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Sandia National Laboratories

Tribal Cyber Infrastructure Assurance

Secure Cyber Critical Infrastructure Modernization

Introduction: The Sandia National Laboratories (Sandia Labs) tribal cyber infrastructure assurance initiative was developed in response to growing national cybersecurity concerns in the the sixteen Department of Homeland Security (DHS) defined critical infrastructure sectors[1]. Technical assistance is provided for the secure modernization of critical infrastructure and key resources from a cyber-ecosystem perspective with an emphasis on enhanced security, resilience, and protection. Our purpose is to address national critical infrastructure challenges as a shared responsibility.

Tribal cyber infrastructure assurance history of critical infrastructure modernization collaboration with tribes includes cybersecurity, risk management, and resilience in the communications, information technology (IT), and emergency management critical infrastructure sectors. Tribal cyber infrastructure assurance also engages New Mexico small business assistance (NMSBA) for for-profit small business located in New Mexico.

Sandia Labs engages American Indian tribal governments in government-to-government relationships. American Indian tribal government investments accompany ongoing national[2] and worldwide broadband and internet expansion. We seek to engage tribal stakeholders that have demonstrated leadership and vision in the critical infrastructure common interest. Concurrently, we assert to collaborative build a native nation and national skilled workforce; promote cybersecurity and energy efficiency as design requirements in emergent critical infrastructure innovations; and strengthen resilience in a modernized national critical infrastructure fabric.

Tribal cyber infrastructure assurance technical assistance comprises a risk-based system-of-systems approach that includes digital service diversification, interjurisdictional engagement, and review of long-term investment to meet intended outcomes. Sandia Labs NMSBA, DHS tribal homeland security grants, or tribal funds support project work as appropriate to customer requirements.

We offer comprehensive cyber risk management analysis in recognition of new technology advancements[3]. The need for critical infrastructure risk management is increased because these technical advances enable growth and innovation that often overlap with legacy dependencies[4]. Impactful technical innovations include the internet of things[5], software defined networks and network function virtualization[6], cloud computing[7], mobility[8], and mobile networks. Impactful critical infrastructure innovations involve expansive growth in the IT and communications critical infrastructure sectors that facilitate rapidly advancing modernization across all sectors, examples include smart energy and transportation. Our goal is critical infrastructure cyber-safeguards in a shared call to action.

Tribal cyber infrastructure assurance is intended to fulfill national research priorities[9] whereby cooperative research and development is conducted at a sovereign single-point of authority tribal government scale that benefits the tribe, advances a national tribal model, and provides timely solutions at the national cyber critical infrastructure scale. We envision national cyber infrastructure assurance excellence based on this work.

[1] https://www.dhs.gov/critical-infrastructure-sectors
[2] https://www.fcc.gov/general/national-broadband-plan
[3] http://www.ipv6forum.org
[4] https://www.arin.net
[5] http://iot.committees.comsoc.org
[6] http://sdnnfv.committees.comsoc.org
[7] http://cloudcomputing.ieee.org
[8] http://5gmwi.committees.comsoc.org
[9] https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/2016_Federal_Cybersecurity_Research_and_Development_Stratgeic_Plan.pdf

Sandia National Laboratories is a multi-mission laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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