Exhibit to Agenda Item #1

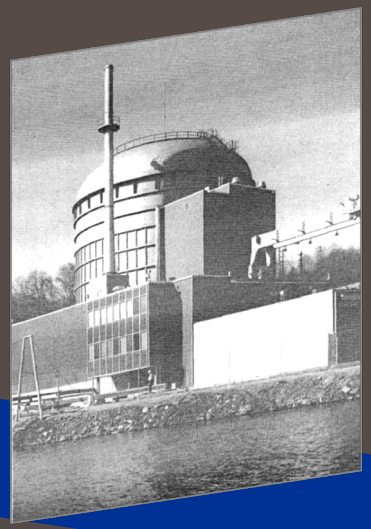
Provide the Board with informational external and internal presentations and discussion about the **Prospects of Nuclear Energy for Deep Decarbonization**.
[Chad Boyer, Electric Power Research Institute (EPRI)]

Board Energy Resources & Customer Services Committee and Special SMUD Board of Directors Meeting

Wednesday, October 15, 2025, scheduled to begin at 6:00 p.m.

Auditorium, SMUD Headquarters Building

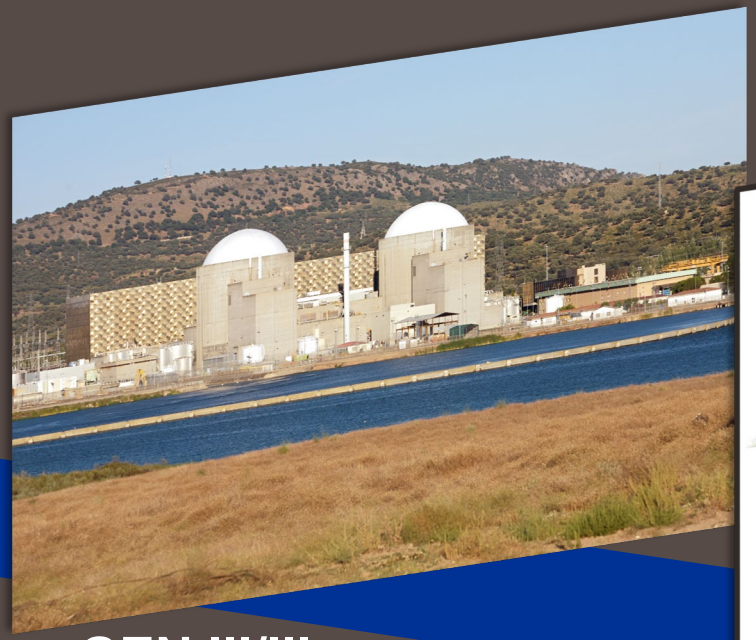
Evolution of Nuclear Power



GEN I & II

Early demonstrations through Giga Watt (GW)-scale commercial fleets

- Diversity of designs
- Diversity of vendors
- Diversity within vendors
- Limited standardization
- Aggressive build rates
- Evolving regulations

