

U.S. DEPARTMENT
of **ENERGY**

Office of Science

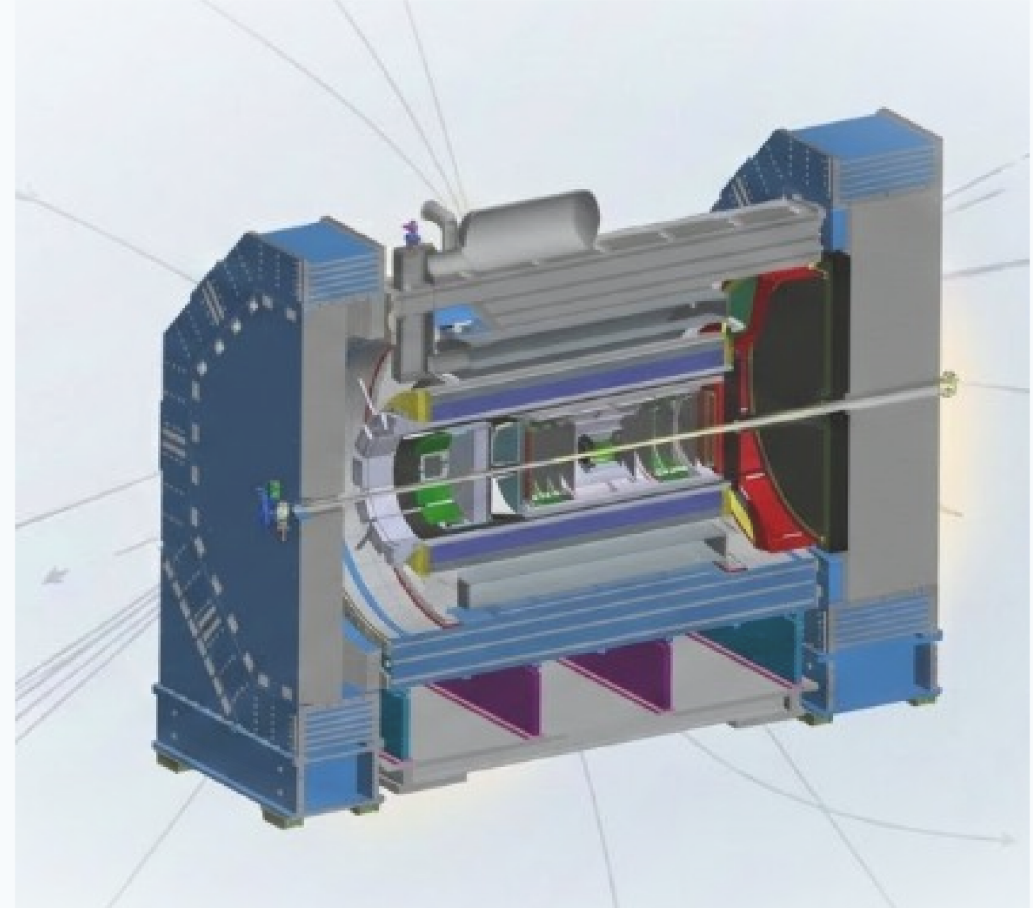
Campaign 26.07 Preparations: Requests and Timeline

