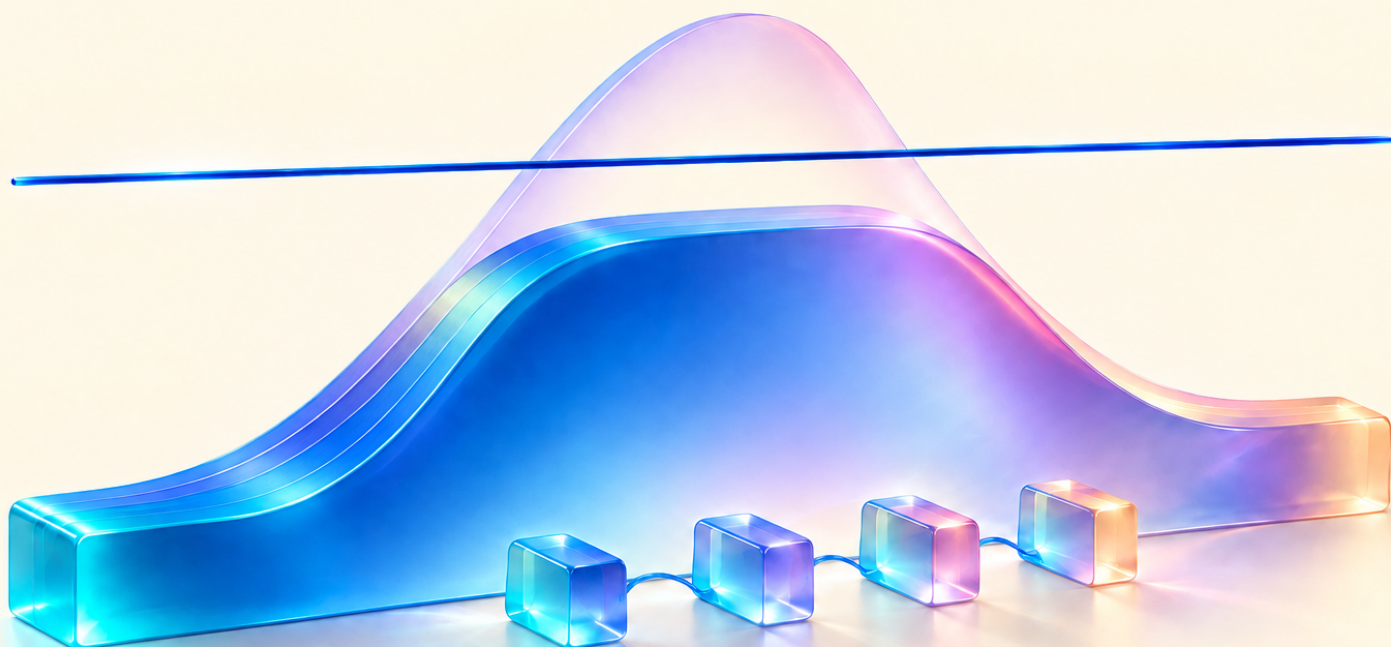


Distributed Capacity

Local battery relief for earlier data-centre operation



THE COMPLETE PROPOSITION

The proposal at a glance.

Distributed Capacity is a proposed, customer-funded service that uses batteries at electrically relevant commercial and industrial sites to reduce loading on a shared network constraint.

01	The problem	A data centre can have a capacity allocation and still be unable to use it because the local network cannot carry the extra power. Permanent upgrades can take years.
02	The service	Blue Whale coordinates a battery fleet to make room on the shared network during agreed hours. The batteries supply their host businesses, while the data centre draws power from the grid.
03	Who pays	The data centre pays for the service. Its commitment helps finance the battery fleet, and host sites receive an agreed financial benefit.
04	Network protection	Network authorities decide how much extra power the data centre can draw, and on what terms. Independent controls at the data centre reduce its grid draw when delivered relief falls short.
05	Pilot progress	AI data-centre customers have signed agreements and funded the pilot. Construction is underway. Pilot operations begin in Q1 2027.

The aim: energise data centres sooner while permanent network upgrades are built.

READING THE PAPER

A local constraint. A coordinated response.

01	The constraint: getting power to the data centre	04
02	The solution: make room on the shared network	08
03	How Distributed Capacity works	14
04	Keeping the network safe	21
05	Who pays and what Singapore gains	24
	References	31
	Annex A	A-1
	Why battery location matters	

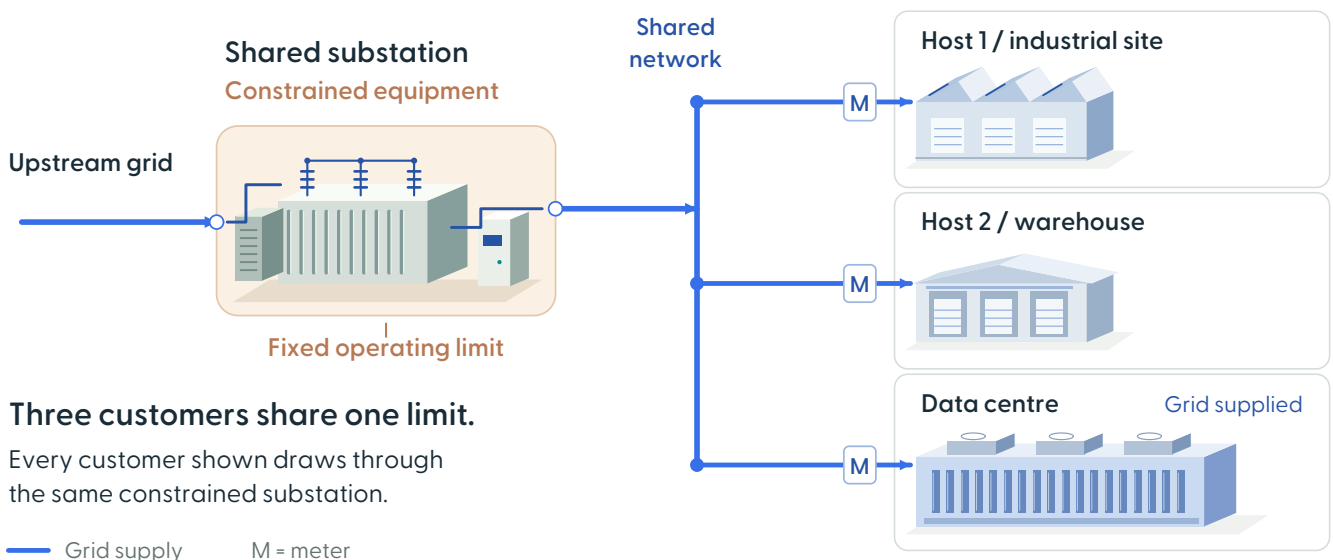
SECTION 01

The constraint: getting power to the data centre

Data-centre customers in Singapore have been awarded capacity but cannot yet energise their full allocation because of upstream network constraints.

Tens of megawatts across more than one operator are waiting for network upgrades.

