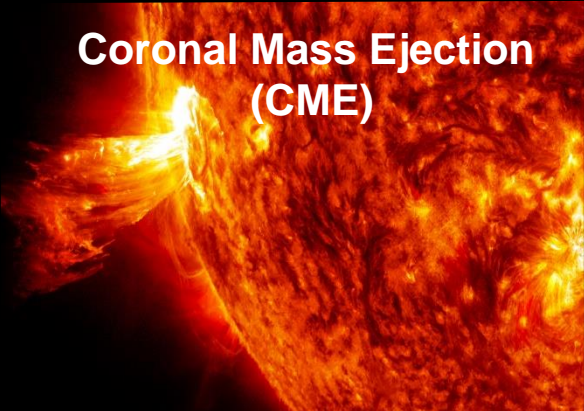
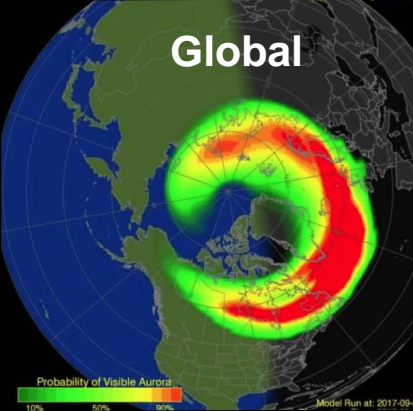

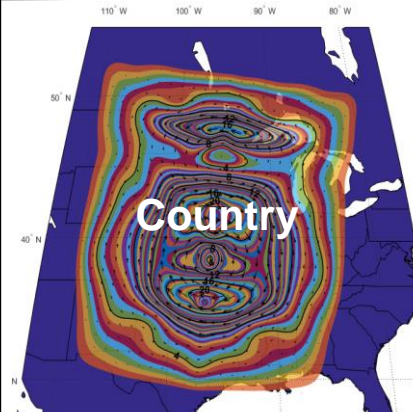


Critical Infrastructure Committee

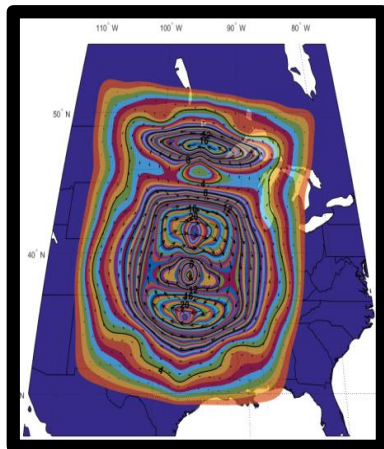
EMP: What Regulators Need to Know

Differences Between GMD and HEMP (E3)

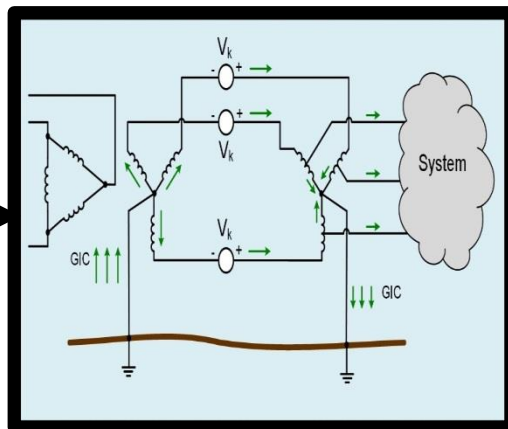
	Source of Creation	Area of Impact	Magnitude	Duration
GMD	 <p>Coronal Mass Ejection (CME)</p>	 <p>Global</p> <p>Probability of Visible Aurora 10% 50% 90% Model Run at: 2017-09-1</p>	<p>< 10 V/km</p> <p>↑</p> <p>~ 0</p>	<p>Days to Weeks</p>
HEMP(E3)	 <p>Detonation of a Nuclear Weapon in Space</p>	 <p>Country</p>	<p>10's V/km</p> <p>↑</p> <p>~ 0</p>	<p>< 5 Minutes</p>