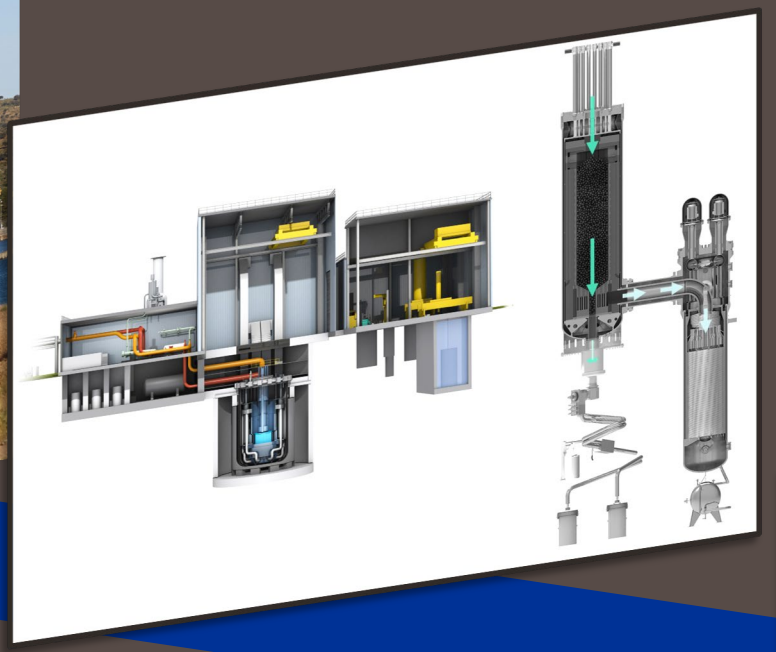


GEN III/III+

Evolutionary designs, GW-scale +

- Convergence on Advanced Light Water Reactors (LWRs)
- Passive safety
- Standardization
- Integration with licensing
- Emergence of Small Modular Reactors

Utilities established LWR-centric requirements



Advanced Reactors

Beyond large LWRs:

- Aggressive cost and schedule targets
- Competitiveness via new missions and customers
- Evolving regulatory frameworks

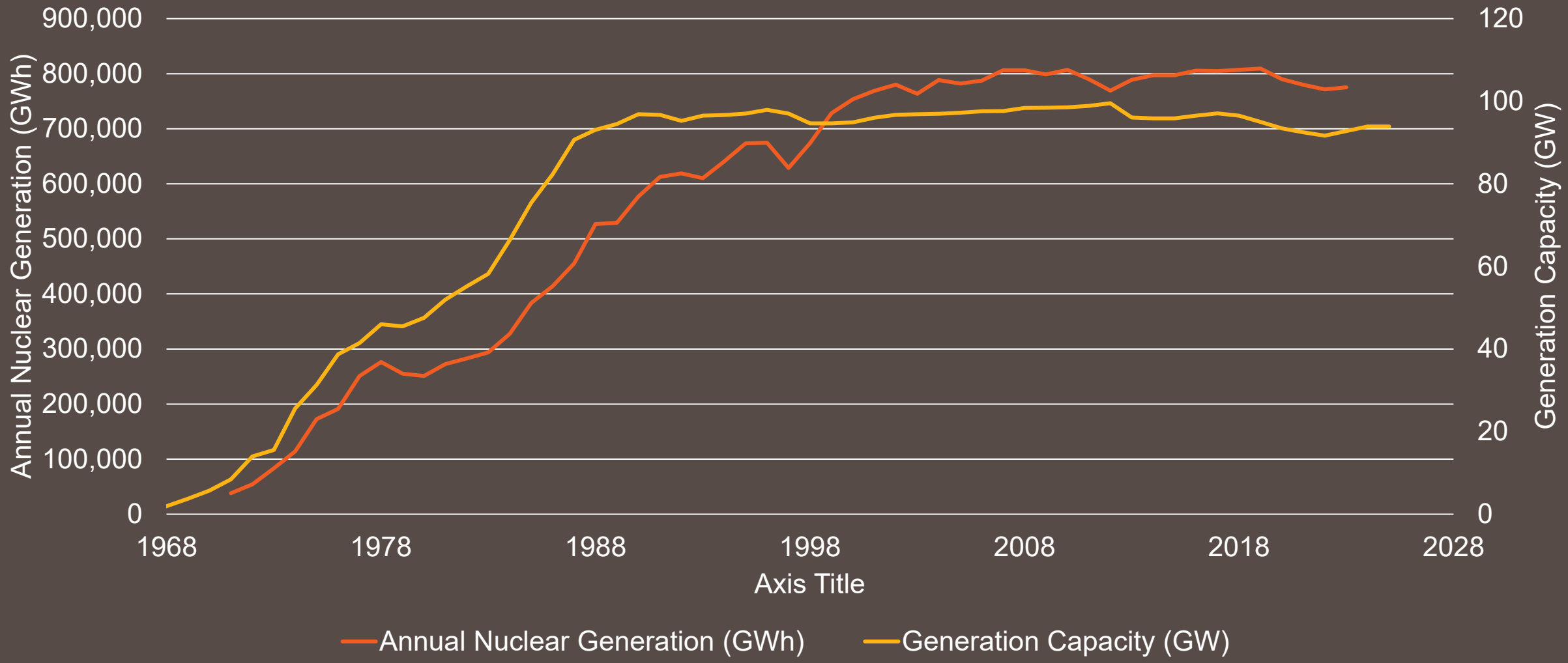
EPRI published AR Owner-Operator Requirements Guide

