LWRS LIGHT WATER REACTOR SUSTAINABILITY

Risk-informed Physical Security Using Dynamic Force-on-Force Modelling Tools

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Overall Proposed Approach

Develop and demonstrate tools for a risk-informed physical security method by integrating dynamic risk methods, physics-based modeling and simulation, operator actions, and flex equipment, which should extend the adversarial timeline for response force success. The tools will enable commercial utilities to incorporate increased realism in their force-on-force models, take credit for operator actions and flex equipment, and move towards greater use of quantitative measures of performance in security posture and the technical basis for physical security at power plants.

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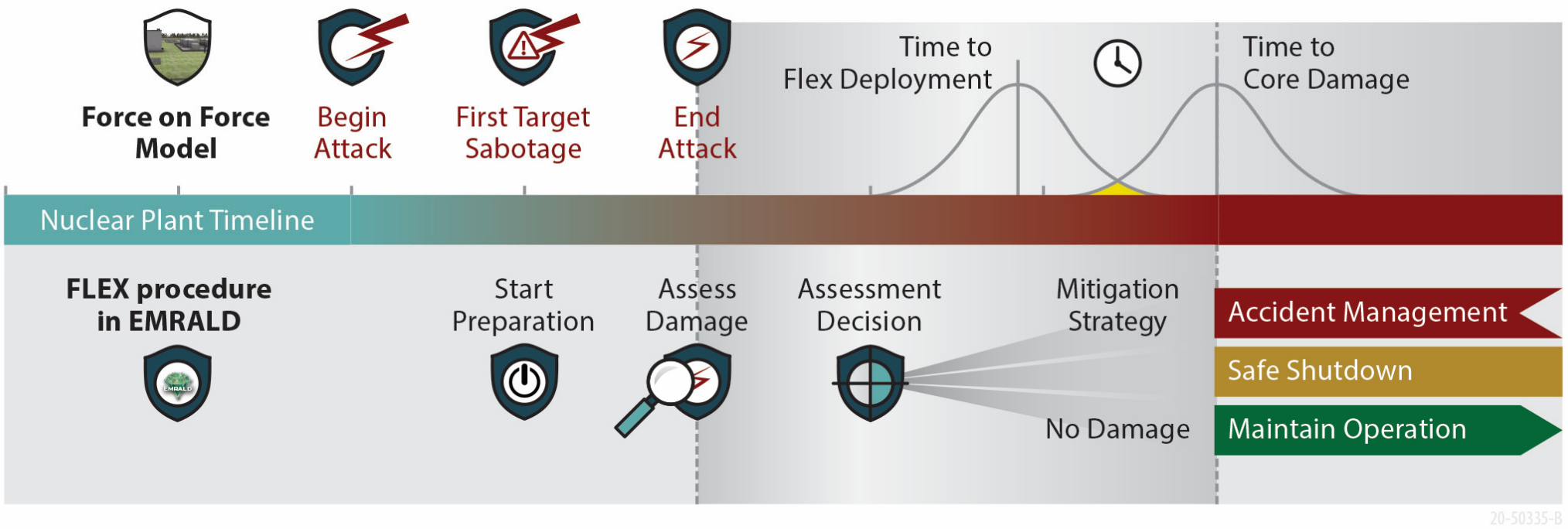
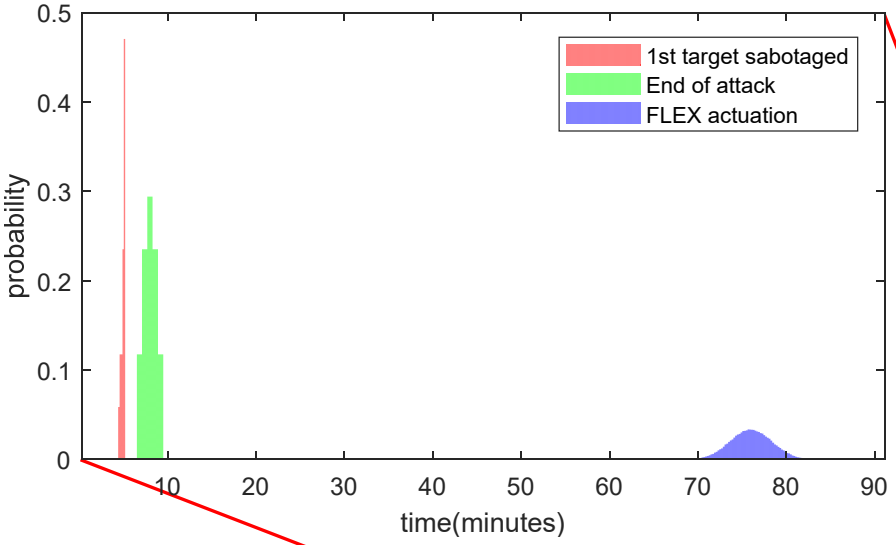
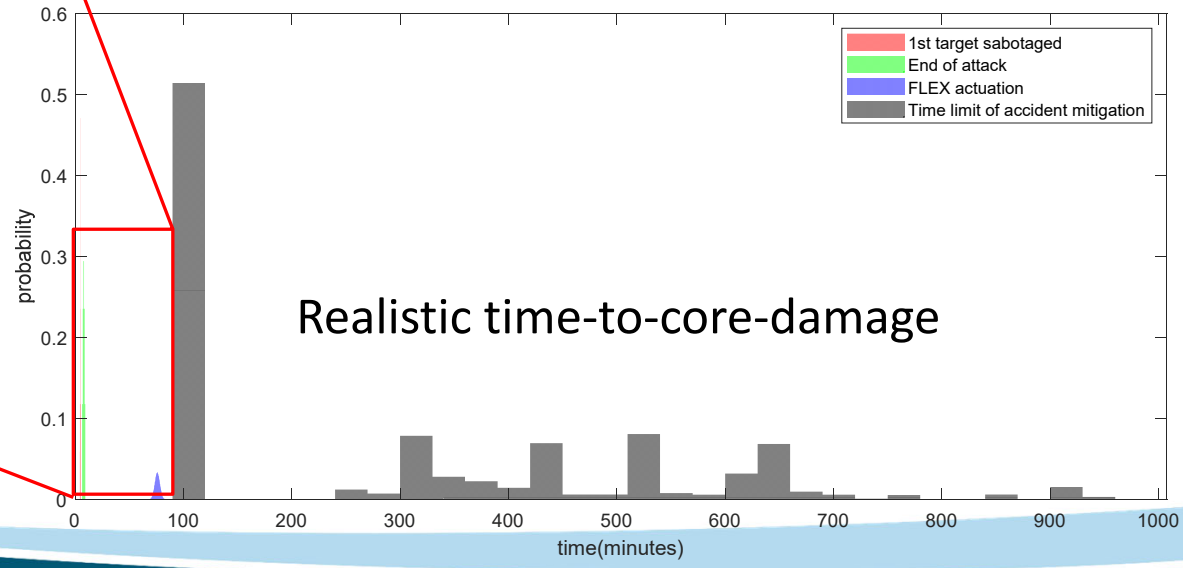
Security-FLEX Timeline Model



Realistic core damage time



Force-on-force & thermal hydraulic coupled simulations show that there is enough time to actuate the FLEX strategy following the attack scenario



Realistic time-to-core-damage

Sustaining National Nuclear Assets

http://lwrs.inl.gov