The question is whether the network can carry more power to the data centre, at the times it needs it, while staying within safe operating limits.



Illustrative network. The shared substation is the constraint in this example.

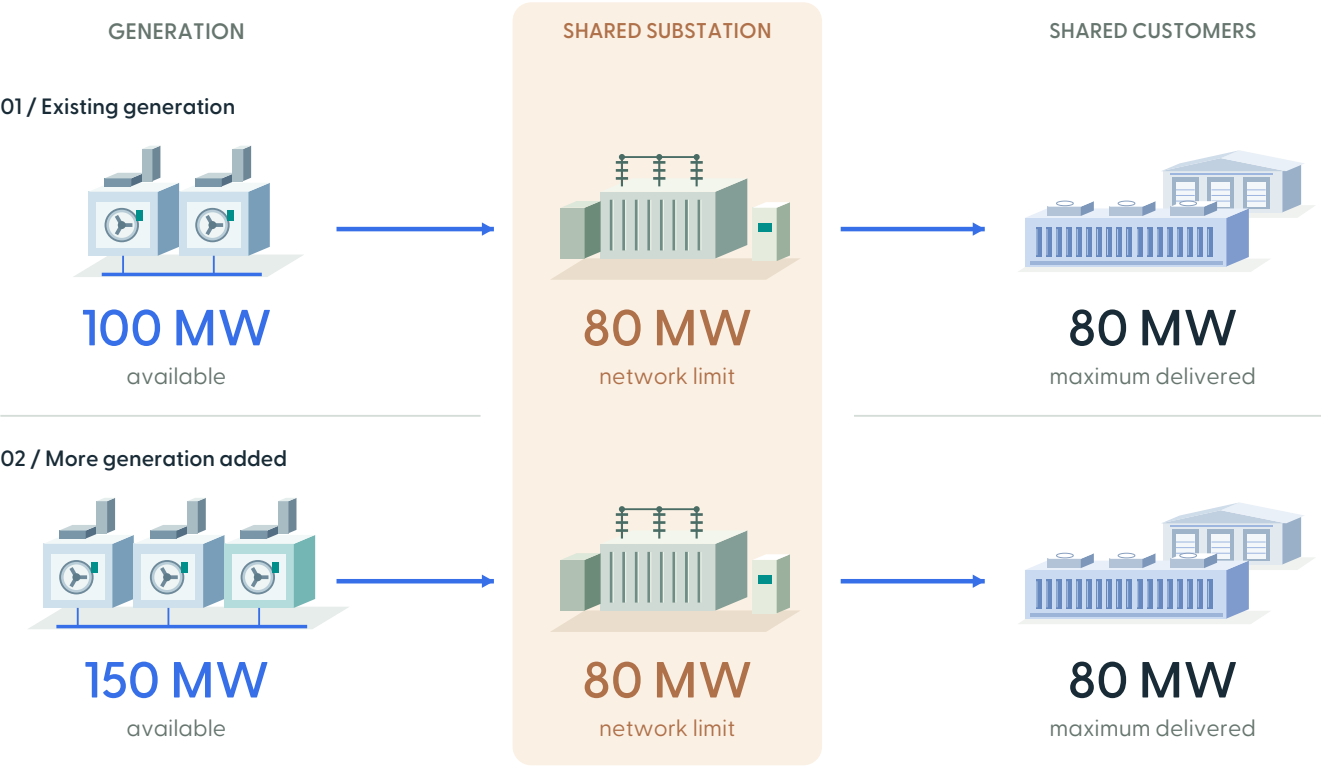
1.1 The bottleneck is in delivery

In a shared network, the equipment supplying a data centre also serves factories, warehouses, offices and other customers.

More power for the data centre has to pass through the same equipment. Once that equipment reaches its limit, extra generation elsewhere cannot solve this local bottleneck on its own.

WHY MORE GENERATION ISN'T ENOUGH

More supply. The same delivery limit.



Illustrative values at peak demand. More generation leaves the shared substation’s delivery limit unchanged.

POWER & ENERGY

MW Power supplied or used at any moment.

1 MW supplied for 1 hour = 1 MWh

MWh Energy supplied or used over a period.

The bottleneck is how much power the shared equipment can carry during its busiest hours.

We use an upstream substation as the working example. SP Group’s network assessment must identify the actual bottleneck, its operating limits and the customer connections it affects.

1.2 A few busy hours can hold up a connection

Shared equipment can have spare capacity for much of the day and still be unable to serve a new data centre. The connection is held up when existing demand plus the data centre’s demand would exceed its limit.

LOADING AT THE SHARED CONSTRAINT

% of network limit · illustrative

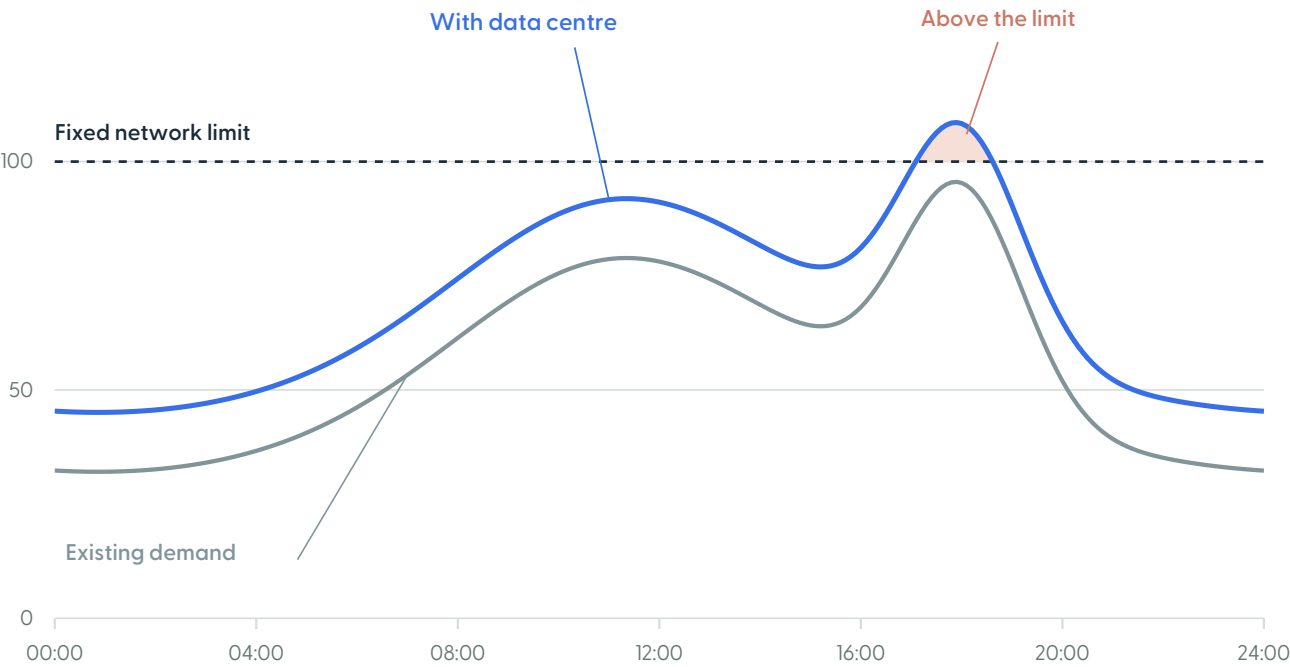


Figure 1. Without distributed relief. Stylised profiles; not measured network data.

