A MULTI-AGENT FEASIBILITY STUDY

When does it pay to build AI computing capacity in Jamaica?

Adrian Dunkley
CEO, Maestro AI Labs
ceo@maestrosai.com

Nicholas Dunkley
Maestro AI Labs
ai@maestrosai.com

Abstract

A Jamaican organisation can buy computing hours, lease rack space or finance a new facility. Each option transfers a different set of risks to the buyer. We ask when a new operator could recover its investment while meeting Jamaica's stated conditions for electricity and water. We examine local procurement records, an overseas hosting contract and construction benchmarks. We translate physical capacity into saleable services and compare cash flow, permanent jobs, electricity, water and operational emissions. For a 2 MW mixed-service facility, the fixed-input case requires US$50.64 million of initial capital and produces a pre-tax net present value of minus US$27.88 million at a 10% real discount rate. Across 10,000 draws, 6.22% generate positive value. A separate buyer comparison at 0.5 MW puts the cloud price at which ownership and rental have equal present cost at US$2.58 per accelerator-hour, subject to the specified support and connectivity costs. The distributions represent assumptions in the absence of contracts and site measurements. They can guide procurement and identify the prices worth testing with customers. They cannot establish demand for a particular address. *Keywords:* data centre economics, accelerator rental, Caribbean, energy systems, water, Monte Carlo simulation, public investment

1 The decision before Jamaica

On 15 November 2026, Prime Minister Andrew Holness announced Cabinet approval to sign a memorandum to explore AI infrastructure. On 18 November, the information minister described two conditions for the exploration: no draw on the national electricity grid and no impact on Jamaica's water systems. The scope of the investment and the identity of the investors remained undisclosed in the reports reviewed [1, 2]. A provider can submit a concept under these conditions. A customer, lender or ministry still needs evidence of deliverable service, a price and a responsible party when something fails.

The unit of analysis here is a project that sells services over time. Jamaica's fiscal position, a resident's job prospects and the operator's return each have a different accounting boundary. The public investment guidance asks what an investment contributes relative to other ways of meeting the need [3]. For that reason we keep private cash flows, resource use and local employment in separate accounts.

2 What can be bought in Jamaica today?

The Urban Development Corporation reported buying colocation at the Digicel Caymanas data centre for daily, weekly and monthly backups in its 2011–12 report [4]. A more recent government tender for a warm disaster-recovery site records an award and lists Digicel Jamaica as a bidder. The opened-bid page gives no contract value [5]. Both records establish domestic precedent for a customer paying to protect its systems. Neither gives the amount a new customer would pay to train a large language model.

In its 2024–25 report, eGov Jamaica recorded 100% data-centre availability and 34% utilisation of its own capacity [6]. That indicator has no published conversion to spare commercial kilowatts. The first procurement question is therefore whether an incumbent can meet a specific customer's power density, location, uptime and recovery requirements. The second is what the incumbent will charge and for how long.

UNESCO also documents UWI Mona's SPARKS research computing platform. In neighbouring Curaçao, Blue NAP announced AI services at an existing facility in 2025 [7, 8]. Research computing and a regional commercial service show where a buyer can look for alternatives. Neither discloses a Jamaican export order or its realised profit. An overseas contract illustrates the cost of treating an announced megawatt as a billed one. Core Scientific's June 2024 announcement described plans to supply roughly 200 MW to CoreWeave over 12 years, with expected annual revenue of about US$290 million and customer-funded conversion equipment [9]. Its November 2026 presentation reported about 260 MW billing across a leased portfolio of 590 MW with customer-paid power and utilities [10]. The dates, capacities and contract terms differ. Using the first deal's headline revenue to price electricity-inclusive Caribbean racks would mix unlike services.

Table 1. Service definitions for a request for quotations

Purchase	What pays the bill	What the buyer must test
Domestic colocation	Occupied, powered rack capacity; the tenant owns the servers.	Power inclusions, density, cross-connects, acceptable interruption and route diversity.
Managed AI inference	Paid accelerator-hours, or measured requests at an agreed response time.	Model version, response latency, batch size, prompt length, transfer and support fees.
Training or fine-tuning	Paid compute hours under a dated booking.	Checkpoint recovery cost, network scaling, utilisation, customer credits and delivery deadlines.
Government or university capacity	Service contract or budgeted procurement tied to a unit, term and availability.	Legal basis, retention, security, budget authority and the opportunity cost of a guarantee.

One use of the same server can displace another. A forecast cannot sell both services in the same hour.

