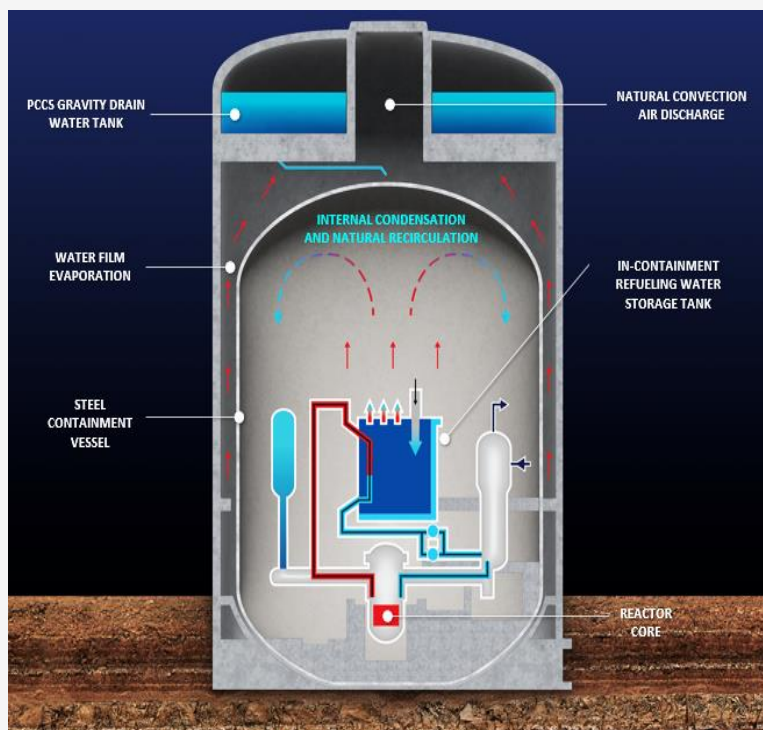


AP1000 Plant – A Game Changing Technology

AP1000 PLANT SAFETY CONCEPT

The AP1000 plant has a **unique capability to respond to extreme, Fukushima-like events** due to three fundamental safety advancements:

- **Self-actuation:** for station blackouts, critical systems, structures and components automatically achieve a fail-safe configuration w/o operator action or AC/DC power
- **Self-sufficiency:** the passive safety eliminates the importance of AC power and cooling supply
- **Self-contained:** systems, structures and components that place the reactor in safe shutdown are protected within the containment vessel protected by a robust shield building



INDUSTRY-LEADING OPERATIONS

AP1000 plant's outstanding early performance has an 85.6% average **Operation Availability Factor**:

- This includes the SM2 unit with the early RCP issue
- Remaining 3 AP1000 units Operation Availability Factor is 93% - industry

INDUSTRY-BEST LOAD FOLLOW

Ramp Rates (above 15%)

5% per minute | 1 MW per second

- **Gray rods** – faster response time, no change to RCS boron concentration
- **Digital I&C and passive systems** – large margin b/w operating range and safety system actuation
- **Larger pressurizer** – passively accommodates load swings

| Technology / Operating Units | Average Lifetime Operation Availability Factor |
|-------------------------------------------|------------------------------------------------|
| AP1000 Plant (Sanmen 1&2, Haiyang 1&2) | 85.6% |
| APR-1400 (Saeul 1&2, Barakah 1) | 80.3% |
| EPR (Taishan 1 & 2) | 80.8% |

Review of early life operational data based on IAEA PRIS database.

AP1000 Plant – A Game Changing Technology

Flexible Performance provides unique capability to stabilize modern, renewable grids

Water Production

- Produce 270,000 m³/day to ~ 1 million m³ /day of desalinated water
- Using only 5% ~ 10% of generated electricity

Energy Storage

- Optimized Turbine Island for enhanced grid stabilization
- Storage Efficiency of 70%

Electricity Production

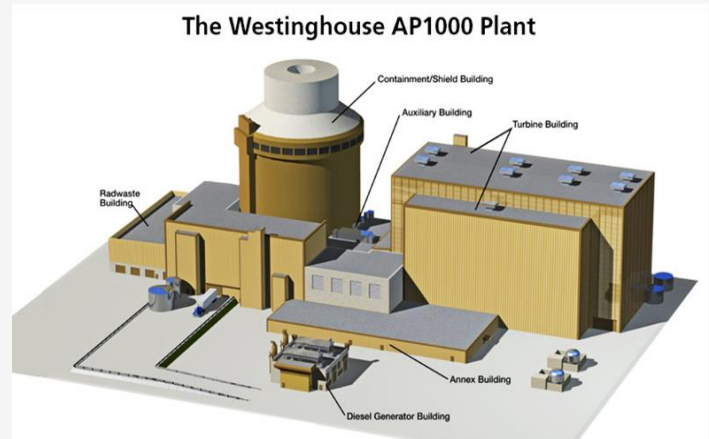
- 3,400MWt Rated Reactor, 1,150MWe(*) Nominal Net Electric Power
- 3.9 to 9.7 million metric tons (8.7 to 21.3 billion pounds) CO₂ emission offset/year

Hydrogen Production

- Reference Configuration uses electricity (100MWe) and steam (0.5% of Hot Reheat Steam) to produce up to 50 metric tons (115,000 lbs) of H₂/day

District Heating

- Flexible sizing for individual regional needs
- Cogen Thermal Efficiency Value ~46% (33.5% power production only efficiency)



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a virtual tour**

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