In Figure 1, existing demand stays below the network limit. Adding the data centre raises loading throughout the day, but takes it above the limit only around the peak.

1.3 Network upgrades take time

Permanent upgrades are the long-term solution. More transformer capacity and new cable circuits allow the network to carry more power. Installing them involves major construction work and can take years.



Street-level excavation

Photo: SP Group



Work below ground

SPH Media Limited / SP Group

We propose using batteries to help data centres start operating while those upgrades are built.

OPERATIONS BROUGHT FORWARD



Schematic, not to scale. Timing depends on readiness, network approval and operating conditions.

We coordinate batteries as a virtual power plant (VPP). The data centre can draw extra power only within approved limits and while the required relief is available. Controls at its connection reduce its grid draw when that relief falls short.

SECTION 02

The solution: make room on the shared network

Batteries at other businesses can make room for the data centre.

We propose installing battery energy storage systems (BESS) at commercial and industrial (C&I) sites that draw power through the same constrained equipment as the data centre.



IKEA Tampines

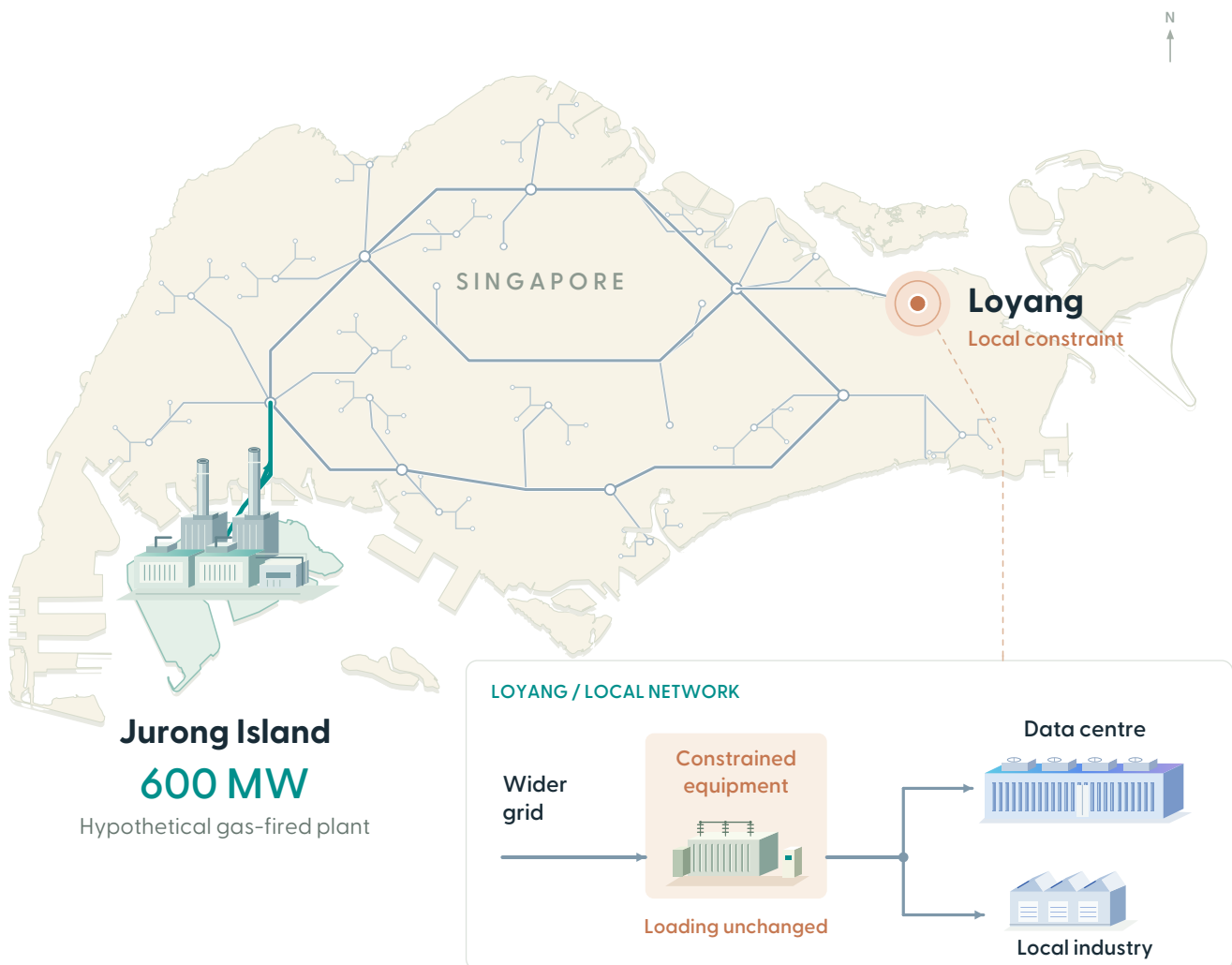
OPERATING DISTRIBUTED SITE

Batteries installed at this commercial host site and operated by Blue Whale Energy.

During busy hours, the batteries supply part of each host site's demand, reducing how much power it draws from the grid.

2.1 The battery must relieve the right equipment

A hypothetical 600 MW gas-fired power plant on Jurong Island supplies the wider grid. Loyang's demand still passes through the same constrained equipment, so the local bottleneck remains.



Hypothetical plant. Illustrative electrical paths and local constraint.

A battery helps only where it reduces loading on the constrained equipment.

Map: Singapore Land Authority.