E3 Voltage Stability Assessment

E3 Environment

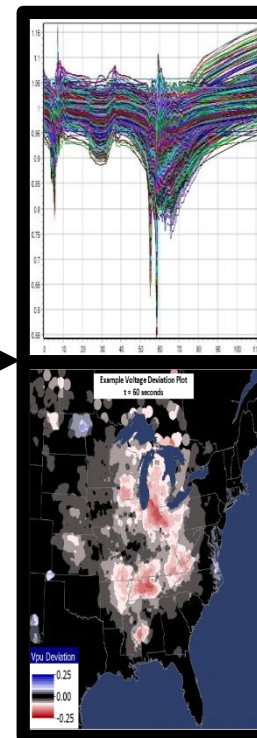


GIC Model



Dynamic Power System Model

System Response & Assessment



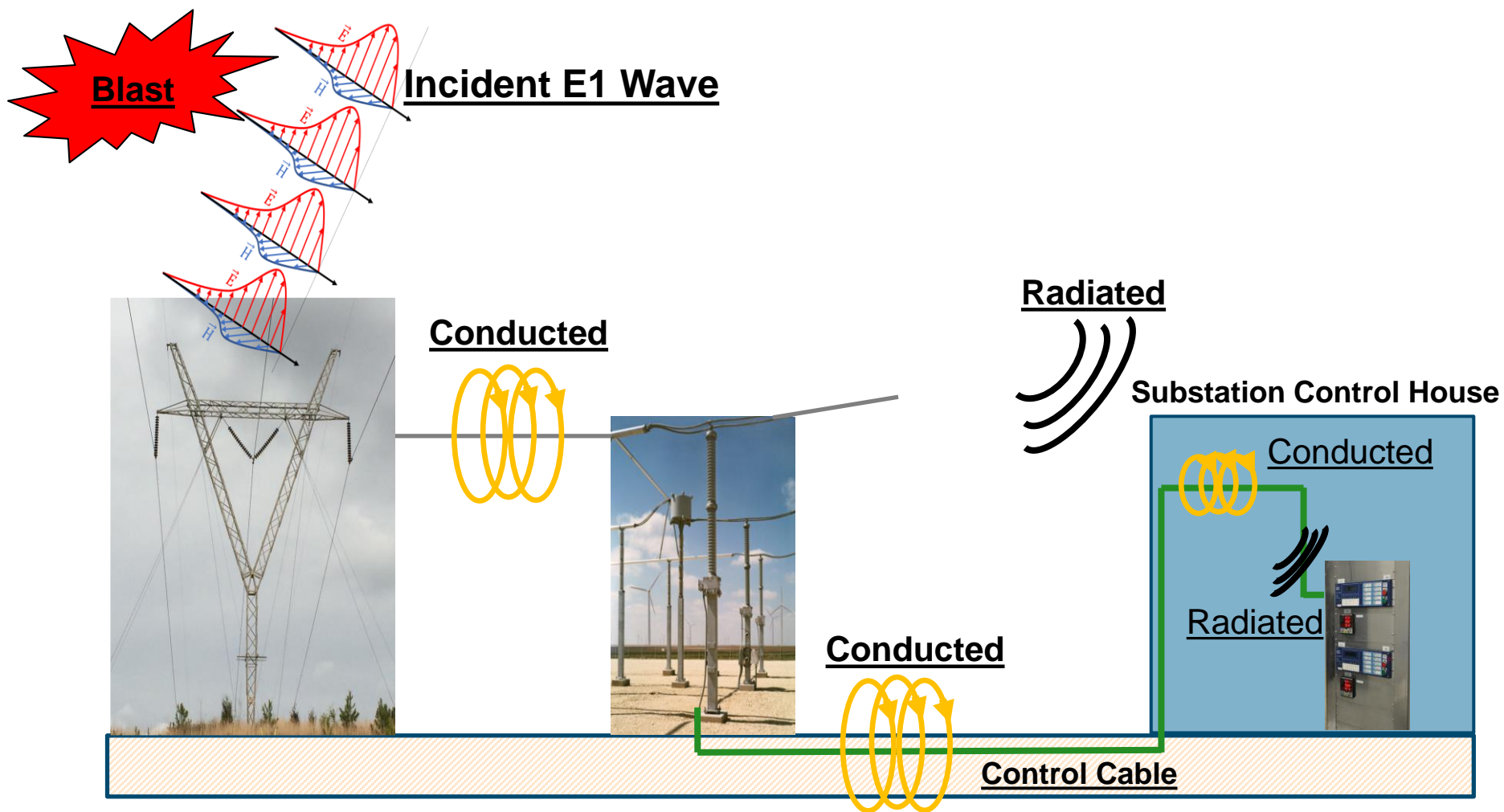
Impacts

Regional Collapse

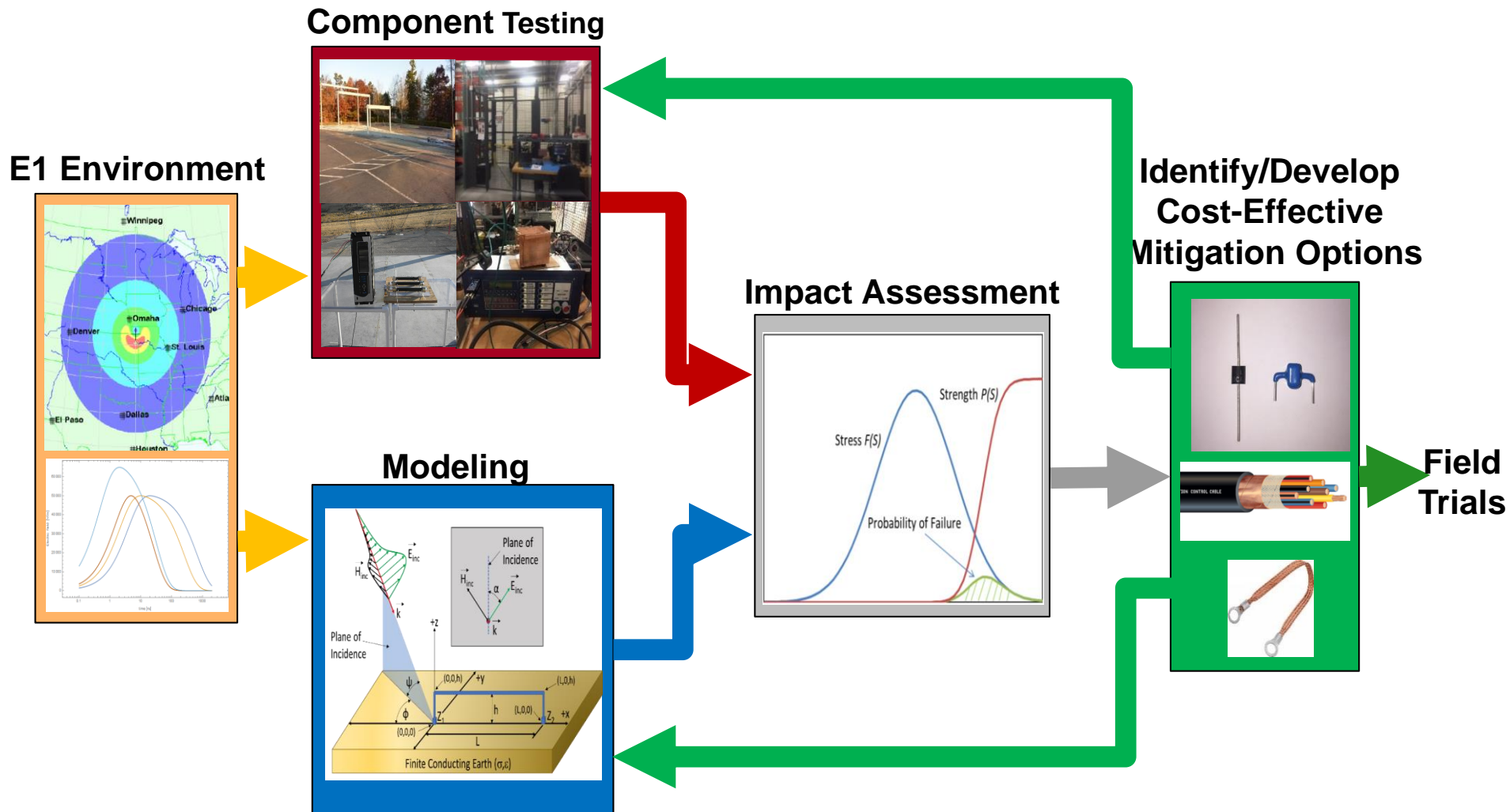
Local Collapse

None

E1 Damage Mechanism



E1 Threat Assessment Process (2018 Research Plan)

