BEARINGLABS

Woodsdale Feasibility

Executive Summary

Woodsdale should be treated as a conditional-feasibility project, not a de-risked campus.

Verdict: 4.4 / 10 · **Stage:** Pre-permitting (Announced) · **Last reviewed:** May 29, 2026 · **Evidence as of:** May 29, 2026
One-sentence read: Microsoft's Person County Mega Park campus has the acreage, sponsor strength, and high-voltage setting to be feasible, but the public record still does not prove the two things that decide the project: firm Duke Energy service for the reported load and enforceable protection against shifting grid costs to other customers.

Scoring arithmetic: Claim mean 4.4 · controlling claim (firm power deliverability + cost allocation) 4.0 → cap 5.5 · published overall 4.4.

This is a feasibility-grade public-record assessment, not investment, legal, or engineering advice. It does not replace executed utility agreements, interconnection or service studies, engineering drawings, environmental studies, or counsel review.

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1. Single Biggest Risk

The single biggest risk is **firm power deliverability with enforceable cost allocation**.

The site's 230 kV context is a genuine advantage. Person County sits near substantial Duke Energy transmission infrastructure, and a screening read around the Roxboro / Person County area identified dense 230 kV-class and 500 kV-class facilities. That makes a large data center physically plausible in a way that a weak distribution-fed greenfield site would not be.

But proximity to high-voltage infrastructure is not the same as a bankable power path. The public record does not yet show:

- a Duke Energy load-service study for Woodsdale;
- a confirmed Microsoft MW figure and phased ramp schedule;
- a delivery-point substation and transformer plan;
- N-1 deliverability analysis;
- a construction schedule for any required 230 kV or upstream upgrades;
- a tariff, special contract, minimum-bill, take-or-pay, collateral, parent-guarantee, exit-fee, or (source on file) framework;
- a North Carolina Utilities Commission treatment showing who pays for network, generation, reserve-margin, and stranded-cost exposure.

That is why Woodsdale scores as **plausible, not proven**. The question is not whether Microsoft is capable of building data centers. It is whether this project, at this site, on this grid, on this schedule, can be served without creating reliability or ratepayer-cost exposure that the public record has not yet resolved.

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2. Where the Story Diverges

What Microsoft and Person County have put into the public story

Public materials and local reporting describe the Woodsdale project as a major AI/cloud data center campus on the Person County Mega Park in Woodsdale Township, near Roxboro and the North Carolina–Virginia border. The site is roughly **1,350–1,385 acres**. Microsoft acquired it in late 2024 for approximately **$26.85 million**. Microsoft and Person County confirmed in 2026 that the land is intended for data center development, with permitting expected to begin later in 2026 and detailed plans to follow.

The positive story is straightforward:

- Microsoft controls a very large industrial-scale tract.
- The site has a high-voltage transmission setting, including 230 kV infrastructure.
- Duke Energy is the central power counterparty, with Piedmont Electric also present in the broader area.
- Microsoft has made "Community-First" commitments: pay its own way, avoid increasing local electricity prices, minimize water use, replenish more water than consumed, create jobs, support training, and contribute to the tax base.
- Person County officials, including Board of Commissioners Chair **Kyle Puryear**, have publicly welcomed Microsoft as a corporate and community partner.

What the public record actually proves today

The public record proves **site seriousness**, not **delivery certainty**.

The unresolved items are decisive:

- Microsoft has not publicly confirmed the final capacity. The widely cited **~300 MW** figure should be treated as a reported planning scenario, not a confirmed project specification.
- Duke has not publicly filed a Woodsdale-specific service agreement, study result, upgrade scope, tariff, or cost-allocation package.
- Person County and Microsoft have not published a final site plan, cooling design, water source, wastewater plan, wetland delineation, backup-generator strategy, or phase schedule.
- Organized concern is already visible, including scrutiny from **Clean Water for NC**, the **Southern Environmental Law Center**, local residents, and ratepayer advocates over transparency, NDAs, ratepayer subsidy, grid adequacy, water, and the **Country Club Road** closure.