2.2

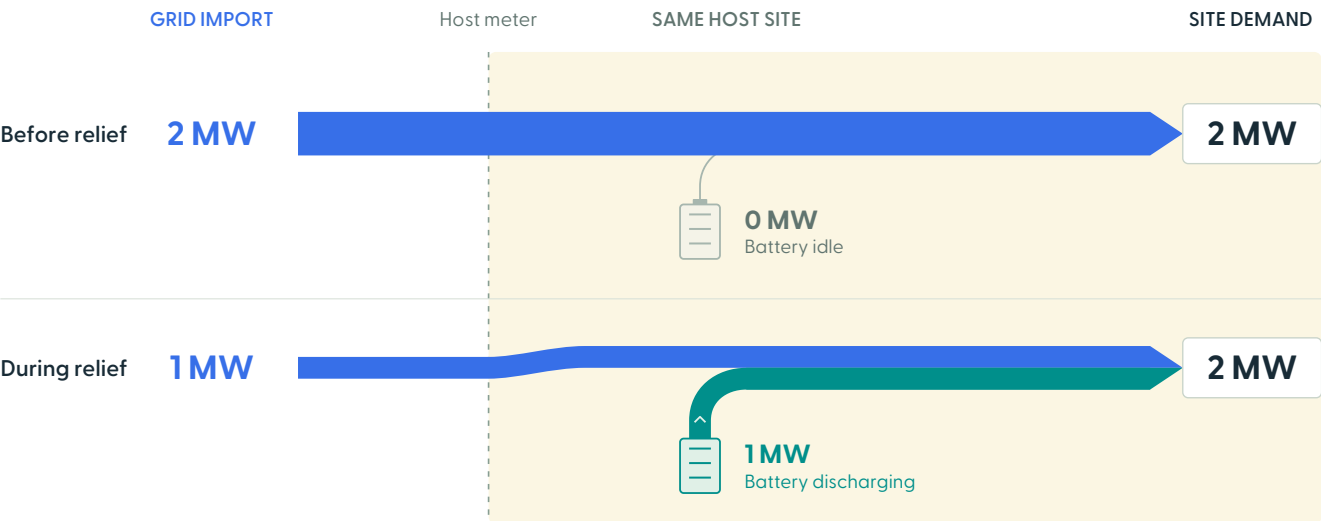
The host keeps running and draws less from the grid

Each battery connects behind the host’s meter and supplies the site’s internal electrical system.

The battery replaces part of the electricity the host would otherwise draw from the grid. The factory keeps producing, the warehouse keeps operating and people keep working in the office.

The business uses the same amount of electricity.
It just draws less from the grid.

Same demand. Less grid import. ILLUSTRATIVE EXAMPLE



Ribbon widths are proportional to power.

The host doesn’t need to export electricity or run a cable to the data centre.

The benefit appears upstream: with hosts drawing less from the grid, the shared equipment carries less power. That makes room for the data centre, which continues to draw its electricity from the grid.

2.3

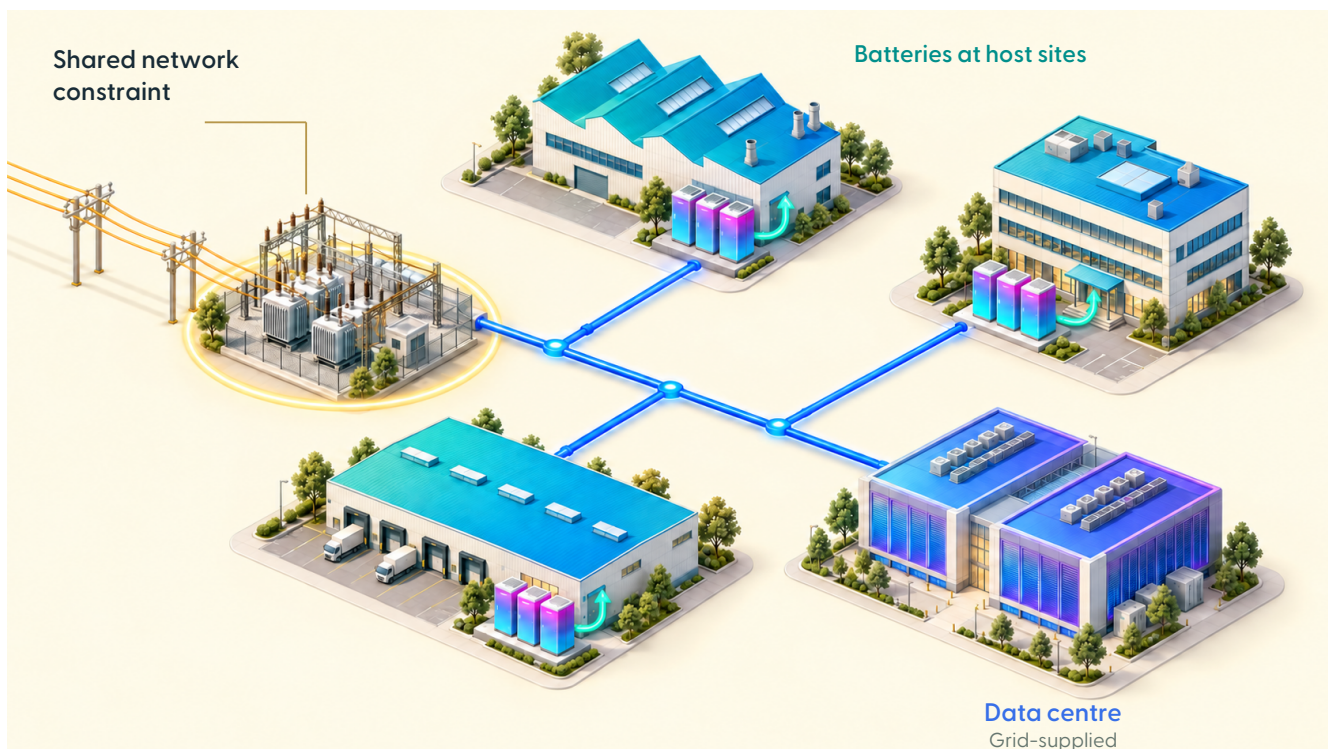
We run separate batteries as one fleet

One host may provide only part of the required relief. Our VPP software coordinates batteries across sites that relieve the same constraint, so we can manage their output together.

Host demand changes. Batteries differ in available power and remaining energy. We adjust each battery within its limits to keep the fleet delivering the required relief.

ONE FLEET. ONE SHARED NETWORK CONSTRAINT.

Worked example: Annex A



Batteries at host sites reduce demand on the shared equipment. Illustrative network; see Annex A for a worked example.

PROCUREMENT PRECEDENT / CON EDISON BQDM

Batteries to bridge the wait for reinforcement

Con Edison sought batteries serving host demand to relieve 138 kV feeders until a new substation opened.

15 MW

relief sought in the 2024 offering

4+ hours

consecutive delivery required

These were procurement requirements. Projects could not combine their capacity to meet the required rating, unlike our proposed fleet model.

[5] Con Edison, 2024 Participant Guide, pp. 4, 7.