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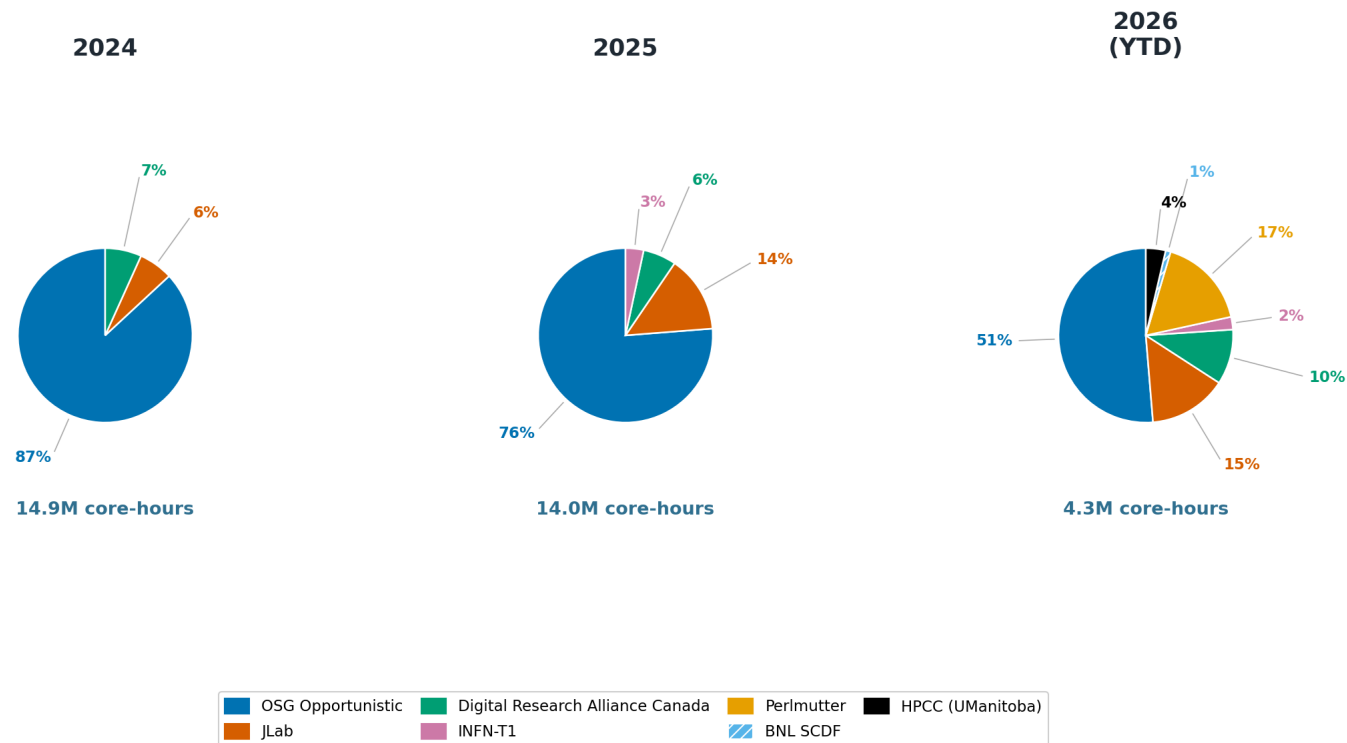
on behalf of the ePIC Production WG

Brookhaven National Laboratory

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Simulation Production: Compute



ePIC Computing Usage by Site (2024–2026)

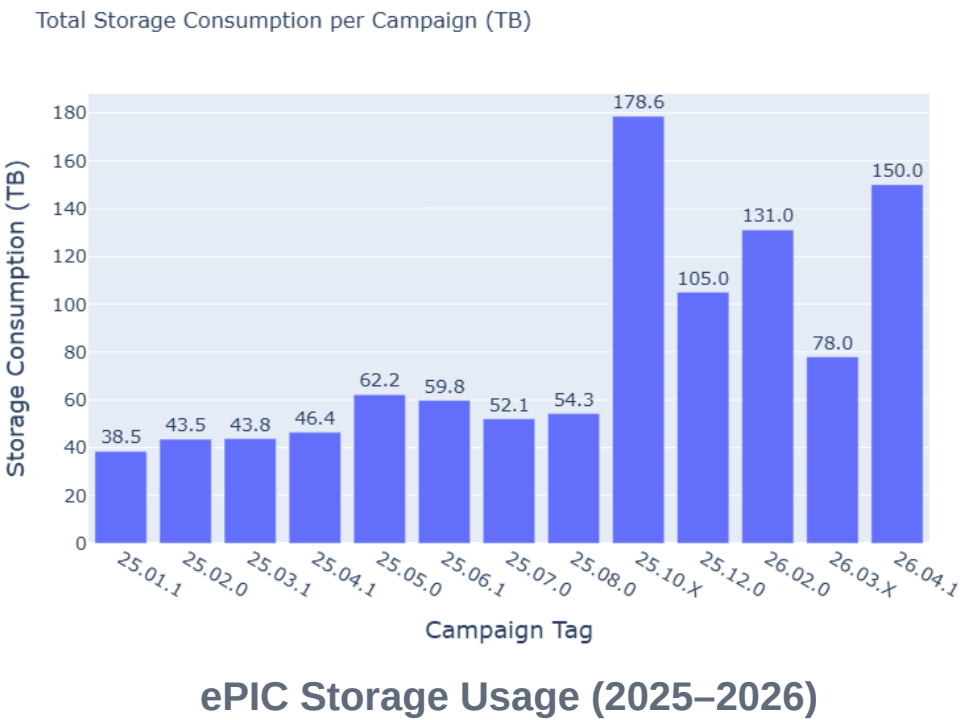
- Continue to rely heavily on opportunistic resources from OSG
- Added more allocated resources in 2026, anticipating growing compute demand for new physics studies and background mixed simulations

Simulation Production: Storage

```
$ rucio account limit list eicprod
```

RSE	USAGE	LIMIT	QUOTA LEFT
ASGC-XRD	10.441 TB	500.000 TB	489.559 TB
BNL-XRD	523.919 TB	750.000 TB	226.081 TB
EIC-XRD	395.160 TB	500.000 TB	104.840 TB
JLAB-TAPE-SE	1.445 PB	Inf	Inf
MANITOBA-XRD	26.839 kB	200.000 TB	200.000 TB

Enough storage to make **6 most recent campaigns** plus **pre-TDR (25.10.X)** and **early science (26.07.X)** readily accessible.