Microreactors

Mega Watt-scale expands AR options

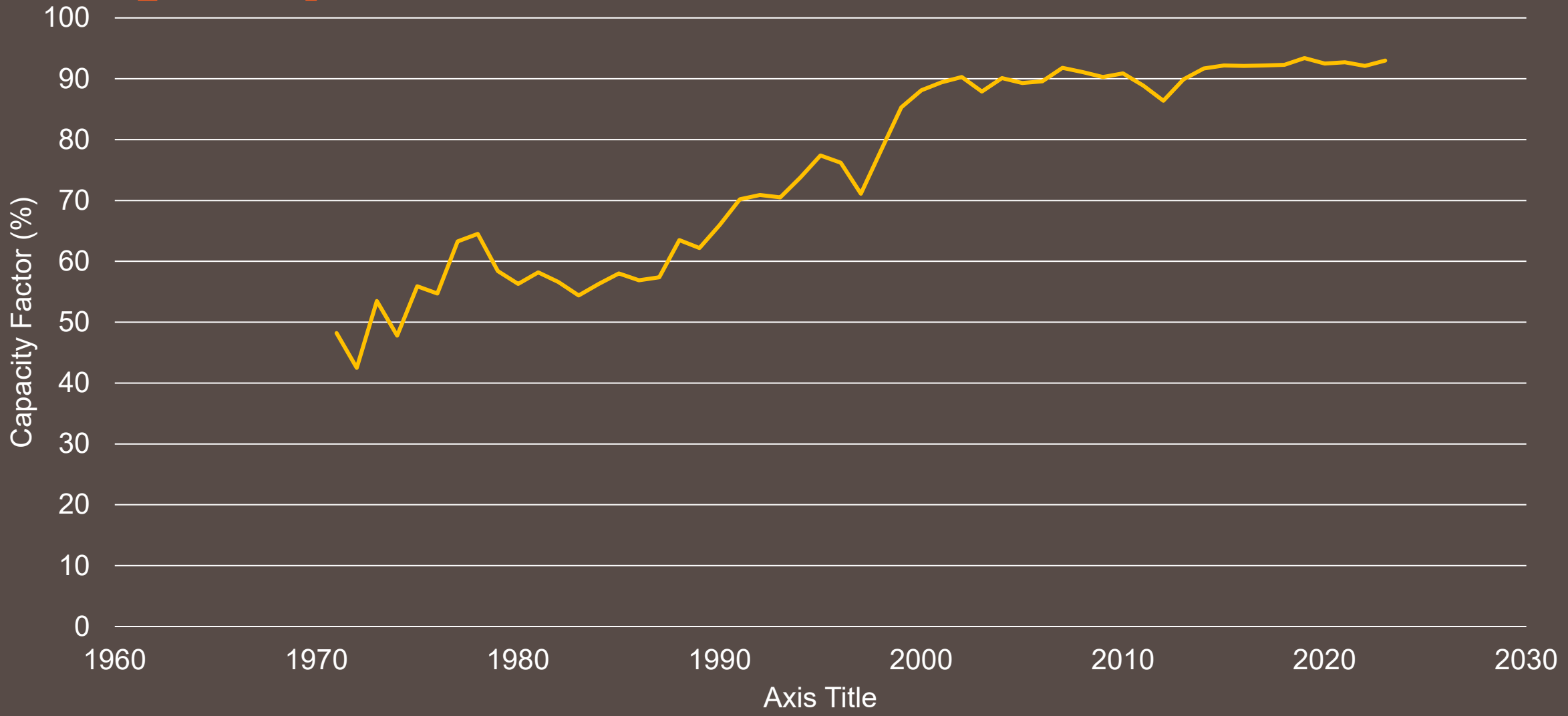
- Heat pipe cooling
- Remote deployment
- New markets
- Competition with diesel