- Duke Energy's broader Carolinas load-growth environment is live and politically sensitive. Duke's own 2025 Carolinas Resource Plan materials describe electricity demand rising at an "unprecedented pace," and Duke rate-case materials describe residential bill impacts under review before the North Carolina Utilities Commission.

The result: Woodsdale is not a paper fantasy. It is also not yet a de-risked hyperscale campus.

3. Claim Scorecard

Confidence legend: Confidence measures the maturity of the public evidence, not whether the claim is good or bad. A low score with meaningful confidence can mean the record strongly shows the claim is unproven; a mid-score with preliminary confidence can mean the claim is plausible but still lacks decisive proof.

#	CLAIM	SCORE	CONFIDENCE	ONE-LINE READ
1	Power Delivery	**5.5**	Preliminary	230 kV/500 kV context makes service plausible, but no Duke service study, upgrade plan, or firm energization path is public.
2	Timeline	**5.0**	Preliminary	A 2026 permitting start is plausible; a bankable multi-year buildout schedule is not yet evidenced.
3	Ratepayer Protection	**4.0**	Preliminary	"Pay its own way" is directionally positive, but not yet backed by enforceable utility or NCUC terms. **Controlling claim.**

#	CLAIM	SCORE	CONFIDENCE	ONE-LINE READ
4	Water Sustainability	**3.5**	Preliminary	Water-positive is an outcome pledge, not a water plan; drought and floodplain screens add caution.
5	Grid Adequacy	**4.5**	Preliminary	Duke can plan for large loads, but the Carolinas pipeline is too large to treat adequacy as solved.
6	Community & Political Durability	**4.0**	Preliminary	County support is real, but transparency, road, water, grid, and ratepayer concerns are already organized.
7	Economic Benefit Realization	**4.5**	Preliminary	Tax-base upside is plausible; permanent jobs, tax terms, incentives, and net fiscal benefit remain unproven.

4. Claim-by-Claim Assessment

Claim 1 — Power Delivery

Falsifiable proposition: Duke Energy can reliably serve the Woodsdale campus on the project timeline, including the reported ~300 MW load scenario, without undisclosed generation or transmission requirements that slip the schedule.

Supporting evidence

The site has a legitimate power-siting advantage. The project is described as having 230 kV transmission access, and a public transmission screen near the Roxboro / Person County area identified numerous in-service high-voltage lines, including 230 kV-class infrastructure and 500 kV-class facilities associated with the broader Roxboro / Person County system. North Carolina's generation base is also substantial: EIA Form 860 screening shows major Duke Energy Carolinas and Duke Energy Progress capacity in the state.

Duke is not blind to the load-growth challenge. Duke's 2025 Carolinas Resource Plan materials state that electricity demand across the Carolinas is rising at an "unprecedented pace," and that Duke intends to meet growth through portfolio expansion and maximization of existing plants.

Contradicting or limiting evidence

The public record does not show a Woodsdale-specific Duke service study, executed service agreement, substation one-line, transformer schedule, breaker/bus configuration, N-1 analysis, upgrade list, cost estimate, or in-service milestone. Microsoft has not publicly confirmed the final MW number, the IT load versus utility service load, or the ramp schedule.

Assessment

Power delivery is the strongest technical argument for Woodsdale and still only reaches **5.5 / 10**. Existing high-voltage infrastructure supports plausibility. It does not prove deliverability.

Score: 5.5 / 10 · **Confidence:** Preliminary

Claim 2 — Timeline

Falsifiable proposition: Microsoft begins permitting in 2026 and advances Woodsdale on a credible multi-year buildout path, despite no public final site plan, capacity, or schedule.

Supporting evidence

Microsoft owns the land. Person County has spent years positioning the Mega Park for industrial development. Public materials indicate the permitting process is expected to begin in 2026. Person County has also taken formal action on the Country Club Road closure, showing local momentum rather than a purely conceptual project.

The physical site is not obviously disqualifying. A representative Country Club Road / SR 1333 access-corridor screen showed moderately well-drained Iredell gravelly loam and moderate slope, roughly 5.8% in the sampled USGS 3DEP window. That is developable, though not ideal for large flat data-center pads without grading.