Dataset Request Provenance

Stage	Resource
Google Form + Sheet (submissions)	docs.google.com/.../spreadsheets/...
Intermediate summary table	eic.github.io/epic-prod/documentation/default_datasets.html
PCS catalog (production system)	epic-devcloud.org/prod/pcs/catalog/

Form → Sheet → summary table → PCS catalog

Dataset ready to run once **onboarded to storage** then **registered to Rucio**. Still in progress for new sets.

Expected Timeline

Dataset scope	Target
Small-scale exclusive & inclusive datasets	End of next week
Jets & Heavy Flavour + Background-mixed sets	Following week
Large-scale datasets	End of campaign window

Inclusive and Semi-Inclusive DIS: Pythia8 samples

NC DIS (ep)

Legacy `pythia8` — 19 datasets, p2 · **decommission after 26.07.0**

Beam exp (GeV)	minQ ² =1	minQ ² =10	minQ ² =100	minQ ² =1000
5 × 41	✓	✓	✓	—
5 × 100	✓	✓	✓	✓
10 × 100	✓ (BG)	✓ (BG)	✓ (BG)	✓ (BG)
10 × 275	✓ (BG)	✓ (BG)	✓ (BG)	✓ (BG)
18 × 275	✓	✓	✓	✓

Version-controlled `pythia8.316-1.0` — 21 datasets, p1 · **run in 26.07.0**

Beam exp (GeV)	q ² 1–10	q ² 10–100	q ² 100–1000
5 × 41	✓	✓	✓
5 × 100	✓	✓	✓
9 × 130	✓	✓	✓
9 × 275	✓	✓	✓
10 × 100	✓	✓	✓
10 × 275	✓	✓	✓
18 × 275	✓	✓	✓

CC DIS (ep)

Legacy `pythia8` — 9 datasets, p3

Beam exp (GeV)	minQ ² =100	minQ ² =1000
5 × 41	✓	—
5 × 100	✓	✓
10 × 100	✓	✓
10 × 275	✓	✓
18 × 275	✓	✓

New request (May 2026+)	Generator	Contact
CCDIS parity-violating SF	DJANGO	druth@nmsu.edu

Version-controlled NC adds **9×130, 9×275**; drops **minQ²=1000**. High-Q² gap after legacy retired — larger for CC (no version-controlled analogue).

✓ = input dataset onboarded and ready to run. Contact: bpage@bnl.gov (all Pythia8 sets).

Inclusive and Semi-Inclusive DIS: Pythia6 samples

Existing `pythia6.428-1.0` — 8 datasets, p1 · not run in 26.07.0

Beam exp (GeV)	q ² 1–10	q ² 10–100	q ² 100–1000	q ² 1000–10000
10 × 130	✓	✓	✓	✓
10 × 250	✓	✓	✓	✓

Version-controlled `pythia6-eic/1.2.0` (ep_noradcor) — 10 datasets · run in 26.07.0

Beam exp (GeV)	q ² 0–1	q ² 1–10	q ² 10–100	q ² 100–1000	q ² 1000–100000
10 × 100 (p1)	✓	✓	✓	✓	✓
18 × 275 (p2)	✓	✓	✓	✓	✓

New pythia6 samples — run in 26.07.0

Beam exp (GeV)	q ² 0–1	q ² 1–10	q ² 10–100	q ² 100–1000	q ² 1000–100000
9 × 130	✓	✓	✓	✓	✓
9 × 275	✓	✓	✓	✓	✓

Version-controlled `pythia6-eic/1.0.0` — 3 datasets, p3 · run in 26.07.0

Beam exp (GeV)	q ² 0–1
10 × 100	✓
10 × 275	✓
18 × 275	✓

26.07.0 switch: retire 10×130 / 10×250, run new **9×130** and **9×275**. Adds low-Q² **0–1** bin and extends top to **100 000**.

✓ = input dataset onboarded and ready to run. Contacts: rseidl@ribf.riken.jp, s.maple@bham.ac.uk (pythia6.428); rseidl@ribf.riken.jp, bpage@bnl.gov (pythia6-eic).

