# generation mponer

# Small Modular Reactors for Poland: Safe, Economic, Practical, Clean Energy

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# **Meeting The Energy Industry Challenge**

- Transition electricity generation to cleaner, low carbon power
  - Balance intermittent sources (wind, solar) with reliable nuclear generation
- Address environmental and infrastructure constraints
  - Access to cooling water and power grid connections
  - Plant site locations considering nearby industry and population
- Accept economic realities and time pressures for change
  - Very large projects (above € 10B) difficult to finance, high risk
    - Geo-political and resource constraints demand near-term action

## SMRs are the near-term clean energy solution



## The mPower SMR is the best option for Poland

Traditional 1000 MWe+ PWR B&W mPower™

Integral PWR Small Modular Reactor

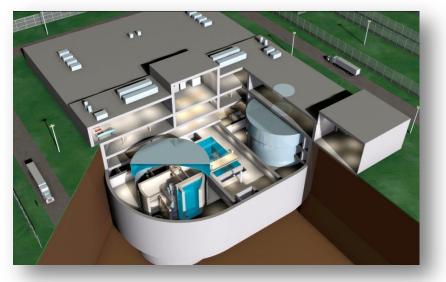
- ✓ Safer ... 100 x better
- ✓ Proven … PWR technology
- Economic ... 10% of investment
- ✓ Flexible ... 180MWe reactors

## Same basic technology ... better power plant design



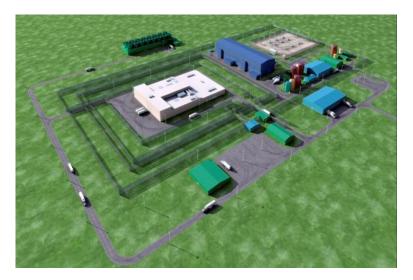
## **360MWe mPower SMR**

#### **mPower Nuclear Island Features**



- Factory manufactured reactor module
- Protected underground systems
- Inherent "passive safety" design
- Small operation and maintenance staff

mPower "twin-pack" Site Layout



- 2 x 180MW fully independent units
- Compact <15 hectare site footprint
- Separated Conventional Island
- Emergency zone inside plant boundary

Safety performance and compact size maximize location flexibility



m**Power** 

## More than a Design ... A Complete Testing Program

- \$100M USD Investment
- •Establish design
- Support licensing
- Prepare for operation
- Confirm performance
- Demonstrate reliability



Testing is foundation for low risk, high reliability mPower design



## **Progress toward deployment of first mPower Plant**

### • Clinch River (TVA) in Tennessee, U.S.

- Construction Permit contracted, 2015 Application
- Site environmental studies in progress
- Project plant construction complete by 2022
- U.S. Department of Energy funding for licensing
  - Power only winner of competitive award
  - \$101M USD already provided to project
- Simultaneous completion of Design Certification
  - U.S. NRC Design Certification expected Fall 2017
  - Basis for all other projects, including Poland

## First mPower Plant project in progress





# mPower Value Proposition...

- 1. <u>Safe</u>: Integral reactor design delivers 10<sup>-8</sup> CDF safety performance
- 2. <u>Reliable</u>: Based on proven PWR technology, materials, and testing
- 3. <u>Economic</u>: Approximate € 1.3B project cost can be easily financed
- 4. <u>Low project risk</u>: Factory manufacturing, 3 year construction schedule
- 5. <u>Mature</u>: Final U.S. regulatory approval starts in 1 year, ready after 2017
- 6. <u>Flexible</u>: Small size fits power grid and plant location requirements

**Proven technology and affordable economics ... ready near-term!**