Historical Nuclear Generation Trends



Source: U.S. Energy Information Administration

Capacity Factor



EPRI Utility Requirements Document (URD)

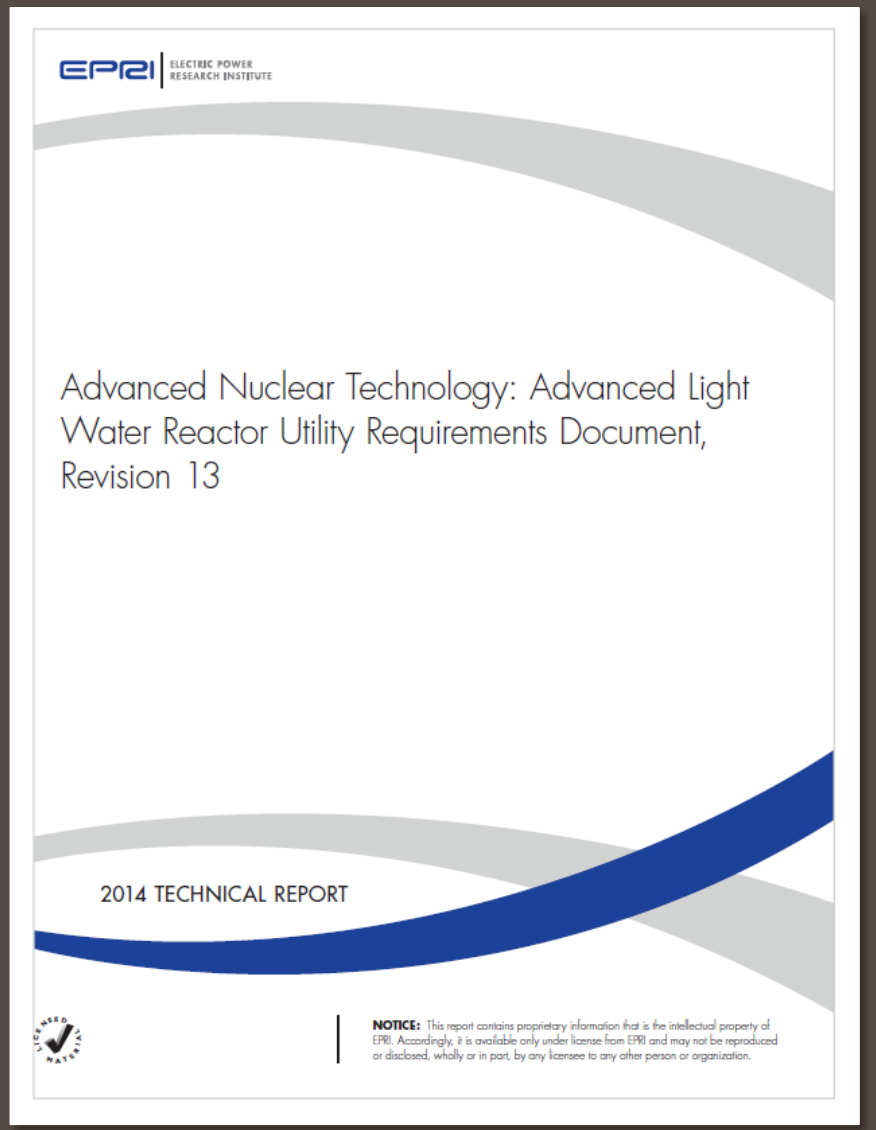
Key element of EPRI-led Advanced Light Water Reactor (ALWR) program to revive prospects for new nuclear deployment for