Jets and Heavy Flavour

D⁰ (D0_ABCONV) — HFsim-PYTHIA (ep)

pythia8.306 (hiDiv, BG) — run in 26.07.0

Beam exp (GeV)	Q ² min=1	Q ² min=100
5 × 41	✓ 1–10000	—
10 × 100	✓	✓
18 × 275	✓	—

pythia8.312-2.0 — run in 26.07.0

Beam exp (GeV)	Q ² min=1	Q ² min=100
5 × 41	✓	—
9 × 130 (new)	✓	—
9 × 275 (new)	✓	—
10 × 100	✓	✓

Nuclear channels — HFsim-BeAGLE 1.03.01-2.0 (eAu)

D⁰ eAu

Beam e×A (GeV)	q ² 1–10000
5 × 41	✓
10 × 100	✓

Λ_c eAu

Beam e×A (GeV)	q ² 1–10000
10 × 100	✓

Λ_c ep (HFsim-PYTHIA)

Beam exp (GeV)	Q ² min=1
10 × 100 (p8.306)	✓
9 × 275 (p8.312-2.0, new)	✓

Ds & Dijet

Ds (PYTHIA 8.316) — new request, run in 26.07.0

Beam exp (GeV)	Q ² min=1
9 × 275	✓

Dijet (pythia6.428-dijet-v1.0, PGF/noRC)

Beam exp (GeV)	q ² 1–20000
18 × 275	✓

26.07.0 switch: D⁰/Λ_c 10×130 & 10×250 replaced by **9×130 / 9×275**. New **Ds 9×275** (PYTHIA 8.316).

✓ = input dataset onboarded and ready to run. Contact: marr@bnl.gov.

BeAGLE samples

DIS (inclusive)

eAu — BeAGLE1.03.02-2.0

Beam e×A (GeV)	q ² 1–10	q ² 10–100
5 × 41	✓	✓
10 × 100	✓	✓
9 × 100 (new)	✓	✓

eHe3 DIS

BeAGLE1.03.02-1.2

Beam e×A (GeV)	q ² 2–10	q ² 10–100	q ² 100–10000
5 × 41	✓	✓	✓
10 × 110	✓	✓	✓
18 × 110	✓	✓	✓

eH2 DIS (EDT)

Generator	Channel	Beam exp (GeV)	q ² range
BeAGLE1.03.02-1.0	eH2	10 × 130	—
BeAGLE1.03.02-1.3	eH2 (en)	10 × 130 → 9 × 130 (new)	1–1000
BeAGLE1.03.02-1.3	eH2 (ep)	10 × 130 → 9 × 130 (new)	1–1000

Exclusive / Diffractive

Channel	Generator	Target	Beam	q ²	Status
Diffractive φ (incoherent)	BeAGLE1.03.02-1.1	eAu	10 × 100	1–10000	✓
Diffractive φ (incoherent)	BeAGLE1.03.02-1.1	eAu	18 × 110	—	new
Diffractive φ (incoherent)	BeAGLE	eAu	9 × 100	—	new
Diffractive p (incoherent)	BeAGLE	eAu	10 × 100	—	new

eCu, eRu, eAg — BeAGLE1.03.02-1.0

Target	Beam e×A (GeV)	q ² range
eCu (en/ep)	10 × 115	1–1000
eRu (en/ep)	10 × 115	1–1000
eAg (new)	9 × 115	—

BeAGLE1.03.02-2.1 & new

Beam e×A (GeV)	q ² 2–10	q ² 10–100	q ² 100–10000
10 × 166	✓	✓	✓
9 × 166 (new)	✓	✓	✓

26.07.0 additions: eAu 9×100, eAg 9×115, eHe3 9×166, diffractive φ 9×100 & 18×110, diffractive p 10×100. eH2 10×130 → 9×130 switch.

Contacts: marr@bnl.gov (eAu DIS); arjun.kumar.2@stonybrook.edu (eCu, eRu, eAg); Win.Lin@stonybrook.edu (eHe3); jvanek@bnl.gov (eH2); mkesler1@kent.edu (diffractive VM).

Sartre samples (exclusive VM)

Coherent diffractive φ (bsat)

Generator	Target	Beam	Status
Sartre1.39-1.0	eAu	10 × 100	✓

New requests (May 2026+)

Channel	Generator	Target	Beam
Inclusive diffraction	Sartre	eAg	9 × 115

Contacts: mkesler1@kent.edu (φ , ρ eAu); arjun.kumar.2@stonybrook.edu (eAg inclusive diffraction); Kong (tutorial).

