

LDDL Workload Model Parameter Values

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Table 1: Workload Model Parameters for LDDL Facilities

Parameter	LDDL1 (Bus 9)	LDDL2 (Bus 36)	LDDL3 (Bus 37)
Workload type	AI Inference	ML Training	Batch Jobs
Rated capacity (MW)	57.5	51.7	46.0
Number of racks N	500	450	400
Servers per rack M	40	40	40
Idle power P_{idle} (kW/server)	0.15	0.15	0.15
Peak power P_{peak} (kW/server)	0.50	0.50	0.50
Poisson arrival rate η (jobs/s)	12.0	—	—
Job duration γ (s)	0.08	—	—
Job duration spread γ_1 (s)	0.02	—	—
Training epoch period (s)	—	1.5	—
Epoch amplitude (LF variation)	—	0.15	—
Batch step interval (s)	—	—	0.8
Batch step size (LF change)	—	—	0.10
Cooling ratio α_1	0.15	0.15	0.15
Cooling response rate α_2	0.05	0.05	0.05
Power supply time const τ_s (s)	0.01	0.01	0.01
Mean load factor (pu)	0.775	0.829	0.840
Std. dev. load factor (pu)	0.107	0.103	0.090