

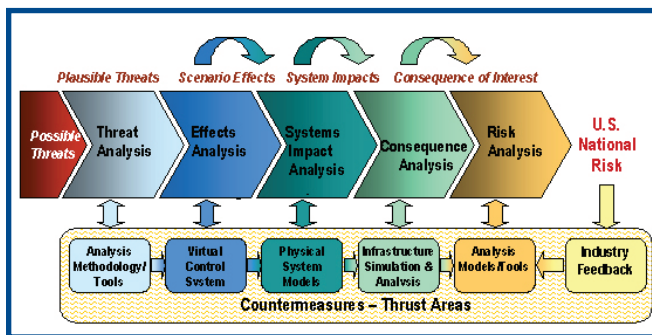
Military Base Infrastructure Surety

Issue:

It's no secret in today's world that our military bases and associated infrastructure are targets for adversaries. Military installations provide key capabilities and resources both in protecting the United States and defending our national security. That's why it is so important to take measures to enhance the surety (safety, security, and reliability) of critical military base infrastructure components, such as energy, communications, and water.

Solution:

Sandia National Laboratories' objective is to provide the capability to assess the technical, economic, and national-security implications of infrastructure protection, mitigation, response, and recovery options. Along with engaging our experts from related groups such as physical security, we bring together three technical areas from within Sandia: energy surety, critical infrastructure modeling, and information/cyber operations.



The Military Base Infrastructure System model developed by Sandia National Laboratories to help identify and prioritize critical infrastructure and key resources to better protect them from attack.

Sandia uses an integrated approach in the assessment and mitigation of vulnerabilities in critical infrastructure protection systems. Sandia's approach to Military Base Infrastructure Surety (MBIS) is unique because we address a full-threat spectrum.

We have developed a risk-based MBIS model to assist in the identification of areas of improvement: to deter, mitigate, or neutralize potential attacks. We provide a holistic view of how our capabilities can help evaluate the risk and make improvements to key military base infrastructures. Our integrated view and ability to customize our work for any military base enhances a military installation's response to both potential and real infrastructure threats.

Benefits:

Sandia can harness its systems engineering expertise so military bases can make strategic security enhancements and tactical security improvements. This means enhanced safety, security and reliability of critical military base infrastructure components.

Sandia can provide expertise to the U.S Department of Defense (DoD) that is tailored to the specifics of particular installations, their security needs, and critical mission requirements. In addition, Sandia can provide vulnerability and consequence analysis to enable the DoD to understand interdependencies and vulnerabilities and can develop countermeasures to mitigate the risks associated with those vulnerabilities. This allows the DoD achieve its mission in a cost effective way.

As a leading national laboratory under the U.S. Department of Energy/National Nuclear Security Administration, Sandia has long been involved in safekeeping the nuclear stockpile to secure the nation. Sandia has a long track record in assisting government entities to reduce the vulnerability of key critical infrastructure and associated resources throughout the country. Because of this experience in security and defense systems, we seek opportunities to leverage our expertise—our people, facilities, and capabilities—to help other agencies facing similar problems in protecting critical national-security assets.



Energy Surety

The reliability and security of the energy infrastructure is an essential requirement for the mission readiness of military facilities and for high-consequence private enterprises. The Energy Surety Microgrid developed by Sandia improves the reliability and performance of the energy infrastructure. Five distinguishing characteristics of the Energy Surety Microgrid are:



- Safety,
- Security,
- Reliability,
- Sustainability, and
- Cost effectiveness.

The Energy Surety Microgrid quantifies improvements against key mission accomplishment and readiness criteria – whether they serve a military or a civilian objective.

Sandia’s MBIS program already is involved in important work to safeguard our national security. Sandia Labs has partnered with the U.S. Army Construction Engineering Research Laboratory (CERL) to implement the Energy Surety Microgrid on military facilities, and are preparing for an initial proof-of-concept at a military installation in 2007.

Critical Infrastructure Modeling



Sandia’s experts use a systems-analysis approach to develop a dynamic understanding of critical infrastructures, their interdependencies and behaviors

under all conditions, and the full spectrum of consequences of disruptions. Sandia has developed a wide range of modeling capabilities that can be used alone or in combination. These models include:

- Stock-and-flow, process-based system dynamics models,
- Mathematical network-optimization models,
- Complex adaptive networks, and

- High-fidelity, agent-based simulations of systems of individual elements and their performance and behaviors.

Information and Cyber Operations

The Center for Control System Security (CCSS) is an organization within the Information Systems Analysis Center (ISAC) at Sandia that specializes in the research, development, and analysis of control system security. CCSS staff can utilize the full capabilities of the ISAC for information-technology security. With increased threat levels against critical infrastructures and associated control systems, Sandia’s ability to develop, implement, and analyze security solutions for these systems within the context of an entire critical infrastructure has become of extreme importance to the country—as well as to military bases.

Making a Difference:

The MBIS risk model provides a framework for analysis of risk. Tools have been developed to cover the entire framework—from threat to risk—and allow for an in-depth treatment of the entire system. Working with other organizations within Sandia, we can provide a complete analysis and solution for any control system based on the risk willing to be accepted by the owner and operator of that system.

Sandia offers unique national, regional, local, and intra-base analysis tools, databases, and experts to work with the DoD to better understand interdependencies and vulnerabilities of military base infrastructure related to their installation security and critical mission effectiveness.



Learn more at: <http://www.sandia.gov/mission/homeland/index.html>

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