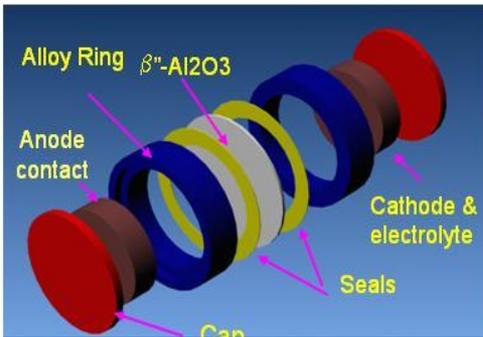


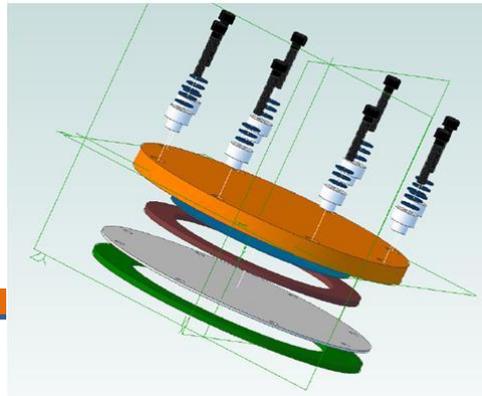
Eagle-Picher/PNNL Path to Planar Na Battery

3.0cm² Button Cell



Materials development and performance testing.

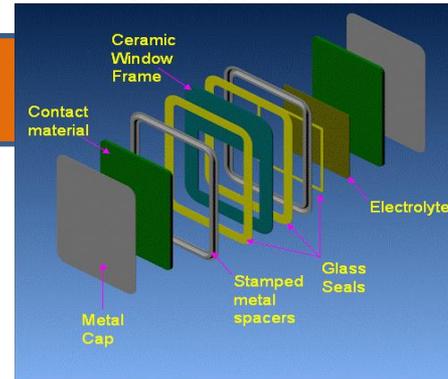
64cm² XL-Button Cell



Materials scale-up with large-scale performance and life testing.

➤ 3 year program to scale up and demonstrate planar Na-battery technology.

Multicell Planar Stack



Manufacturing friendly components and fabrication techniques.

200cm² Stack



Modular stack design with performance and life testing.

- Tubular Na –Metal Halide chemistry demonstrated > 1000 cycles at high DOD.
- Decrease capital cost by moving to high volume planar manufacturing. Planar technology has higher volumetric power density than tubular architecture
- Increase cycle life by reduced temperature operation.