- Capturing 1000's of reactor-years of experience
- Realizing significant safety improvements
- Stabilizing regulatory basis
- Regulatory optimization
- Promote standardization
- Reduce capital and O&M costs
- Restore investor confidence

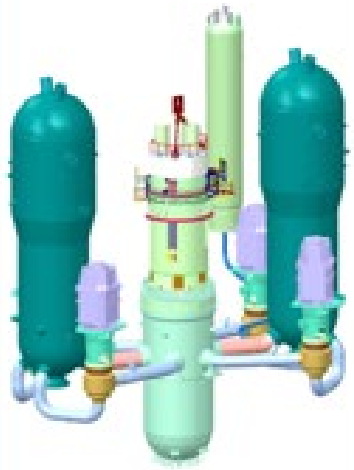
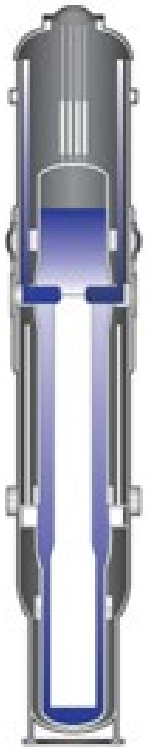
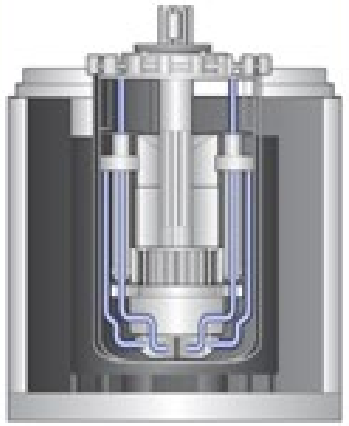
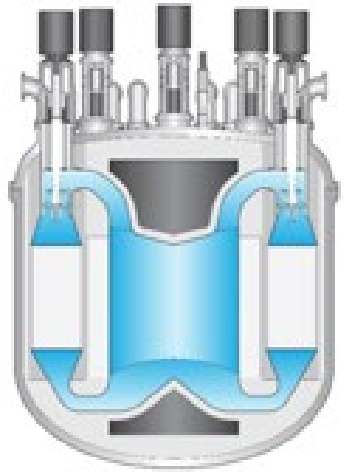
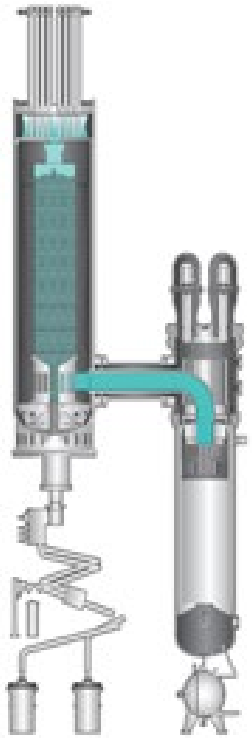
Last update (Rev. 13) in 2014*

Incorporates requirements for small modular LWRs (smLWRs) and Fukushima lessons learned

**Advanced Nuclear Technology: Advanced Light Water Reactor Utility Requirements Document, Revision 13.* EPRI, Palo Alto, CA: December 2014. 3002003129.
https://www.epri.com/research/products/000000003002003129

