

INCUBATENERGY LABS

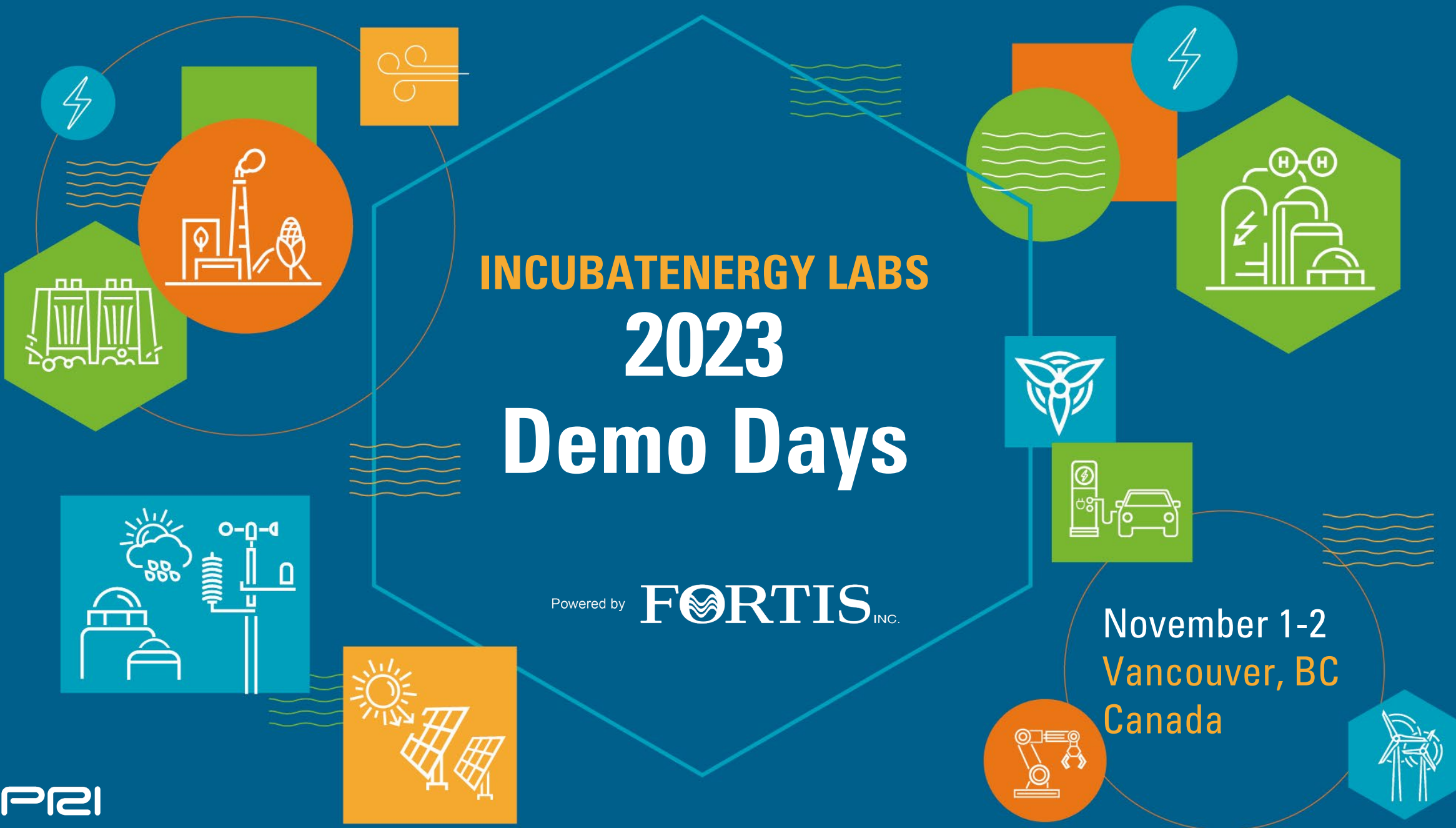
2023

Demo Days

Powered by **FORTIS** INC.