2.4

Move grid demand out of the busiest hours

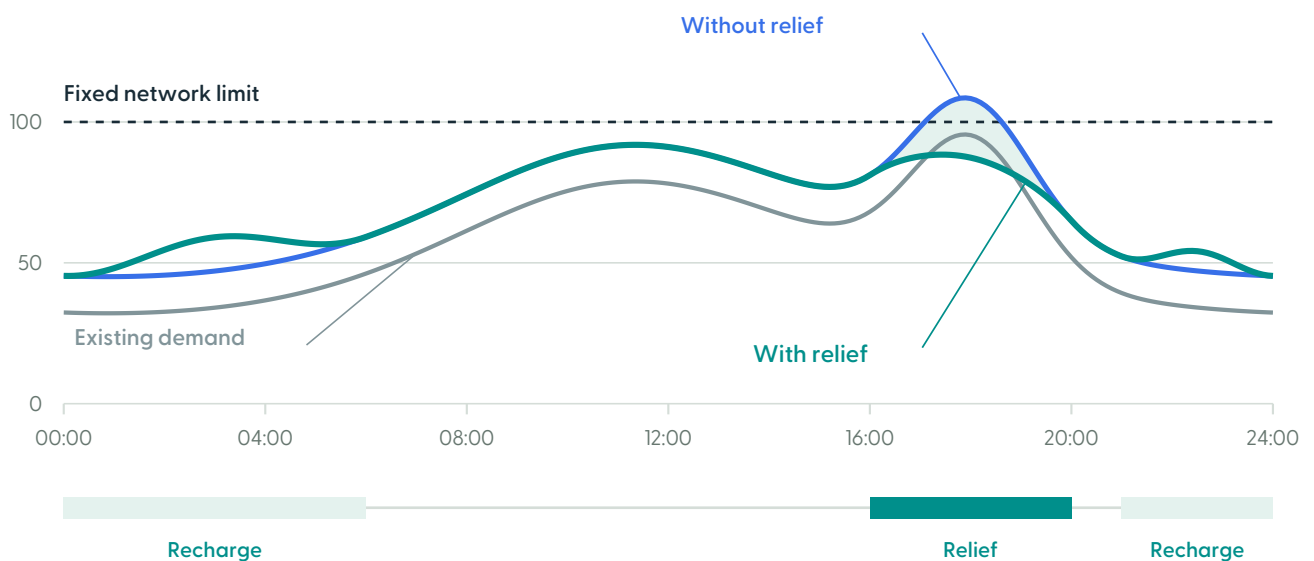
Figure 2 shows an illustrative day with an afternoon and evening peak.

During the peak, the batteries supply part of their hosts' demand. The hosts draw less from the grid, reducing loading on the shared equipment.

The data centre can draw its permitted demand throughout the peak while the fleet delivers the required relief. The batteries recharge when the network has room, within approved limits.

LOADING AT THE SHARED CONSTRAINT

% of network limit · illustrative



Recharge stays within available network capacity and approved limits.

Figure 2. Batteries shift grid demand out of the constrained hours. Illustrative profiles; charging stays within network limits.

This is the basis of Distributed Capacity: batteries reduce grid demand at the right sites, making room for the data centre on the shared network.

OPERATING EVIDENCE / UKPN LEIGHTON BUZZARD

One battery responding to local peaks

UKPN reports more than 150 exports during high demand from its Leighton Buzzard storage site.

6 MW / 10 MWh

installed storage

>150

high-demand exports reported

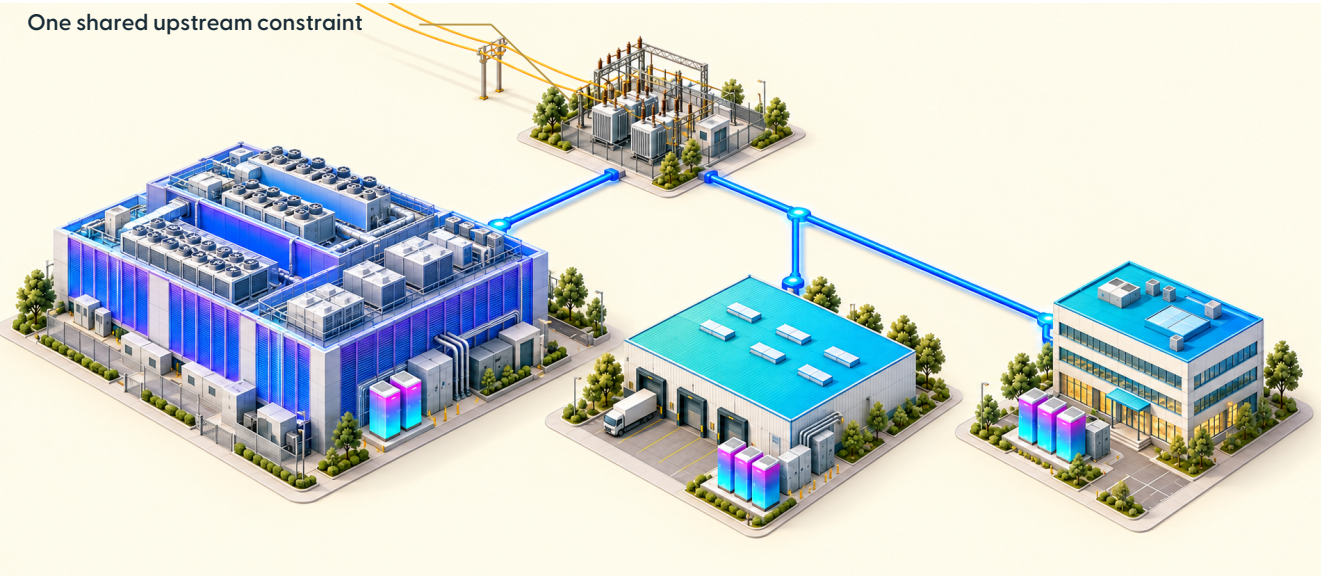
This is evidence from one site. It does not prove four-hour delivery at 6 MW or the reliability of a distributed fleet.

[6] UKPN, *Smarter Network Storage project record*.

2.5 Why distribute the batteries?

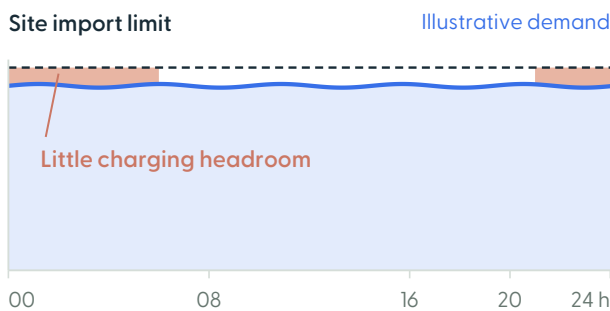
Host sites can offer space and recharge capacity that the data centre lacks. A distributed fleet makes sense if it can deliver the required relief and recharge on better terms than other options.

Space to install. Room to recharge.



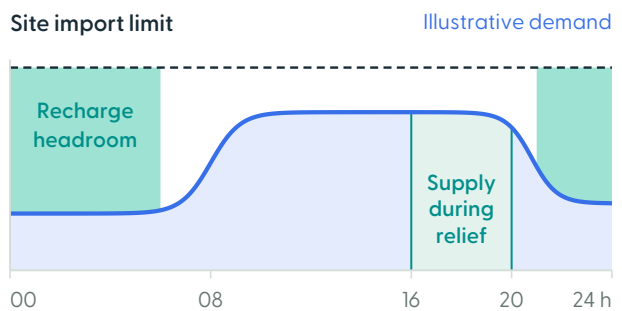
At the data centre

Limited room to install and recharge.



At suitable host sites

Combine space and recharge headroom.