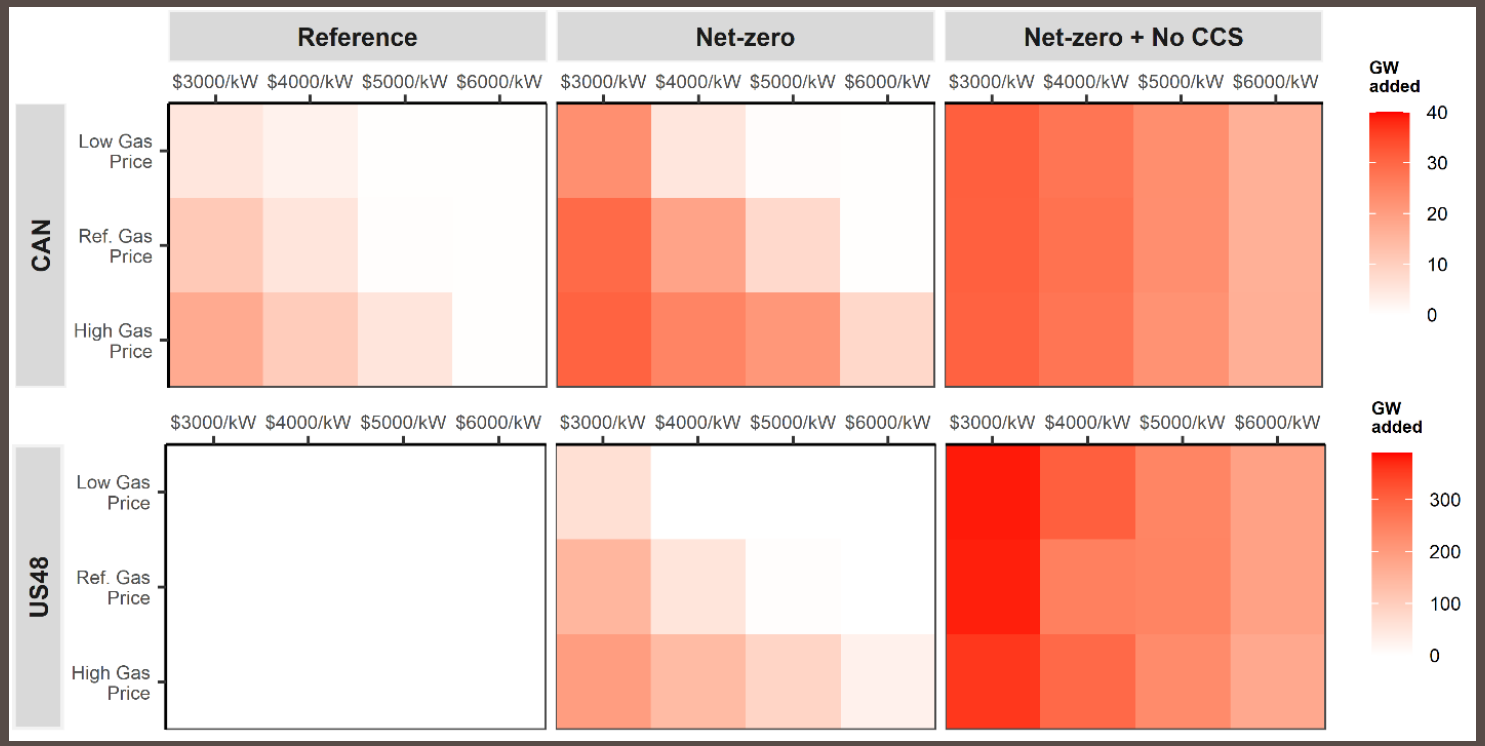


Technology Portfolio

GigaWatt-scale Reactors	Water-cooled Small Modular Reactors	Fast Reactors	Molten Salt Reactors	High-temperature Gas-cooled Reactors	Microreactors
					

New Reactor Deployment Scenarios

AR Capacity Added by 2050



- When assuming only existing decarbonization policies in the U.S., deployment of ARs is virtually zero.
  - In Canada, the existing carbon tax leads to some deployment of ARs for lower values of capital costs
- When assuming a net-zero target by 2050 in both U.S. and Canada, deployment of ARs tends to increase.
  - In the U.S., capital costs would need to approximate $4000/kW by 2035 to result in a more substantial deployment
  - Canada could see relative more deployment at higher values of capital costs
- When CCS technologies are not allowed, ARs tend to become a competitive option of zero-emission and firm energy generation
  - Deployment of ARs tends to be substantial for all combinations of capital costs and natural gas prices

From EPRI's Advanced Reactors Global Market Outlook and Economic Assessment: United States and Canada AR Economic Assessment Study