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Clearing the Way for Clean Energy:

Cooling Water Strategies for Advanced Reactors

Cooling Water Confidence for Your Small Modular Reactor

Innovative SMRs are poised to quadruple U.S. nuclear capacity while cutting cost and carbon—but every project still hinges on one thing: **proving that your cooling-water intake keeps fish, permits, and schedules safe.** Kleinschmidt Associates brings the science, modeling, and regulatory strategy to get you there.

A Clearer, Faster Licensing Horizon

Recent Executive Orders direct the Nuclear Regulatory Commission to license new reactors in **under 18 months** and push total **U.S. nuclear capacity toward 400 GW**. Combined with the NRC's forthcoming Part 53 advanced-reactor rule, developers finally have a predictable—and accelerated—path to the grid.

EPA Phase I: Built-in Protection for Aquatic Life

Every new SMR drawing ≥ 2 MGD for cooling must meet EPA Phase I standards:

- **Closed-cycle-equivalent flow—**typically > 95 % reduction in withdrawals
- **Screen velocities < 0.5 ft/s** to cut impingement
- **River intakes ≤ 5 % of mean annual flow;** estuary intakes ≤ 1 % of tidal excursion
- **Thermal integrity** in lakes and reservoirs

The rule has been in force since December 2001, and its data-rich permitting package is a gate you cannot miss.

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SMRs: Big Opportunity, Small Footprint

SMRs slash upfront capital through factory-built modules, fit on sites too tight for gigawatt plants, and incorporate passive safety that reassures investors and communities alike. DOE notes three core benefits—lower cost, scalability, and siting flexibility—plus the chance to co-locate with industry or renewables to accelerate decarbonization.

Where Kleinschmidt Delivers *Value...*

Your Challenge	Our Solution	Benefits to You
• Meet Phase I flow, velocity, and propotional-withdrawal limits	• H&H modeling & intake optimization	• De-risk 316(b) compliance before design is finalized
• Document waterbody biology & hydraulics for NPDES	• Multiseason fisheries, ESA & wetlands surveys; water-quality & thermal modeling	• Credible baseline data that speeds agency review
• Satisfy 316(a)/(b) studies & public scrutiny	• Integrated biological + engineering assessments	• One narrative, fewer iterations, stronger stakeholder confidence
• Navigate shifting NRC & state processes	• Strategic permitting roadmap, agency liaison, hearing support	• Compressed schedule, predictable costs
• Prove environmental stewardship to investors & communities	• Clear, data-driven storytelling	• Social license that lasts the entire asset life

The Kleinschmidt Advantage

- **Proven track record**—decades of 316(a)/(b) successes for thermal, hydro, and gas clients
- **Full-service team**—regulatory strategists, biologists, modelers, and engineers under one roof
- **Progressive mindset**—solutions that protect ecosystems and your balance sheet

Move from Possibility to Power

Whether you are siting the first module or scaling a fleet, let's build a cooling-water strategy that secures permits, protects aquatic life, and keeps construction on time. **Talk with Kleinschmidt today—and put your SMR on a fast, confident track to clean energy leadership.**

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