Charging must stay within site and shared-network limits.

Illustrative profiles, each shown against its own site limit. Recharging must replace the energy used and cover losses.

CHECK THE ALTERNATIVES

On-site battery

Fits and recharges?

One larger site

One suitable site sufficient?

Customer flexibility

Curtailment or fallback acceptable?

Reinforcement

Available soon enough?

SECTION 03

How Distributed Capacity works

Turning a fleet of batteries into a service the network can rely on

Installing batteries is only the start. To be useful to the network, the fleet has to work as a service. It delivers a set amount of relief, at set times, in a way the network operator can check and control.

Standing locational relief: batteries at approved sites reduce loading on specific network equipment by an agreed amount during agreed hours.

This is the operating model we propose to develop with SP Group and EMA's Power System Operator (PSO). The service requires approval of its operating limits, interfaces and safeguards.

THE OPERATING COMMITMENT

01

The right place

Sites that relieve the constrained equipment

02

The right time

Stored energy ready for each service window

03

A measured result

Delivery checked against network measurements

3.1

The batteries run every weekday by default

We propose starting with a fixed schedule. The fleet delivers relief every weekday from 16:00 to 20:00, unless the network operator changes or cancels it.

PROPOSED WEEKDAY SERVICE



16:00–20:00 delivery; recharge stays within agreed limits.
Timing outside the relief window is illustrative.

The batteries don’t wait for a price spike or a call each afternoon. We hold back the energy they need, get the fleet ready and deliver as a matter of routine.

The 16:00–20:00 window is a starting point. The actual constraint hours may differ; SP’s network data will determine the right window.

Why a fixed schedule rather than on-call?

When the constraint is predictable, a fixed schedule is simpler to run. The network operator supervises and steps in when needed, without having to trigger every discharge.

It also builds a track record. Every service day shows whether the fleet delivered the required relief, held it for four hours and recharged in time for the next obligation.

The cost is that the batteries hold energy back and cycle even on days when less relief is needed. Con Edison’s Brooklyn–Queens programme instead calls on batteries for summer events, with at least 21 hours’ notice.[5]

As we collect more network and operating data, we can assess a more targeted schedule.

3.2

What counts is relief at the constraint

We measure the commitment as a reduction in load on the constrained equipment.

A battery’s contribution depends on how much it reduces loading on the constrained equipment. Network changes can affect that contribution.

1 MW × 4 hours = 4 MWh

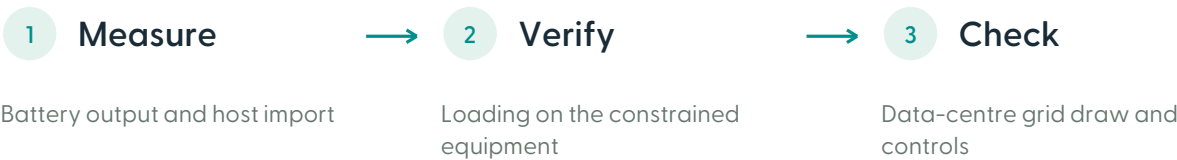
Usable AC energy at the battery terminals

Duration matters as much as power. Delivering 1MW for four hours needs 4 MWh of usable AC energy at the battery terminals. Installed capacity must also cover losses, reserves and ageing.

So 10 MW of installed batteries does not mean 10 MW of dependable relief. And 10 MW of relief does not automatically let the data centre draw 10 MW more. These need separate assessments.

Installed MW ≠ Dependable relief ≠ Additional grid draw

CHECK WHAT THE BATTERIES ACTUALLY DELIVER



Use the measurement and verification method agreed with the network operator.

3.3 A normal service day

Prepare the fleet. Hold relief on target. Be ready to do it again.

1 BEFORE THE WINDOW

Ready to deliver

- Enough stored energy and output
- Enough host demand to offset
- Equipment, communications, meters and connection safeguards working



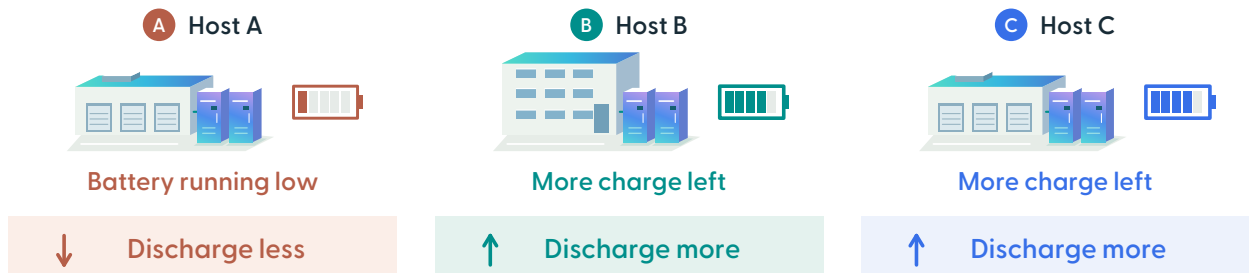
Expected shortfall?

Add approved batteries, or have the data centre signal a reduction and lower its grid draw before the window.

2 DURING / PROPOSED 16:00–20:00

Keep fleet relief on target

Host demand changes, a battery goes offline, or some batteries have less charge left. We adjust each battery's output within its limits to keep fleet relief on target.



Relief before adjustment



Relief after adjustment



Same total relief

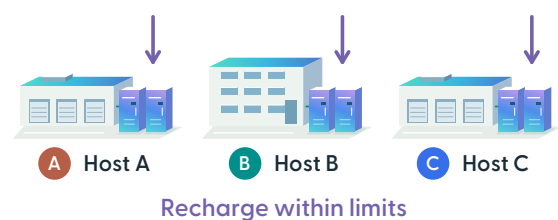
at the constraint

Illustrative charge levels and contributions. Other eligible sites need enough spare capability.

3 AFTER THE WINDOW

Ready for the next day

Reduce discharge, then recharge under the approved plan, within each host's limits and spare network capacity. Be ready for the next obligation.



MEASURE & VERIFY THROUGHOUT

The network operator receives measurements to confirm delivery and see network conditions using the agreed verification method.

