



Alva

Charting the Fastest Path to New Nuclear

# The Alva Uprate Platform: 41 uprates across 18 states

Total capacity unlocked

**6-10 GWe**

Clean baseload generation  
equivalent to >80 TWh/year



Uprate opportunities

**41 Units**

Westinghouse 3- and 4-loop PWRs  
Standardized components streamline procurement



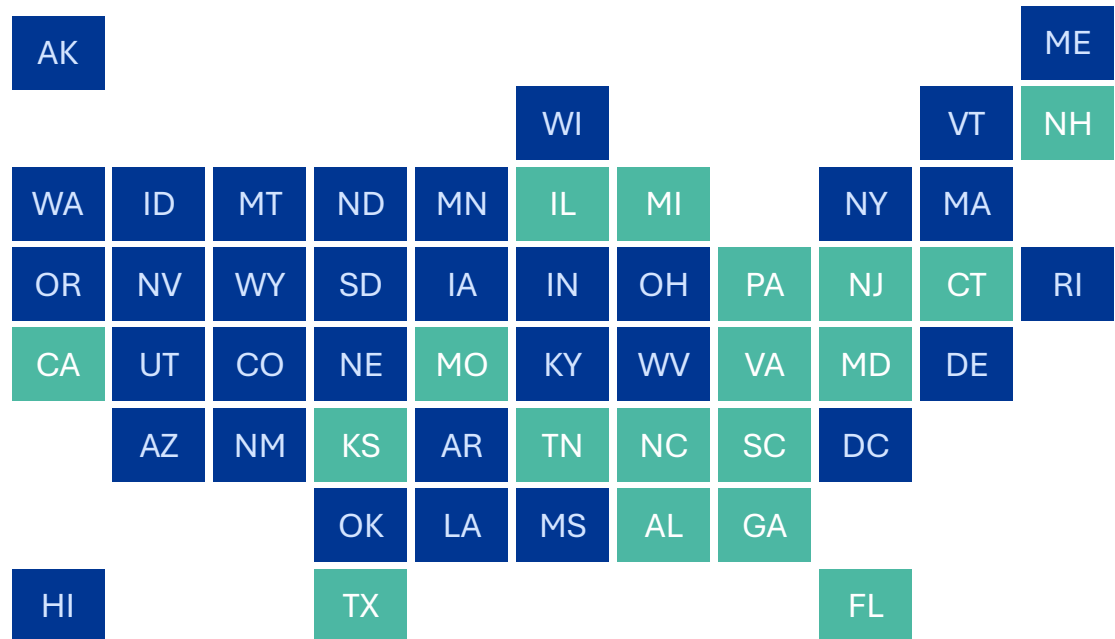
Additional Power Per Unit

**200-300 MWe**

The size of a large SMR—at a fraction of  
the cost and schedule



The Alva Uprate opportunity is equivalent to ~10 new AP1000 reactors or ~40 large SMRs



Alva Uprate opportunity states (18)

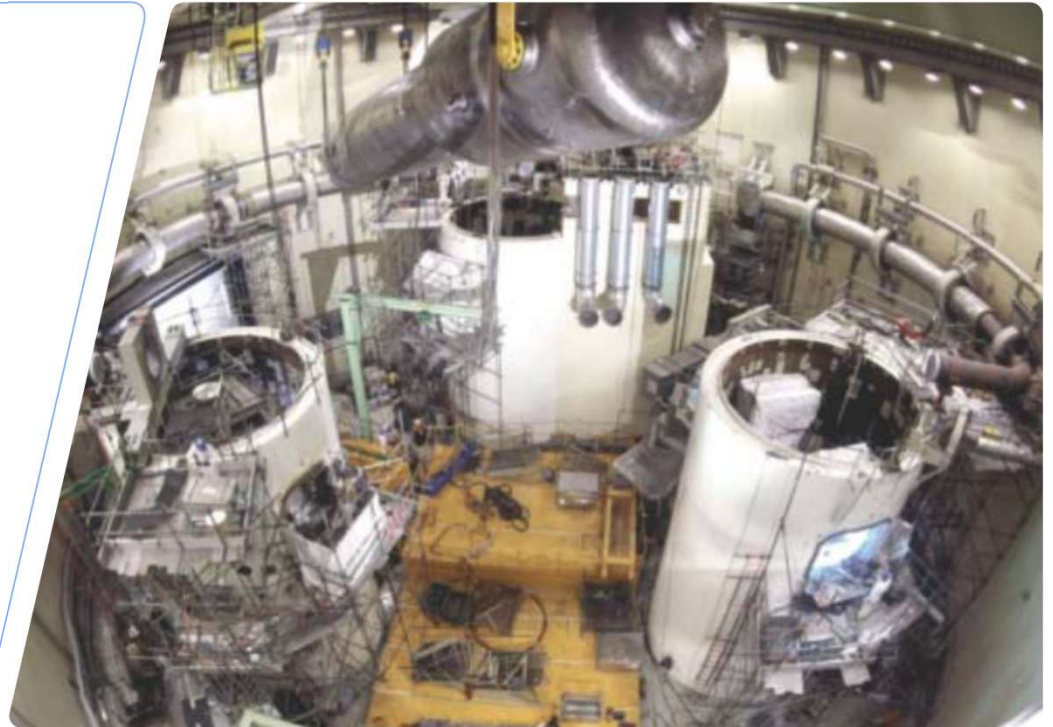
Non-opportunity states



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# The 4400 MWt 4-Loop, Inspired By Ringhals 4

