

An aerial photograph of a city street intersection. A wide, multi-lane road runs horizontally across the frame. A green-painted median separates the lanes. On the right side, a crosswalk with white stripes crosses the road. In the background, there are trees, a parking lot with several vehicles, and some construction equipment. The overall scene is brightly lit, suggesting daytime.

Enhancing the Resilience of Healthcare & Public Health Infrastructure

National Academies of Sciences, Engineering, Medicine

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Challenges

- Footprint!
- Stand-Alone Facility
- Supply Chain Disruptions
- All-Electric
- Solar
- Wind
- Hydropower
- Cost to Retrofit

Risks

- Reliance on Electricity Providers
 - Systems are not built for this
 - Infrastructure from the 1950s
 - New Substations needed to support new hospitals
- LPG Storage



Vulnerabilities

- Water !!!
- Chillers
 - Evaporative
 - Additional Challenges during High Humidity
- Fuel
 - Identify Ability to Load Shed to Conserve
- Patient Care
 - Medical Gas
 - Vacuum Systems
 - Negative Pressure Rooms
- MOUs
 - False Sense of Security

Resilience

High Priority Actions

- Energy Efficient Building Design
- 96-hour plans
- Redundancies
 - Diesel Generators
- Mitigating Strategies
- Power Plant on its own IT system
- Reduction in Usage
- LED Lighting
- Drought Resistant Landscaping

Emergent & Critical Opportunities

Use of Renewable Energy Systems

- Our Ambitions Exceed our Capabilities
- Cogeneration
- Micro Grid

Cost/Benefit

- Return on Investment not there
- 20 Year Agreements are Required with Electricity Providers

Battery Storage

- We need to improve storage capabilities

AI

- Future Potential
- Data is King
- Fault Detection Systems

NFPA

- Standards for Renewable Energy in Healthcare (in progress)

Contact Information



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