3 Methods and accounting boundaries

Figures and tables come from the released case model. All monetary values are constant 2026 US dollars. We model 15 operating years after capital draws of 40% at time zero and 60% at year one. The first year's receipts arrive at year two. We assume zero terminal value, 10% real discounting and no income tax, financing, subsidy or working-capital change in project cash flow. The 2 MW reference allocates 40% of installed IT capacity to colocation, 35% to inference, 15% to training and 10% to publicly purchased hosting. Only the two compute services require operator-funded GPUs. One utilisation factor links booked capacity to electricity across services; a tenant can in practice book capacity it does not draw. Replace this assumption with hourly billed and metered load before sizing plant. The private power provider must recover its entire independently supplied cost in the contracted price.

For annual delivered IT energy E_{IT} in kWh and on-site water use effectiveness w in L/kWh of IT work, facility electricity and on-site water are

$$E_{\mathrm{facility}} = E_{\mathrm{IT}} \times \mathrm{PUE}, \qquad W_{\mathrm{process}} = E_{\mathrm{IT}}\, w/1000 \quad [\mathrm{m}^3].$$

Total direct site water adds an assumed 0.050 m^3 per paid staff-day for 250 days per job per year. Power usage effectiveness (PUE) includes conversion and cooling overhead. The denominator is IT electricity in both expressions. Dividing annual facility energy by 8,760 gives mean electrical load. Equipment at peak and a power source with one component unavailable require a separate engineering calculation. Direct water alone cannot measure the water used to produce electricity or manufacture servers [11].

For the initial draw K_0 (40% of initial capital), with the remaining 60% in I_1, annual revenue R_t, operating expenses O_t, subsequent capital expenditure I_t and any close-out amount V_T, the discounted project return at real rate r is

$$\mathrm{NPV} = -K_0 + \sum_{t=1}^{T} \frac{R_t - O_t - I_t}{(1+r)^t} + \frac{V_T}{(1+r)^T}.$$

A positive annual operating margin can coexist with a negative net present value (NPV). Capital, hardware replacement and the time needed to fill racks all intervene. A GPU-hour is the use of one accelerator for one hour. Converting sold hours to tokens or finished training runs requires a benchmark for the precise model, hardware, data lengths and service target [12]. The model therefore reports sold service units.

4 Evidence behind the input ranges

JLL's 2025 global estimate of US$10.7 million per MW concerns the building and services of a 50 MW, single-tenant, air-cooled facility. Land and active IT equipment are outside that benchmark [13]. Island freight, import costs, site preparation, protective works and small project scale require separate quotations. NVIDIA's eight-GPU DGX H100 system has a maximum system draw of about 10.2 kW. Full-system power differs from an accelerator's chip rating and from site electricity including cooling [14]. Lambda's eight-GPU H100 on-demand listing gives an overseas purchasing alternative; a Jamaican operator would still have to establish the price it can realise after discounts [15].

5 Comparing project scale and service mix

Table 2. Initial investment and fixed-input project NPV (US$m), simulated share with NPV above zero (%), and assumed continuing direct FTEs.

New capacity / services	Capital	NPV	Positive	FTE
No new project	0.00	0.00	0.00	0.0
0.5 MW mixed pilot	13.32	-9.37	2.69	8.5
2 MW mixed	50.64	-27.88	6.22	13.0
2 MW colocation	27.79	-32.39	0.01	11.0
2 MW public hosting	27.79	-28.21	0.21	11.0
2 MW inference	73.49	-17.15	21.09	15.0
2 MW batch training	73.49	-40.66	5.34	15.0
10 MW mixed campus	249.64	-126.63	7.49	37.0
10 MW batch training	363.92	-190.55	6.15	47.0

Common assumptions include a 10% real discount rate, islanded power purchased at US$0.23/kWh and dry heat rejection. The no-build option has no incremental investment or receipts. It also delivers no new capacity. A separate lease comparison supplies matched output.