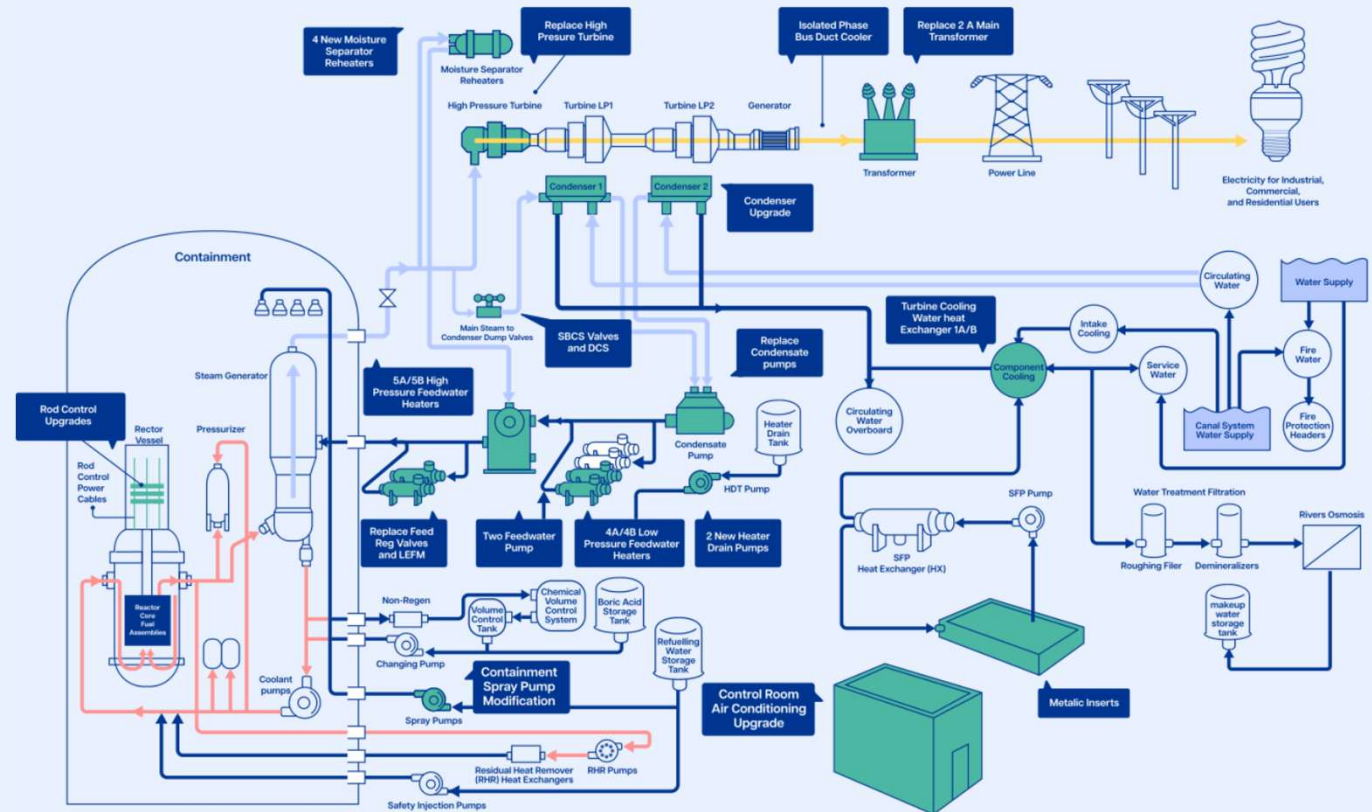
- > Ringhals 4, Westinghouse (17x17, 12-ft fuel) 3-Loop:
  - > **18.6% EPU to 3300 MWt**
  - > **Core Power Density: 124 kW/l**
- > Equivalent 4-loop would be **4050 MWt [124 kW/l]**
- > Internal Alva project reviewing **4400 MWt [135 kW/l]**
  - > LB-LOCA PCT
  - > Fuel performance, e.g. rod internal pressure
  - > DNBR
  - > 18-month cycle
  - > Containment peak pressure
- > Replacement steam generator:
  - > +27% heat transfer area & pre-heater (SQN)
  - > +8% area and longer pre-heater (WBN)



# Legacy BOP Upgrades Drive Cost And Schedule For Extended Power Upgrades

The primary driver for EPU cost and schedule delays are the BOP upgrades

- > New Turbines
- > New Transformers
- > Upgraded Condenser
- > Replaced Feed Heaters
- > New Condensate Pumps
- > Upgraded Feedwater Pumps



## Alva's Second Turbine Generator Plant (2TGP)

- Enables large uprates without extensive modifications to existing steam conversion system
- Built while uprated plant is online
- Mates a standardized, modularized 250 MWe turbine-generator & BOP to the uprated plant
- Precedent for two turbine commercial plants: Sizewell B, Beznau, Ringhals

**↓3 months**

### Outage reduction

Reduces project cost by hundreds of millions

**↓90%**

### Peak site head count

Allows entire EPU to be firm-fixed-price



# Alva EPU Overview



6 to 10 GWe New Capacity in U.S. fleet

Incremental baseload from uprates across all 41 Westinghouse 3- and 4-loop reactors in the U.S.



