

Data Centers at the Intersection of Water, Energy, and Risk

AI and cloud data centers are no longer just real estate projects. They are energy- and resource-intensive infrastructure carrying real regulatory, environmental, and litigation exposure.

FOR DEVELOPERS, INVESTORS, UTILITIES, AND LEGAL TEAMS

Integral provides independent, technically rigorous expertise to help clients evaluate the water, energy, and regulatory risks that shape data center development.

Can the site sustain it?

Can it support long term water and energy demands?

Will it hold up?

Will the project withstand regulatory review and public challenge?

Is it defensible?

Are the analyses defensible under litigation and expert scrutiny?

Why water and energy now drive data center risk

Water is a binding constraint. Large data centers can need millions of gallons a day, making supply the gating factor for permitting and public acceptance in water-stressed regions.

Energy is the core business risk. Data centers must secure 100 to 500+ MW of reliable power while navigating grid constraints, emissions, and evolving environmental, social, and governance expectations.

Risk lies in the overlap. Review, opposition, and regulatory complexity can derail viable projects. Most risk comes from how water, energy, and permitting interact, not any one alone.

Where Integral adds value across the project life cycle

- ✓ **Site Screening and Acquisition:** Fatal-flaw and resource-constraint identification
- ✓ **Zoning and Land Use:** Entitlement pathway
- ✓ **Environmental Permitting:** Air, water, stormwater, wetlands/RTE species, noise approvals
- ✓ **Development and Operations:** Regulatory monitoring and compliance and optimization
- ✓ **Disputes and Litigation:** Expert support, rebuttal, and testimony



Where Data Center Projects Break Down

- » Overestimation of water availability under drought and competing demand
- » Misalignment between power supply, emissions constraints, and permitting requirements
- » Incomplete or nondefensible environmental impact analyses
- » Underestimation of regulatory timelines and community opposition
- » Insufficient early engagement on local impacts leads to community opposition, skepticism, pushback, and regulatory friction

Technical Capabilities

WATER RESOURCES

Availability & Supply Strategy

- Groundwater and surface water availability and water rights
- Reliability under drought and competing demand
- Alternative supply: ASR/MAR and reclaimed water

Investigation & Permitting

- Aquifer characterization, pump testing, and modeling
- Withdrawal permitting; UIC, NPDES, and state approvals
- Assured water supply demonstration

ENERGY & INFRASTRUCTURE

Power & Data Center Infrastructure Strategy

- Grid capacity, interconnection feasibility, and risks associated with upgrade timing and delivery constraints
- Onsite generation options and associated air quality, permitting, and community impact risks
- Power reliability, cost, and contractual structure integrated into site selection and project feasibility
- Risks arising from misalignment between power procurement, emissions constraints, and regulatory approvals

Air Quality & Nexus Analysis

- Air permitting, emissions, and EIS/NEPA review support
- Cooling tradeoffs: water vs. energy vs. emissions
- Water use integrated with power procurement

LITIGATION & EXPERT SUPPORT

- Independent expert opinions on water supply, environmental impact, and feasibility
- Evaluation of opposing expert analyses
- Depositions, testimony, and regulatory proceedings

We are frequently engaged in matters where data center projects are challenged, delayed or disputed.



INTERDEPENDENT DECISIONS

Cooling system selection affects both water demand and energy load, while power sourcing directly influences emissions, permitting complexity, and overall water footprint.



SITING & RISK ANALYSIS

- Fatal-flaw identification across water, energy, land use, and environment
- Climate resilience: heat, drought, flood, and operational risk
- Community and stakeholder impact assessment
- Community and municipality outreach and engagement



WHY INTEGRAL

- Leadership in NGWA Data Center Task Force and active role shaping emerging water and energy strategies
- Deep expertise in groundwater, water rights, and complex projects within contested and evolving regulatory environments
- Integrated water, energy, and regulatory analysis delivering outcomes that are defensible under technical, regulatory, and legal scrutiny

CONNECT WITH US

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