November 1-2
Vancouver, BC
Canada

EPRI

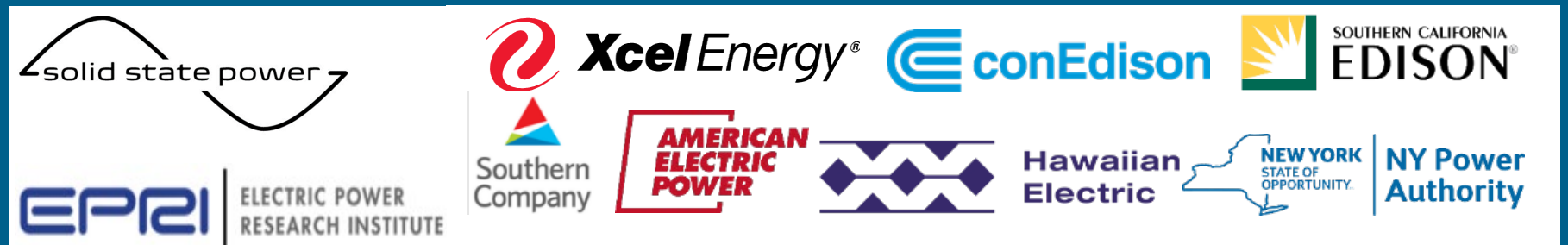


Modernizing the Grid with Solid State Technology

All-Solid-State PowerHub Prototype Field Tests

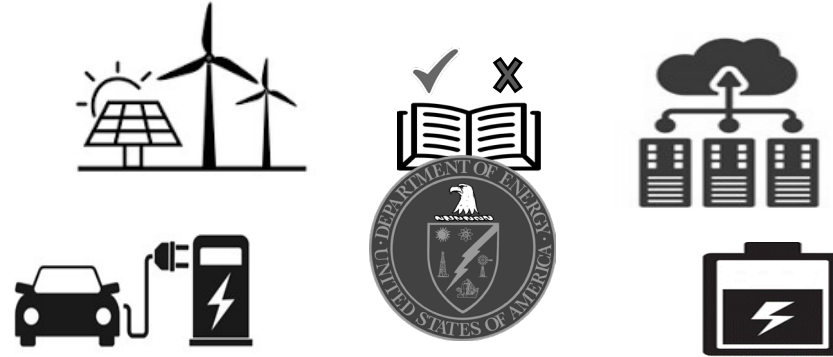
Plamen Jordanoff and George Mantov
Solid State Power

Jason Anderson
EPRI Project Manager

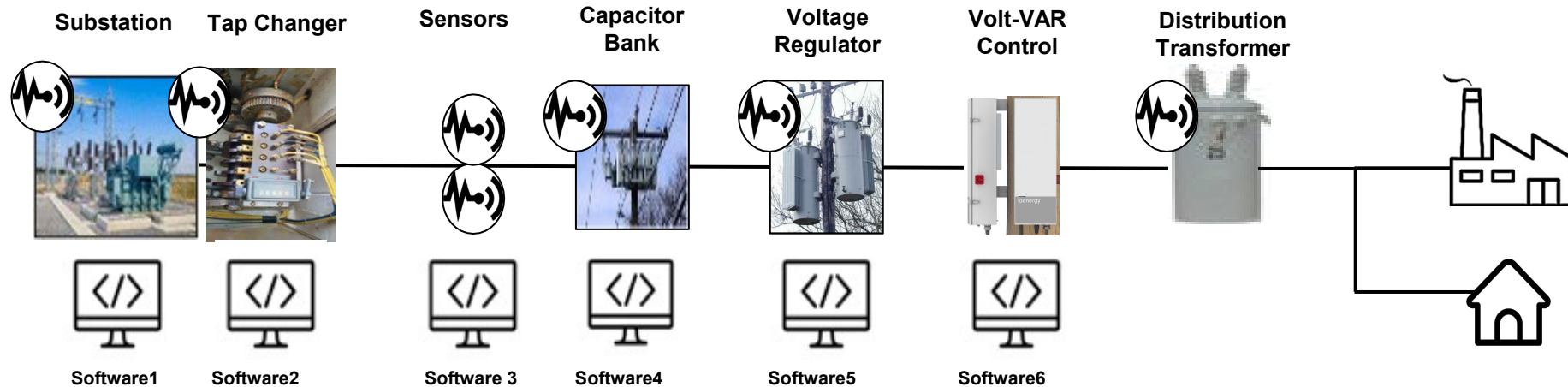


The Challenge (1)

Changing supply and demand patterns are stressing the electric grid...