Coherent diffractive ρ (bsat)

Generator	Target	Beam	q^2	Status
Sartre1.39-1.1	eAu	10 × 100	1–20	✓
Sartre1.39-1.4	eAu	9 × 100	—	new

Exclusive Processes (EDT)

DVCS — EpiC v1.1.6-1.2 (q^2 1–100)

Beam exp (GeV)	Status
5 × 41	✓
10 × 100	✓
10 × 130	✓
10 × 250	✓
18 × 275	✓

DEMP — DEMPgen 1.2.4 (π^+)

Beam exp (GeV)	q^2 3–10	q^2 10–20	q^2 20–35
10 × 130	✓	✓	✓
10 × 250	✓	✓	✓

J/Psi lAger 3.6.1-1.0

Channel	Beam
Diffraction J/Psi → ee (hiAcc)	5×41, 5×100, 10×100, 10×130, 18×275
DVMP J/Psi → $\mu\mu$ (q^2 1–50)	10×130, 10×250, 18×275
J/Psi → $\mu\mu$ (new)	9×130, 9×275, 18×275
Photoproduction J/Psi (eSTARlight1.3.0-1.0)	18×275 (e/ μ decay)

Meson SF — eicMesonSFGGen 1.0.0

Beam exp (GeV)	Status
5 × 41	✓
10 × 100	✓
10 × 130	✓
18 × 275	✓

New requests (May 2026+)

Channel	Generator	Notes	Contact
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DDVCS — EpiC 1.1.6 (q^2 0–10, e/ μ decay, $h^\pm$)

Generator	Beam	Decay channels
EpiC1.1.6-1.0	18 × 275	$e^\pm, \mu^\pm$ (4 files)
EpiC1.1.6-1.1	10 × 130	$e^\pm$ (early science)

DVMP unpolarised — EpiC 1.1.6 (q^2 1–1000)

Generator	Beam
EpiC1.1.6-1.0	10 × 130
EpiC1.1.6-1.1	5 × 41
EpiC1.1.6-1.1	18 × 275

Upsilon (eSTARlight) — 18×275, 10×100

State	Mode	Beam
Y(1S) threshold	hiAcc / hiDiv	10×100, 18×275
Y(1S,2S,3S) photo	hiAcc / hiDiv	18×275

Inclusive Diffractive DIS — RAPGAP 3.310-1.0

Beam exp (GeV)	Status
10 × 100 (noRad)	✓
9 × 130, 9 × 275 (new)	Early Science

Legacy Inclusive DIS: DJANGO

DJANGO 4.6.21-1.0 — NC DIS ep 18×275, priority p-1 (deprioritized)

Mode	q ² 1–10	q ² 10–100	q ² 100–1000	q ² 1000–10000
noRad	✓	✓	✓	✓
Rad	✓	✓	✓	✓

All rows p-1 — kept for reference / comparison studies. Not part of 26.07.0 production.

Contact: s.maple@bham.ac.uk.

Background Samples (tracking DSC)

BEAMGAS electron — EIC_ESR_Xsuite dataprod_rel_1.0.1

Process	Beam exp (GeV)
brems, coulomb, touschek	5×100, 10×275, 18×275

10 000 Ahr · MachineRuntime 50s per sample.

BEAMGAS proton — pythia8.306-1.0

Beam (proton)
100 GeV
275 GeV

BEAMGAS electron — GETaLM

Generator	Beam
GETaLM 1.0.0-1.0	10 GeV
GETaLM 1.0.0-1.1	18 GeV

Synchrotron radiation (SYNRAD dataprod_rel_1.0.0)

Beam exp (GeV)
10 × 275
18 × 275

Single-Particle Samples (tracking DSC)

253 samples · all p1 · used for detector performance / tracking / PID studies.

Particle	Momentum bins	η /angle ranges
e^-	100 MeV, 200 MeV, 500 MeV, 1, 2, 5, 10, 20 GeV	3–50°, 45–135°, 130–177°, etaScan
e^+	100 MeV → 20 GeV (8 bins)	3–50°, 45–135°, 130–177°
μ^-	10 GeV	etaScan
γ	100 MeV → 60 GeV (10 bins)	3–50°, 45–135°, 130–177°, etaScan
π^+, π^-, π^0	100 MeV → 60 GeV (up to 10 bins)	3–50°, 45–135°, 130–177°
K^+, K^-	100 MeV → 20 GeV (8 bins)	3–50°, 45–135°, 130–177°
p, n	100 MeV → 20 GeV (8 bins)	3–50°, 45–135°, 130–177°

BSM: Sterile-Neutrino Search

Channel	Generator	Contacts
Sterile-neutrino search	pythia8	Ming Liu, Yasser Corrales