Contradicting or limiting evidence

"Shovel-ready" is not proven by acreage alone. The public record does not yet include a final zoning path, site plan, grading plan, cut/fill quantities, stormwater design, wetland delineation, water/wastewater commitment, backup-generator air-permit strategy, Duke service package, fiber route map, heavy-haul plan, bridge review, emergency-access design, or construction phasing.

A credible permitting forecast is therefore wide:

- **P50:** about 24 months from a complete coordinated filing package;
- **P80:** about 36 months;
- **P95:** about 54 months if rezoning, wetlands, air permitting, water/wastewater infrastructure, road access, Duke/NCUC treatment, or appeals become contested.

Assessment

A 2026 permitting start is credible. A de-risked multi-year schedule is not. Claim 2 earns **5.0 / 10** because the project has momentum but not schedule proof.

Score: 5.0 / 10 · **Confidence:** Preliminary

Claim 3 — Ratepayer Protection

Falsifiable proposition: Microsoft's "pay its own way" pledge credibly insulates Duke Energy's residential and small-business customers from Woodsdale-related cost and rate impacts.

Supporting evidence

The pledge is important. It recognizes the central public issue: hyperscale loads can require utility investments that outlast, exceed, or diverge from the customer's actual ramp. Microsoft's public statement that the project should not increase local electricity prices is the correct starting point.

Reference-class evidence shows that the tools exist. Northern Virginia data-center rate-impact materials and large-load tariff precedents identify practical protections: minimum bills, demand charges, long contract terms, exit fees, collateral, refundable deposits, ramp schedules, separate rate classes, direct assignment of infrastructure costs, and (source on file) requirements. These are the mechanisms that turn a pledge into enforceable protection.

Contradicting or limiting evidence

None of those Woodsdale-specific protections is public. There is no public NCUC-approved tariff, special contract, minimum-bill term, exit fee, collateral package, construction contribution, stranded-cost mechanism, or assignment of generation and transmission costs to Microsoft.

The backdrop matters. Duke's North Carolina rate-case materials describe material residential bill impacts under regulatory review. The broader public debate includes concerns from residents and environmental advocates that data-center infrastructure may burden general customers if load forecasts change or customers under-consume.

Assessment

This is the controlling claim because failure here undermines power, politics, economic benefit, and schedule. A promise to pay is not a rate design. Claim 3 scores **4.0 / 10** until enforceable Duke/NCUC terms are public.

Score: 4.0 / 10 · **Confidence:** Preliminary

Claim 4 — Water Sustainability

Falsifiable proposition: Microsoft can achieve its water-positive pledge at Woodsdale's reported scale without material local water impact.

Supporting evidence

Microsoft has publicly committed to minimize water use and replenish more water than the campus consumes. That is directionally constructive. The reference class also shows that data-center water stewardship can be made more credible when operators pair water-positive claims with recycled water, stormwater capture, constructed wetlands, native landscaping, lower-water cooling, and local watershed investments.

Some environmental screens are favorable. A USFWS critical-habitat screen found no final or proposed critical-habitat polygon within one mile of the Woodsdale proxy point. A water-quality screen found no EPA 303(d) impaired waters within 10 km of the proxy point.

Contradicting or limiting evidence

The public record does not include the required water proof package: cooling technology, annual and peak water demand, source split, drought-year allocation, reclaimed-water service, wastewater acceptance, blowdown chemistry, NPDES pathway, replenishment volumes, or watershed location.

At the reported ~300 MW scale, a hybrid air-evaporative profile could imply roughly **0.8–2.3 million gallons per day** of consumptive-equivalent cooling demand if the 300 MW is IT load. That is a scenario, not a confirmed Woodsdale design, but it shows why the pledge cannot carry the claim by itself.

Current-state screens add caution. A FEMA NFHL screen around the Woodsdale proxy found AE floodplain and floodway polygons within one mile, along with 0.2-percent annual-chance floodplain polygons. A U.S. Drought Monitor read for Person County showed severe-or-worse

drought coverage in the latest period reviewed. Nearby USGS gauges on Hyco River and Mayo Creek showed low single-digit cubic-feet-per-second flows at the time of review.