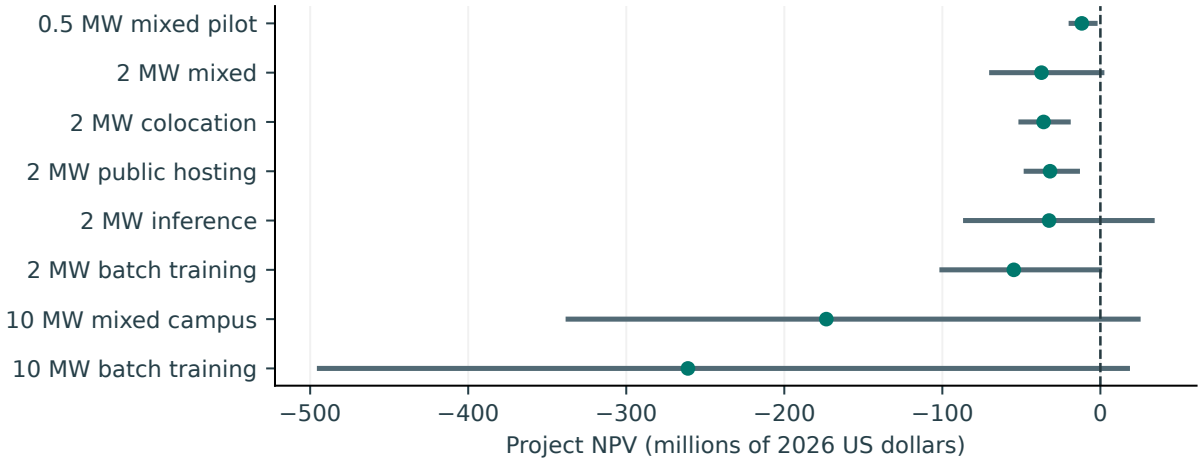


Figure 1. Conditional project NPV. Lines show the 5th to 95th percentiles of simulated cash flow. Dots show the median. The vertical line marks recovery of capital at the model discount rate. Fixed inputs can give a different result from the simulated median.

6 Demand tests before construction

Request monthly purchase volumes, the maximum hourly load, tolerated service interruption and a price floor from each potential anchor customer. Ask for identical workloads to be priced by an existing local facility and by a cloud provider. Compare the full bill, including storage, transfer, support, recovery and switching. Under section 31 of Jamaica's Data Protection Act, transfers abroad depend on the receiving territory's protection and specified exceptions. An agency's own contract, the data it handles and its recovery needs can impose further conditions [16].

7 Physical resources and financing exposure

Table 3. Reference case coefficients. All prices and physical design parameters are scenario inputs.

Item	Input and accounting treatment
Construction	US$10.70m/MW of shell, multiplied by 1.04 for dry rejection. Site allowance: US$0.90m fixed, US$0.65m/MW and 15% of shell for protective works.
Accelerators	1.40 kW of active and shared IT per installed GPU; US$32,000 per equivalent including host and fabric allocation. Replace 70% of original hardware cost in operating years 5 and 10.
Sales	US$310 and US$350 per occupied kW-month of colocation and public hosting respectively. Starting GPU-hour prices US$2.65 inference and US$2.173 training; both fall 1.8% a year in real terms.
Load	Mature paid utilisation 72%; ramp factors 0.55, 0.78, 0.92, then 1. Idle IT load 20% of nameplate before adding activity.
Utilities	Independent firm power US$0.23/kWh; scenario emissions 0.45 kg CO_2/kWh; independent site water US$4/$m^3$. Dry PUE 1.38 and process water 0.03 L/IT kWh.
Operating labour and other costs	US$36,000 per FTE per year. Shell maintenance 3%, insurance 0.9%, and hardware maintenance 3% of respective initial assets per year. Fixed and per-MW operations cost US$85,000 and US$80,000/MW per year; variable services 4% of sales.
Interrupted service	Stylised annual event probability 0.10; seven days unavailable and repairs equal to 1.5% of shell per event. Annual expected event effects enter the fixed-input case.

8 What an electricity offer must buy

JPS's 2025 large commercial and industrial revenue divided by class sales gives US$0.256/kWh, versus US$0.250/kWh in 2024 [17]. These national averages describe bills under a different supply arrangement. Replacing the private supplier's assumed price with either average would not price an islanded plant. A new independent supplier would have to fund the generating plant, fuel, storage where used, connection to the facility, maintenance and emergency reserve. A flat delivered-energy price is a financing assumption. It cannot prove that a plant can serve this load across every hour, that a fuel route will reopen after a hurricane or that a battery can replace sustained generation. Ask for interval load and generation series, operating reserve, black-start tests, maintenance coverage, delivered fuel assumptions and a firm capacity commitment under a component failure. Reject quotes that exclude the items the model assigns to the supplier.

A separate meter and a contract for renewable certificates cannot by themselves demonstrate physical independence from the grid. Likewise, an annual match between solar output and energy consumption does not settle the overnight requirement. Flexible training can pause in a shortage if its customer agrees. A hospital or disaster-recovery tenant may require uninterrupted service. Give these buyers distinct interruption clauses before counting any avoided generation cost.