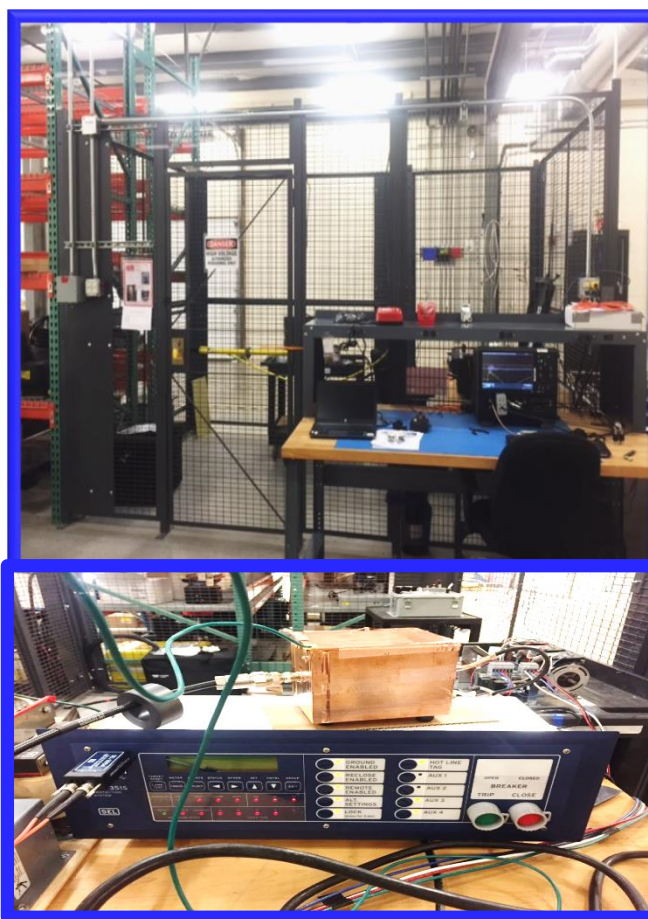


Component Testing and Mitigation of E1 Effects

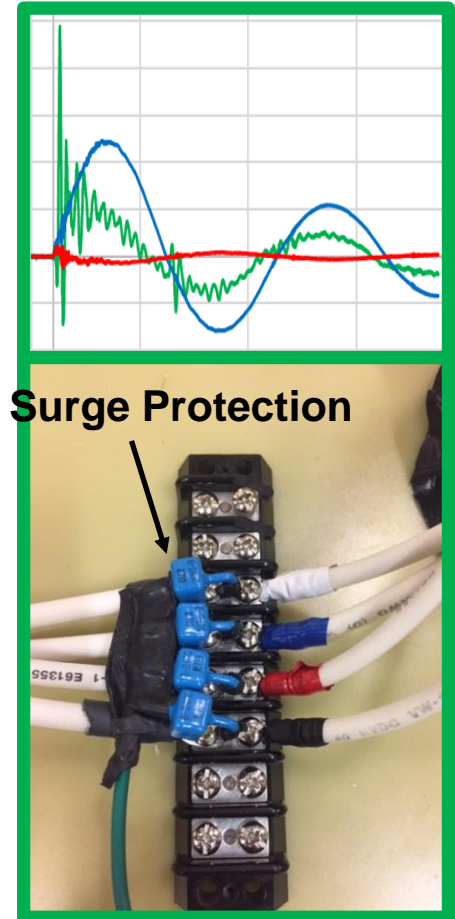
Guided Wave Testing (Radiated Threat)



Direct Injection Testing (Conducted Threat)



Mitigation



Critical Infrastructure Committee