Assessment

Water-positive is an outcome claim. Without a public water budget, cooling design, wastewater plan, and local replenishment portfolio, Claim 4 is weak.

Score: 3.5 / 10 · **Confidence:** Preliminary

Claim 5 — Grid Adequacy

Falsifiable proposition: The local and Carolinas grid can absorb Woodsdale's load without reliability or cost-causation problems.

Supporting evidence

The Roxboro / Person County power geography is better than many rural greenfield sites. The area has strong high-voltage infrastructure, and Duke is actively planning for large load growth through its Carolinas Resource Plan process.

Duke also has experience with large industrial and hyperscale customers, and public materials identify work with major buyers, including Microsoft, on clean-energy tariff approaches subject to regulatory approval in North Carolina and South Carolina.

Contradicting or limiting evidence

System adequacy is not established by local line presence. The project record describes Duke's broader Carolinas data-center contract book rising to about **4.5 GW**, while data centers reportedly represent roughly **37 GW** of about **46 GW** of projected Carolinas economic-development demand. Even if only a portion materializes, that pipeline is large enough to affect generation planning, transmission planning, reserve margins, and regulatory scrutiny.

Reference-class evidence from Southeastern data-center load-growth reviews warns that proposed data-center demand can be speculative and may create "phantom load" risk in utility planning when projects are submitted across multiple markets without binding commitments.

Assessment

The grid can likely study and plan for Woodsdale. That is not the same as proving that the grid can absorb it at the reported scale, on the desired timeline, and without cost-causation issues.

Score: 4.5 / 10 · **Confidence:** Preliminary

Claim 6 — Community & Political Durability

Falsifiable proposition: Woodsdale can proceed without material risk from transparency backlash, rate-case politics, road-access disputes, water concerns, or organized opposition.

Supporting evidence

Microsoft has publicly confirmed the project and made community commitments. Person County leadership has publicly welcomed Microsoft. The land is under Microsoft control, and the county has taken steps around Country Club Road that indicate local sponsorship and project momentum.

Contradicting or limiting evidence

The opposition themes are already concrete. The record identifies concerns from **Clean Water for NC**, the **Southern Environmental Law Center**, and local residents over NDAs, transparency, ratepayer subsidy, grid adequacy, water, and Country Club Road. The Country Club Road closure is not a vague sentiment issue; it is a specific local-access and trust issue.

Reference-class evidence from recent data-center cases is cautionary. The SELC "Getting It Right" data-center development materials emphasize that local decision-makers should require public answers on infrastructure costs, water, power, comprehensive-plan consistency, and community impacts before approvals. XAI Colossus Memphis reference-class materials show that organized concern over resource use, health, landscape change, tax incentives, and local costs can slow approvals, harden regulation, or remove incentives.

Assessment

County support matters, but Woodsdale has already accumulated the exact issues that make data-center siting politically durable only when disclosures are specific and enforceable. Claim 6 scores **4.0 / 10**.

Score: 4.0 / 10 · **Confidence:** Preliminary

Claim 7 — Economic Benefit Realization

Falsifiable proposition: Woodsdale's local benefits — jobs, tax base, training, and community investment — materialize at a scale meaningful to Person County.

Supporting evidence

The upside could be material. Person County is a small county; U.S. Census QuickFacts reports **40,636** residents and **16,063** households for Person County. A hyperscale campus, if fully built and taxed without major erosion from abatements or exemptions, could meaningfully affect the local tax base.

Microsoft's land acquisition and public confirmation make the benefit case more plausible than a speculative site-control announcement. North Carolina also has a data-center sales/use-tax exemption framework for qualifying investment, including provisions referenced by NC Commerce and North Carolina General Assembly materials for qualifying data centers.

Contradicting or limiting evidence

The public record does not disclose the key benefit terms: final capex, taxable value, depreciation treatment, abatements, PILOTs, state or local incentives, school/county revenue split, infrastructure reimbursements, permanent jobs, construction jobs, wage bands, local hiring targets, training agreements, local procurement commitments, or clawbacks.