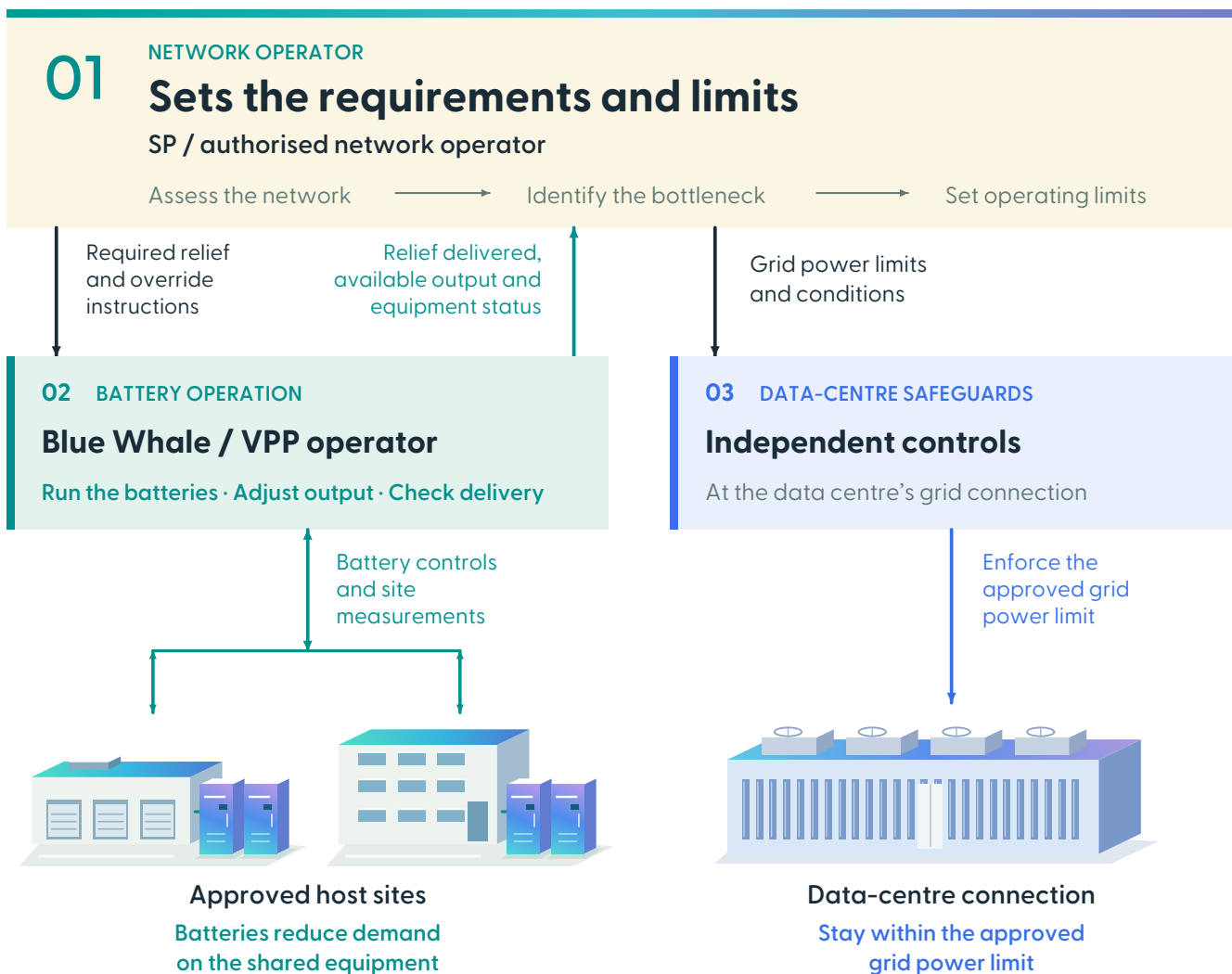
3.4

How Blue Whale works with the network operator

The network operator sets the requirements and limits. Blue Whale runs the batteries to reduce demand on the shared network. Independent controls limit how much power the data centre draws from the grid.

SP Group and the Power System Operator (PSO) retain their respective responsibilities for the network and power system. The PSO remains responsible for reliable electricity supply, stable system operation and emergency response.

Blue Whale controls battery output, keeps energy in reserve, arranges support from other approved batteries where available, maintains the equipment and reports performance.



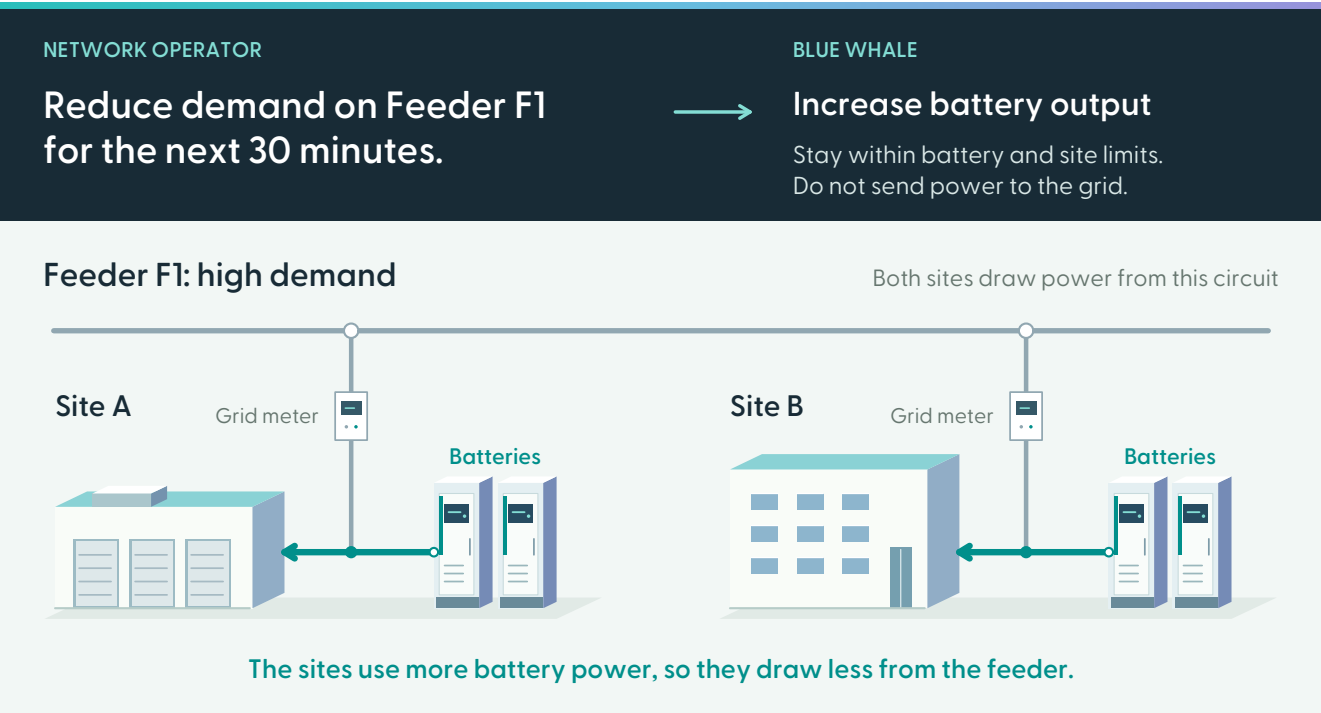
Arrows show proposed control and reporting links, not electricity flows.

3.4 / NETWORK INSTRUCTIONS IN PRACTICE

How the batteries respond to network instructions

During the agreed four-hour delivery window, the operator could ask Blue Whale for more battery power on a heavily loaded feeder (a network circuit). Any increase would stay within approved limits.