9 Stress tests and parameter uncertainty

We sample triangular multipliers with minimum, mode and maximum of (0.58, 1, 1.29) for paid utilisation, (0.65, 1, 1.48) for service prices, (0.82, 1, 1.38) for initial capital and (0.67, 1, 1.62) for delivered power price. The Gaussian copula uses latent correlations of 0.55 for demand and price, and 0.35 for capital and power cost. GPU price erosion adds a triangular draw of (−0.018, 0, 0.045) to its annual base, floored at zero. Each operating year gets an independent Bernoulli disruption draw. Inputs are elicited scenarios; no fitted local loss curve or observed customer-price distribution underlies them.

With seed 20261119, increasing draws from 1,000 to 20,000 changes the share above zero from 5.80% to 6.16%; the 10,000-draw estimate is 6.22%. A 300-replicate bootstrap of the 10,000 simulated outputs gives a 95% resampling interval of 5.73–6.69% for that share. It measures finite-simulation variability only. BootLoops [18] refers here to a computational verification approach adapted from the project's published guidance. Separate agents checked sources, wrote the model and challenged its outputs. A second implementation, written in Python independently of the JavaScript core, reproduced the core reference percentiles. The stronger anchor scenario, with 90% mature utilisation and a 25% premium across services, gives positive NPV of US$11.19m. The review corrected a duplicated capital multiplier on one civil allowance. These are automated cross-checks; the manuscript has not undergone external peer review. Neither resampling nor that correction establishes external predictive validity.

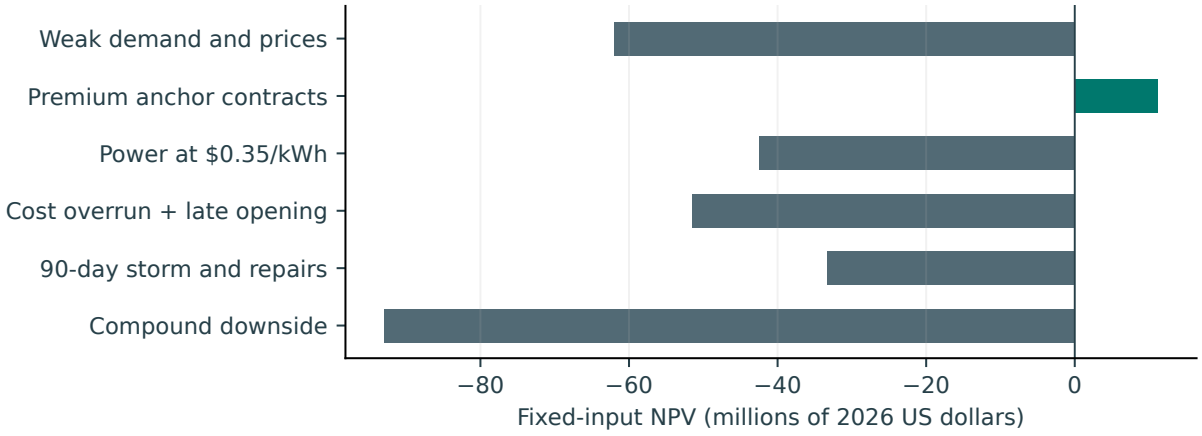


Figure 2. Deterministic stress cases for the 2 MW reference project. Each bar is one prescribed change or combination. The scenarios are distinct from the Monte Carlo percentiles in Figure 1.

10 Jobs, public spending and displaced activity

The Virginia legislative audit reported about 50 ongoing workers, roughly half on contract, at a typical 250,000-square-foot facility described by its sources. Construction peaked near 1,500 workers over a typical 12–18-month build [19]. Multiplying the peak by the full construction period would overstate job-years. Multiplying Virginia jobs by Jamaican megawatts would presume comparable scale, contracting and shifts. This study uses a separate assumed staffing schedule for operations and an expenditure-based construction estimate.

11 The national investment decision

The mixed 2 MW case requires an assumed 13 operating full-time equivalents (FTEs). At a 65% local hiring share that is 8.45 resident FTEs. Construction labour is 12% of civil and shell outlay divided by US$26,000 per worker-year, yielding about 128 worker-years in total and 77 resident worker-years at a 60% share. A crew of two employed for six months contributes one worker-year. Contractors must disclose work duration and worker residence to turn these estimates into evidence.