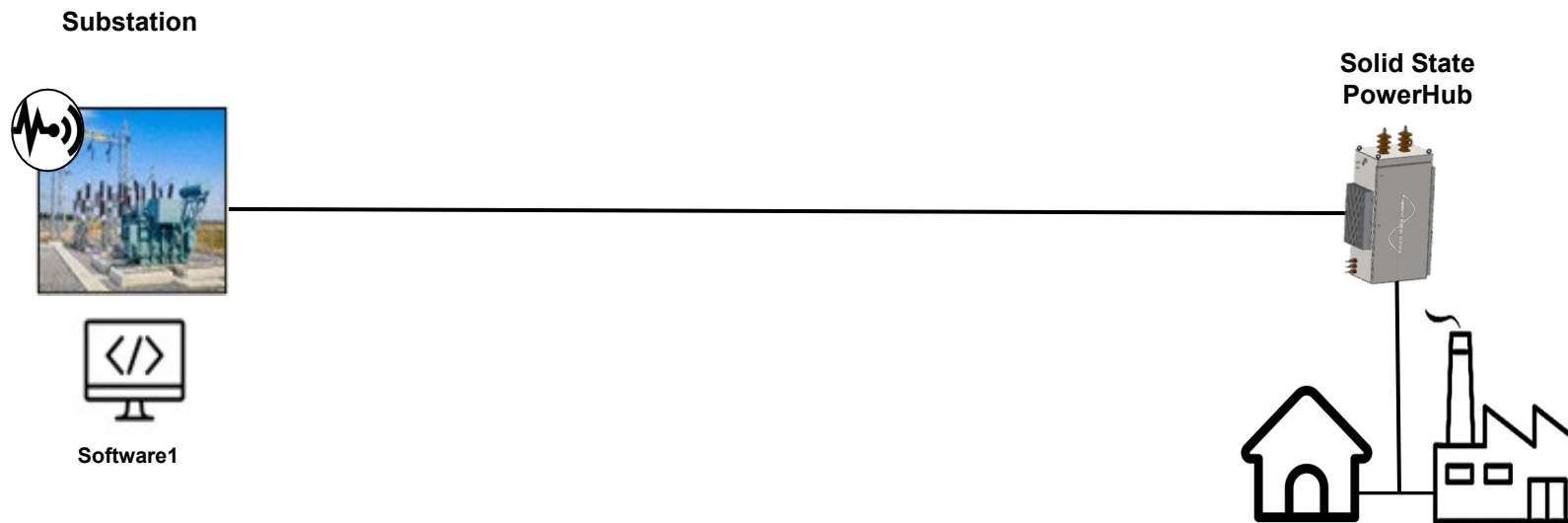


...leading to more equipment on the distribution lines and increasing costs and complexity

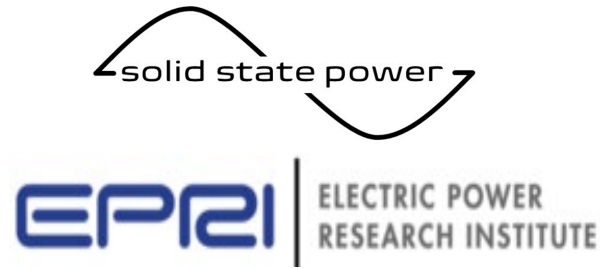
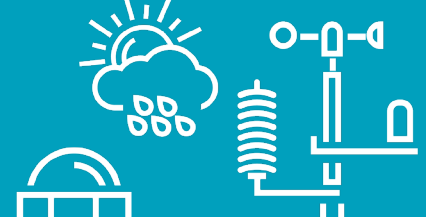


The Challenge (2)

High voltage solid state technology can help solve these problems



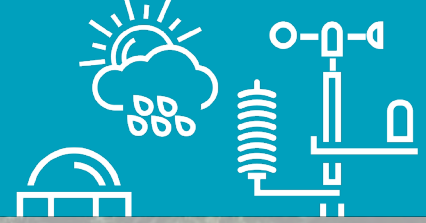
The Project (1)



Perform indoor and outdoor tests on a medium voltage feeder line of the all-solid-state PowerHub to evaluate its capabilities as a voltage regulator, distribution transformer and protection device



The Project (2)



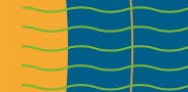
The Prototype Unit

- 25kVA, 1ph, oilless
- 7200VAC primary
240/120VAC secondary
- Voltage regulation +/-
10% of primary voltage 0-
100% of load
- Pole mounted outdoor
rated
- Self-protected
- Fully software controlled

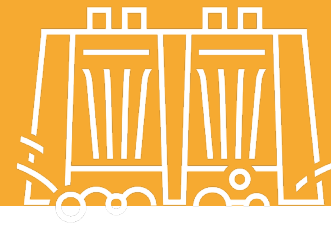
The Tests

- ✓ Wide-range load capability
- ✓ Clean output voltage
- ✓ Tight band/quick reaction voltage
regulation
- ✓ Recovery and operation under transient
stresses
- ✓ Operation with power factor down to 0.5
- ✓ Efficiency under different loading
conditions
- ✓ No thermal issues under continuous
operation and varying loads

What's Next



SSP is seeking technical, commercial and financial partners



Benefits of partnering with SSP:

- Opportunity to **shape the development** of HV solid state technology with grid operators' **priorities**
- Invest in the **world leader** in the field and participate in **financial upside**
- Strong **ESG impact**

SSP is **seeking**:

- Real operating environment piloting data and **input**
- Understanding of grid operator **issues/tradeoffs**
- **Financial** support