

Enhancing the Resilience of Healthcare & Public Health Infrastructure

National Academies of Sciences, Engineering, Medicine

Christopher Riccardi, CHEP, CHSP,
Manager, Emergency Management & Business Continuity
Children's Health of Orange County, Orange CA

A wide-angle photograph of a solar farm. Numerous solar panels are arranged in a grid, stretching into the distance under a clear, pale blue sky. The panels are tilted at an angle and supported by metal frames. The ground is a dry, light-colored earth.

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



Christopher Riccardi, CHEP, CHSP,
Manager, Emergency Management &
Business Continuity

Children's Health of Orange County,
Orange CA

- Office: 714.509.3351
- Email: criccardi@choc.org