Data centers are capital-intensive but generally low-headcount relative to their investment size. Brookings research on data-center employment effects and Good Jobs First-style subsidy critiques both support caution: tax-base gains can be real, but permanent employment and net public benefit depend on the exact terms.

Assessment

The economic-benefit claim is plausible but unproven. It should not score higher until Microsoft and Person County publish enforceable benefit terms and net fiscal-impact evidence.

Score: 4.5 / 10 · **Confidence:** Preliminary

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5. Cross-Cutting Risk Factors

A. Power schedule and permitting schedule are coupled

Local approvals can move faster than utility infrastructure. A data center can obtain land-use approvals and still wait on transformers, substation work, transmission upgrades, cost-allocation treatment, or generation planning. For Woodsdale, the first bankable milestone is not a ceremonial permitting start; it is a coordinated package showing site plan, utility service, water/wastewater, access, and environmental clearance sequencing.

B. The rate case turns community opposition into a statewide issue

Woodsdale is not being evaluated in a quiet utility environment. Duke's North Carolina rate-case and investment proceedings make the "who pays?" question politically salient. If Microsoft's cost-allocation terms remain private, the project risks becoming a symbol of broader data-center load-growth anxiety in the Carolinas.

C. "Water-positive" must become local, volumetric, and enforceable

A replenishment pledge can be credible only when the volumes, timing, watershed, verification method, and drought-year operating rules are clear. For Woodsdale, this is especially important because local concern is already active and drought/floodplain screens add site-specific sensitivity.

D. Country Club Road is small in capex terms and large in trust terms

A 3,800-foot road closure can become a project-defining narrative if residents believe access, notice, emergency response, or land-use changes were handled without transparency. The road issue should be treated as a community-trust risk, not merely a civil-engineering task.

E. Economic benefits depend on net terms, not gross investment

A large data center can add taxable value. It can also receive sales/use-tax exemptions, abatements, infrastructure reimbursements, and low permanent headcount. The public feasibility question is net benefit, not headline construction scale.

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6. Reference-Class Comparison

Woodsdale fits a recognizable reference class: **announced hyperscale campus, strong sponsor, strong land position, plausible power geography, but missing project-specific proof.** Comparable records point to four lessons.

1. Large-load tariff design is the credibility hinge. Northern Virginia data-center rate-impact materials show that ratepayer protection turns on mechanisms such as minimum bills, long service commitments, exit fees, collateral, direct cost assignment, and separate rate treatment. Woodsdale has the pledge but not the instrument.

2. Local disclosure reduces approval friction. SELC data-center development guidance emphasizes that local officials should require public answers on power, water, infrastructure costs, comprehensive-plan consistency, and community impacts before voting. Woodsdale's public record does not yet meet that standard.

3. Opposition gets more expensive after secrecy hardens. XAI Colossus Memphis reference-class materials show that concerns over resource shortages, tax incentives, health, landscape impacts, and local costs can lengthen development and make regulation less favorable once residents mobilize.

4. Land control is not pad readiness. Cross-sector megaproject precedent, including California High-Speed Rail parcel and utility-coordination records, shows that ownership or

parcel progress does not eliminate third-party utility, access, and sequencing risk. For Woodsdale, acreage is a positive starting condition; it is not the schedule.

These comparisons inform context; they do not lift any claim into the 7–8 range. Under the Feasibility Index methodology, Woodsdale needs project-specific process or proof to move beyond "plausible but unproven."

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7. Overall Feasibility Score

Claim scores:

- Power Delivery: 5.5
- Timeline: 5.0
- Ratepayer Protection: 4.0
- Water Sustainability: 3.5
- Grid Adequacy: 4.5
- Community & Political Durability: 4.0
- Economic Benefit Realization: 4.5

Unweighted claim mean: 31.0 / 7 = **4.4**
Controlling claim: firm power deliverability + cost allocation = **4.0**
Controlling cap: 4.0 + 1.5 = **5.5**
Published overall: min(4.4, 5.5) = **4.4 / 10**

The cap does not bind because the mean is already below the cap. That is important: Woodsdale is not held down by one isolated problem. It is held down by a broad absence of public proof across power, ratepayer protection, water, schedule, and community-benefit terms.

