

# POWER SYSTEMS EVOLUTION

# IEEE SA

## STANDARDS ASSOCIATION

### 1900

The benefits of electricity were recognized

Electric supply and communication systems were isolated systems serving a specific town or area

AC became the dominant medium

### 2000

Y2K

Deregulation unbundled distribution from electric supply

Created opportunities for innovation

### 2009

Interoperability - EISA IEEE and NIST develop framework and roadmap for Smart grid interoperability standards

Federal ARRA (2009) Smart Grid DER projects

### 2020

Revised standards for interconnection

IEEE 1547-2018 Technology neutral standard for interconnection

Interoperability and communication requirements

### 2030

Global power systems transformation

System operator collaboration

Workforce development

### 1914

National Electrical Safety Code (NESC) was first introduced in August 1914

Safety for the public, utility workers and utility facilities

### 2005

Standards for interconnection

IEEE 1547-2003

Energy Policy Act (2005) cites and requires consideration of IEEE 1547 standards

### 2015

Growth of distributed energy (mainly solar and wind)

Significant growth in inverter-based resources

### 2025

Technology advancement

Advanced inverters, microgrids

Power electronics

Communication

### 2030 +

Technology adoption and support

Open data and tools

