NGI EXPLORERS

# CHALLENGE #25
# WMICH-DATA-03

## Data Driven Resiliency and Security for Renewable Energy Integrated in Smart Grids

Meet the expectations of this US Node through the technology challenge described below

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## GOALS

Novel technologies are emerging in distributed renewable energy resources such as smart inverter systems, transactive energy, and advanced power system monitoring technologies such as synchro-phasor measurement technologies. There is a lack of concrete security research that protects these systems from advanced threats.

## DETAILS

We need to understand the nature of novel threats (beyond traditional cyber vulnerabilities) that are introduced due novel operational aspects of emerging smart grid technologies. Most of these arise from disrupting information sensing and flow that cause unforeseen failure impacts and adaptability required due to unpredictability in energy demand forecasting. After the threats are identified, we have to build a roadmap towards models that provide detection or prevention of DER integrated smart micro-grids.

## SKILLS REQUIRED

Power systems and/or power electronics for renewable integration knowledge to complement our security and data science expertise in our group dedicated to research in smart grid resiliency

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FGS zabala innovation consulting AUSTRALIS