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8. Key Data Gaps and Re-Review Triggers

The score should move only when public, project-specific evidence appears.

Power and grid

- Confirmed Microsoft MW, IT load, utility-service load, and phased ramp schedule.
- Duke Energy service study for Woodsdale.
- Delivery-point substation plan, transformer procurement schedule, breaker/bus configuration, and N-1 deliverability analysis.

- Transmission or distribution upgrade list, cost estimate, and construction schedule.
- Clean-energy or PPA structure, if presented as part of the energy strategy, separated clearly from firm local deliverability.

Ratepayer protection

- NCUC-reviewed tariff, rider, special contract, or cost-allocation order.
- Minimum bill, take-or-pay, contract term, collateral, parent guarantee, exit fee, and direct infrastructure-cost assignment.
- Evidence that generation, transmission, reserve, and stranded-cost exposure is not shifted to residential or small-business customers.

Permitting and schedule

- Final zoning classification and whether data-center use is by-right, conditional, special-use, or rezoning-dependent.
- Site plan, grading plan, pad phasing, stormwater plan, and development conditions.
- Country Club Road implementation documents, detours, emergency access, haul routes, bridge/culvert review, and traffic plan.
- Backup-generator count, emissions calculations, NCDEQ air-permit path, and run-hour assumptions.

Water and environment

- Cooling technology and water-use budget by phase.
- Potable, non-potable, reclaimed, groundwater, or surface-water source by phase.
- Water service capacity, drought-year allocation, wastewater acceptance, blowdown management, and NPDES path.
- Local replenishment portfolio with volumes, timing, watershed, verification, and enforceability.
- Wetland/stream delineation, jurisdictional determination, floodplain engineering, ESA/IPaC review, NHPA cultural-resource review, and environmental-justice profile.

Community and economics

- Public record of any NDAs or confidentiality terms affecting county deliberations.
- Formal comments, petitions, appeals, or legal positions from Clean Water for NC, SELC, residents, or ratepayer advocates.
- Tax treatment, abatements, PILOTs, sales/use-tax exemptions, infrastructure reimbursements, school/county revenue split, and clawbacks.
- Permanent jobs, construction jobs, wages, training partners, local hiring, and procurement commitments.

- Net fiscal-impact analysis for Person County.

9. Recommendation

Woodsdale should be treated as a **conditional-feasibility project**, not a de-risked campus.

The best interpretation of the public record is that Microsoft has selected a serious site with real infrastructure advantages. Among single-site feasibility candidates, Woodsdale's strengths are unusually clear: large controlled acreage, high-voltage proximity, a sophisticated sponsor, and supportive county leadership. If the question is whether the site can plausibly host a major data center, the answer is yes.

If the question is whether Woodsdale currently satisfies power, schedule, connectivity, and cost priorities better than alternative sites would, the public answer is more restrained: **Woodsdale is promising on land and transmission setting, but not yet competitive on proof.** The decisive missing evidence is a public Duke Energy / NCUC-backed service and cost-allocation path. Without it, the project's strongest attribute — power geography — remains its biggest open risk.

The sponsor and county should prioritize five public disclosures before the project is scored higher:

1. a Duke service and upgrade package for the reported load scenario;
2. an enforceable cost-allocation framework protecting non-participating ratepayers;
3. a water and wastewater plan sized to the cooling design and drought conditions;
4. a site plan and permitting schedule that resolves Country Club Road, stormwater, wetlands, backup generation, and fiber laterals;
5. binding economic-benefit terms covering tax treatment, jobs, training, infrastructure cost, and clawbacks.

Score should remain 4.4 until specific, named evidence is public: Duke Energy's Woodsdale load-service study, an NCUC-reviewed tariff or special contract assigning costs to Microsoft, a water/wastewater service and replenishment package, a filed Person County site-plan and access package, and enforceable (source on file) terms.