Existing Infrastructure

Licensed sites, fuel supply, workforce, transmission interconnection, and NRC operating licenses



5 to 7 Year Timeline

From FID to COD — faster than any new-build nuclear option



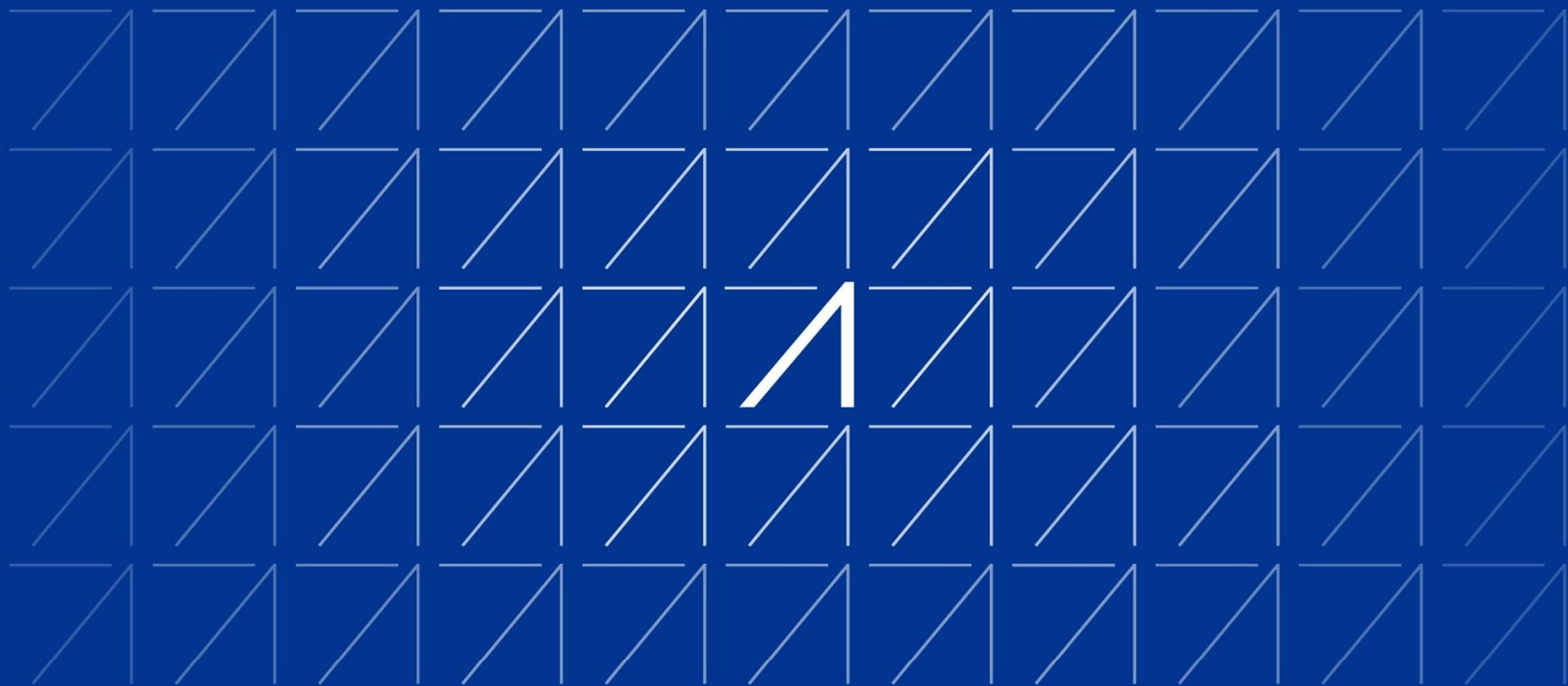
Off-Balance Sheet Financing

Licensed sites, fuel supply, workforce, transmission interconnection, and NRC operating licenses



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# Alva EPU Overview

## Standardized NSSS Uprate

### *Steam Generator Replacement*

- > Increase  $\Delta T$  while maintaining or reducing  $T_{AVG}$
- > Lower hydraulic resistance with greater reactor coolant density  $\rightarrow$  increases mass flow rate
- > Multiplicative power increase with no reactor coolant pump modifications
- > Lower  $T_{AVG}$  post-uprate recovers critical safety margins (DNBR) and improves initial accident response (LB-LOCA)

## Standardized Balance of Plant

### *Second Turbine Generator Plant (2TGP)*

- > Standardized 2TGP enables firm fixed-price construction
- > Built while plant remains online – no outage required
- > No major modifications to legacy BOP systems
- > Main turbine-generator plant and BOP systems remain at or below design conditions