContributing Factors



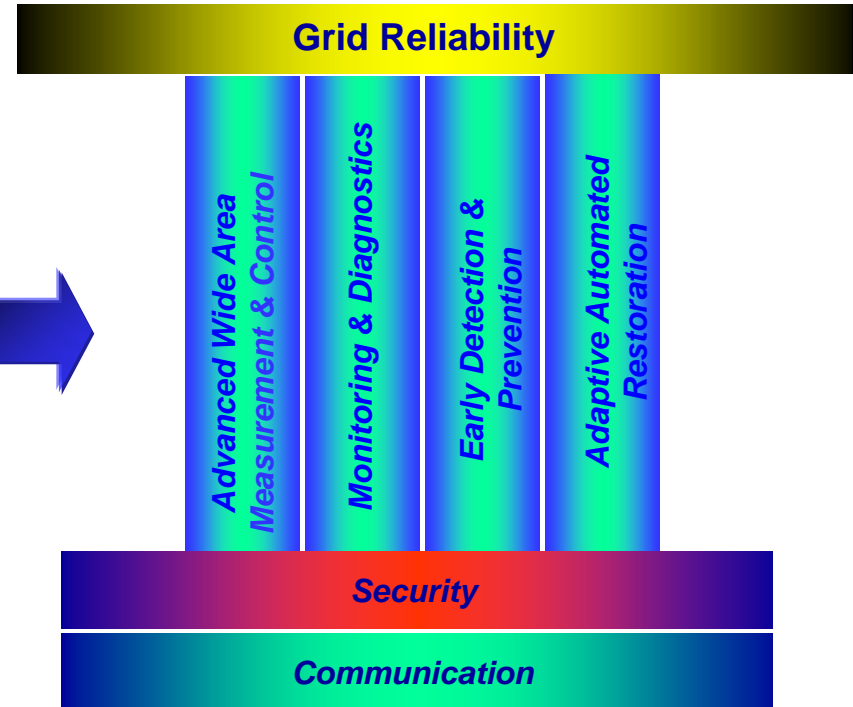
Challenge to eliminate defects – Overarching approach essential





Grid Reliability – *Fundamentals*

- Proactive failure detection
- Self-healing grid
- Dynamic consumer interface



The key to reliability Is proactive diagnostic and reactive healing



Grid Reliability – Needs

- Remote monitoring
- Early detection & decision support
- Prevention & recovery
- Fault isolation & restoration
- Crew management
- Emergency backup
- Transfer of authority

*Grid reliability = **grid rehabilitation** – protective + preventive
+ modern integrated energy and communication infrastructure*

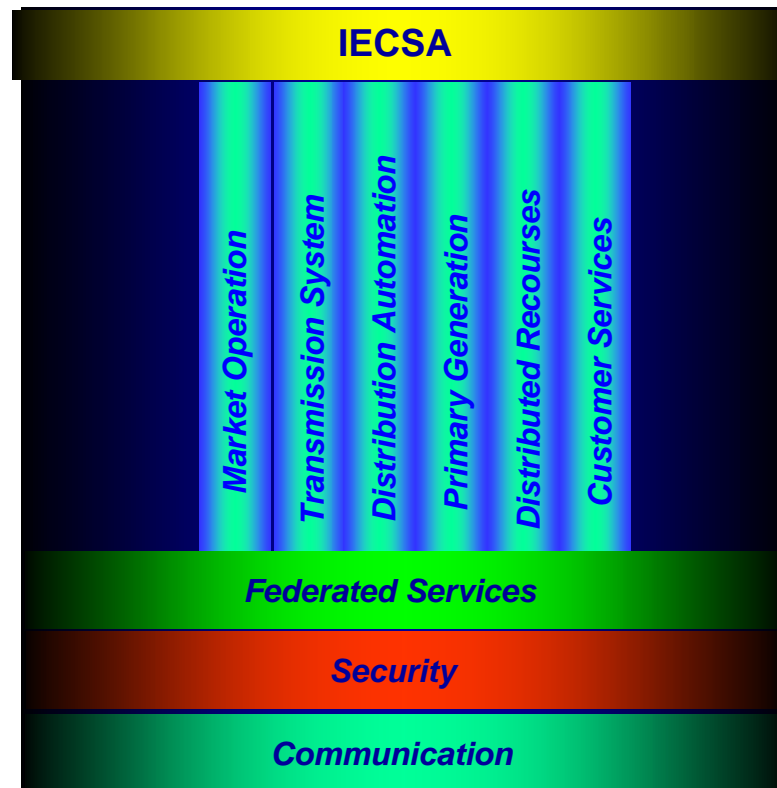


Grid Reliability – New Culture

Emerging needs for an Integrated Energy and Communication System Architecture (IECSA)



A next generation power system consisting of automated transmission and distribution systems that support efficient and reliable power system operations and handle emergency conditions with automated “self-healing” actions, while at the same time responding to the present and future utility business enterprise, energy market place requirements, and end-customer needs



IECSA: Making the grid smart enough to react to problems before they spread



IECSA – *Self Healing Grid*



The definition of a principle to set a road map for development of an overarching information architecture and methodology for the Grid of the Future



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*"Should we wake him? He's been
there since the blackout."*

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