The alternative for a buyer can differ from the preferred investment for a seller. For a 0.5 MW pure-inference workload with 357 installed GPU equivalents and 2.25 million mature-year GPU-hours, ownership costs US$39.34 million in present value. At US$1.80 per equivalent GPU-hour, rented capacity costs US$28.21 million; at a listed US$4.59 it costs US$67.85 million. The rental cases add US$0.15/hour of customer-side integration and connectivity and US$72,000/year of support. The indifference price is US$2.58/hour. Eligibility, egress, comparable GPU memory, reliability and the provider's reservation terms require a buyer quote [15]. For a separate 2 MW captive buyer, the introductory rental prices yielding equal present cost at 25%, 50%, 72% and 90% utilisation are respectively US$7.55, 3.97, 2.88 and 2.38/GPU-hour, assuming rental prices fall 1.8% annually and excluding non-common cost additions. Cheap rental funds uncertain demand; sustained use can favour ownership for a specific buyer. A subsidy to a campus is a separate fiscal decision.

Public officials need a comparator with the same output: what does it cost to deliver, for example, a retained recovery copy in Jamaica or a defined volume of inference at a measured latency? First lease or purchase a short trial. Run a recovery drill and meter the service. If the evidence supports a dedicated build, pay for options on the power source, site and equipment before committing capital. Set expansion triggers in billed service units, guaranteed margins after power, local recruitment and sustained power-system performance. Choose thresholds before soliciting offers.

Do not use gross payroll as a social return. For a worker who leaves another job, incremental labour benefit is the change in earnings and conditions after the opportunity cost of the prior job. For an imported server, most of the purchase price may accrue elsewhere. A public contract to buy compute is revenue for the operator and expenditure for its buyer. A full Jamaican appraisal should separately price customer benefits, incremental domestic value added, emissions, water, noise, road works, concessions, and the fiscal risk of guarantees. No multiplier, productivity dividend or subsidy is credited here [3].

Decision rule. Purchase small quantities of existing service to establish a demand record. Revisit construction when signed revenue covers the modelled break-even over a defensible term, independent supply has a feasible engineering design, and the local environmental and public-fiscal tests pass. A positive return at a favourable assumed price is a reason to seek a binding offer. It is insufficient grounds to commit land, give a guarantee or sign a power contract.

Limits and reproducibility. The screen has no signed Jamaican AI tenant, privately generated power tariff, independent demand survey or winning construction bid. Its carbon, cooling and labour coefficients can be replaced as evidence improves. No model was trained on tenant or project outcomes. The companion source package includes executable equations, input definitions, seeded outputs and the tables behind the paper. The digital companion is at adriandunkley.net/portmore-data-centre/. The companion by Adrian and Nicholas Dunkley, *A data centre for Portmore? Cash flows, local jobs and coastal risk*, uses this same 2 MW model to examine municipal costs, water, hazards and employment. Its simulations are shared evidence. This manuscript reports an exploratory simulation as of 19 November 2026.

References

[1] Jamaica Gleaner, 19 November 2026. AI plans under scrutiny; November 18 post-Cabinet remarks by Information Minister.

[2] Jamaica Observer, 18 November 2026. Terrelonge bats for AI data centres to be built in Portmore.

[3] Jamaica Ministry of Finance. Public Investment Management System Guidelines (2016), p. 5.

[4] Urban Development Corporation of Jamaica. Annual Report 2011–2012. p. 11.

[5] Government of Jamaica Electronic Procurement. Procurement for Data Centre Co-Location Services (Warm Disaster Recovery Site) – Retender.

[6] eGov Jamaica / ICT Authority. eGov Jamaica Annual Report 2024–25. p. 58.

[7] UNESCO Jamaica Artificial Intelligence Readiness Assessment Report, infrastructure chapter.

[8] Blue NAP Americas, BlueNAP.AI service announcement, July 2025.

[9] SEC, company exhibit dated June 4, 2024. Core Scientific/CoreWeave HPC hosting agreements.

[10] Core Scientific via SEC. Q3 FY2026 results, CoreWeave relationship.

[11] Lawrence Berkeley National Laboratory, 2024 United States Data Center Energy Usage Report, pp. 39–45.

[12] NVIDIA. Measuring generative AI model performance.

[13] JLL Research. Global Data Center Outlook 2026. p. 25.

[14] NVIDIA. NVIDIA DGX H100 Datasheet.

[15] Lambda. Cloud GPU rental plan prices.

[16] Jamaica. Data Protection Act, 2020, section 31.

[17] JPS Annual Report 2025, company profile and five-year statistical review, pp. 27–28.

[18] BootLoops. Open research and review protocol, project repository.

[19] Virginia Joint Legislative Audit and Review Commission. Data Centers in Virginia.