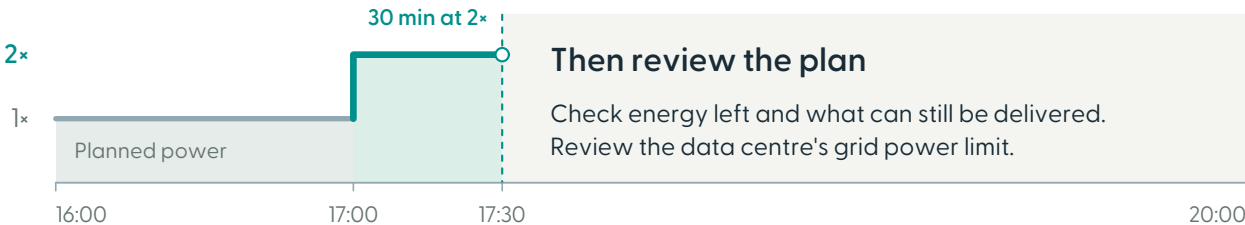
PROPOSED SERVICE / EXAMPLE RESPONSE



During the boost, Blue Whale reports power delivered, energy left and equipment condition to the operator.

Twice the planned power for 30 minutes

Each battery · example times



Supplying more power uses stored energy faster, leaving less for the rest of the four-hour window. Independent controls continue to enforce the data centre's approved limit on power drawn from the grid.

UK example: earlier connections with limits

UKPN [3]

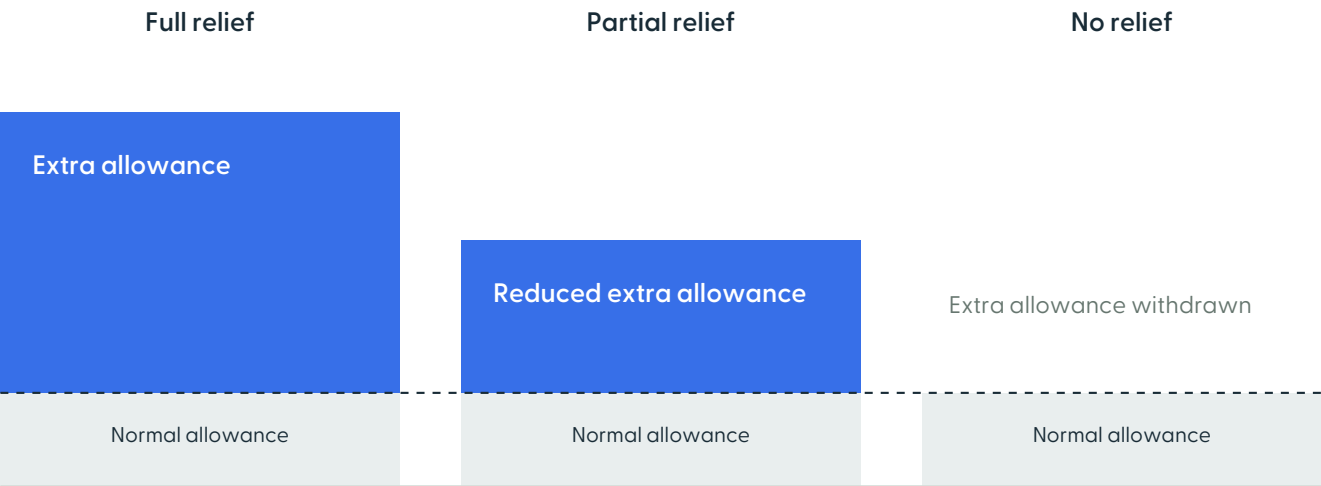
UK Power Networks lets some customers connect earlier if the power they take from the grid can be controlled. Our control links, operating rules and delivery checks still need agreement, testing and approval in Singapore.

3.5

Extra capacity while the batteries deliver

The connection has two parts: a normal allowance that the data centre can use without battery relief, and an extra amount it can use while the required relief and safeguards are in place.

With full relief, the data centre can use its full permitted grid allowance.



Schematic. The normal allowance can vary with time and network conditions. The extra allowance requires network approval.

If relief falls short, the extra allowance shrinks. If relief stops, it is withdrawn. The data centre must reduce its grid draw to the new limit within the approved response time.

The service relies on reducing grid draw when relief is lost. Section 4 explains the safeguards.

SECTION 04

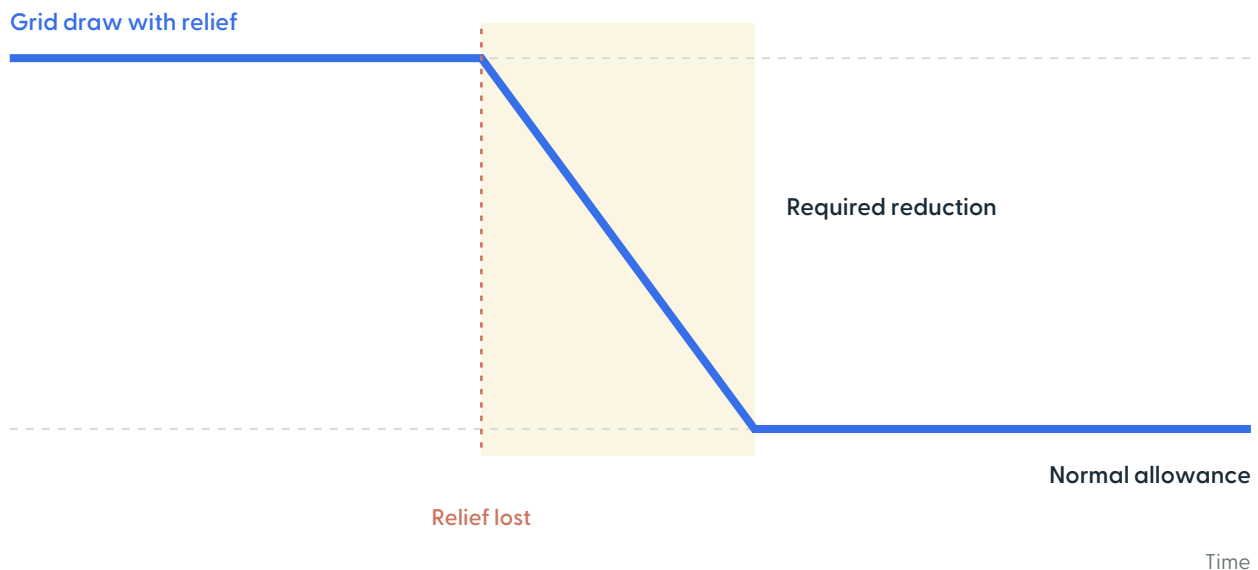
Keeping the network safe

What happens when the batteries don't deliver?

Batteries, communications links and controllers can fail. The service needs a clear response when relief falls short or can no longer be verified.

If the fleet cannot provide the required relief, the data centre must reduce its grid draw. Independent controls at its connection enforce that limit.

THE GRID-DRAW RESPONSE



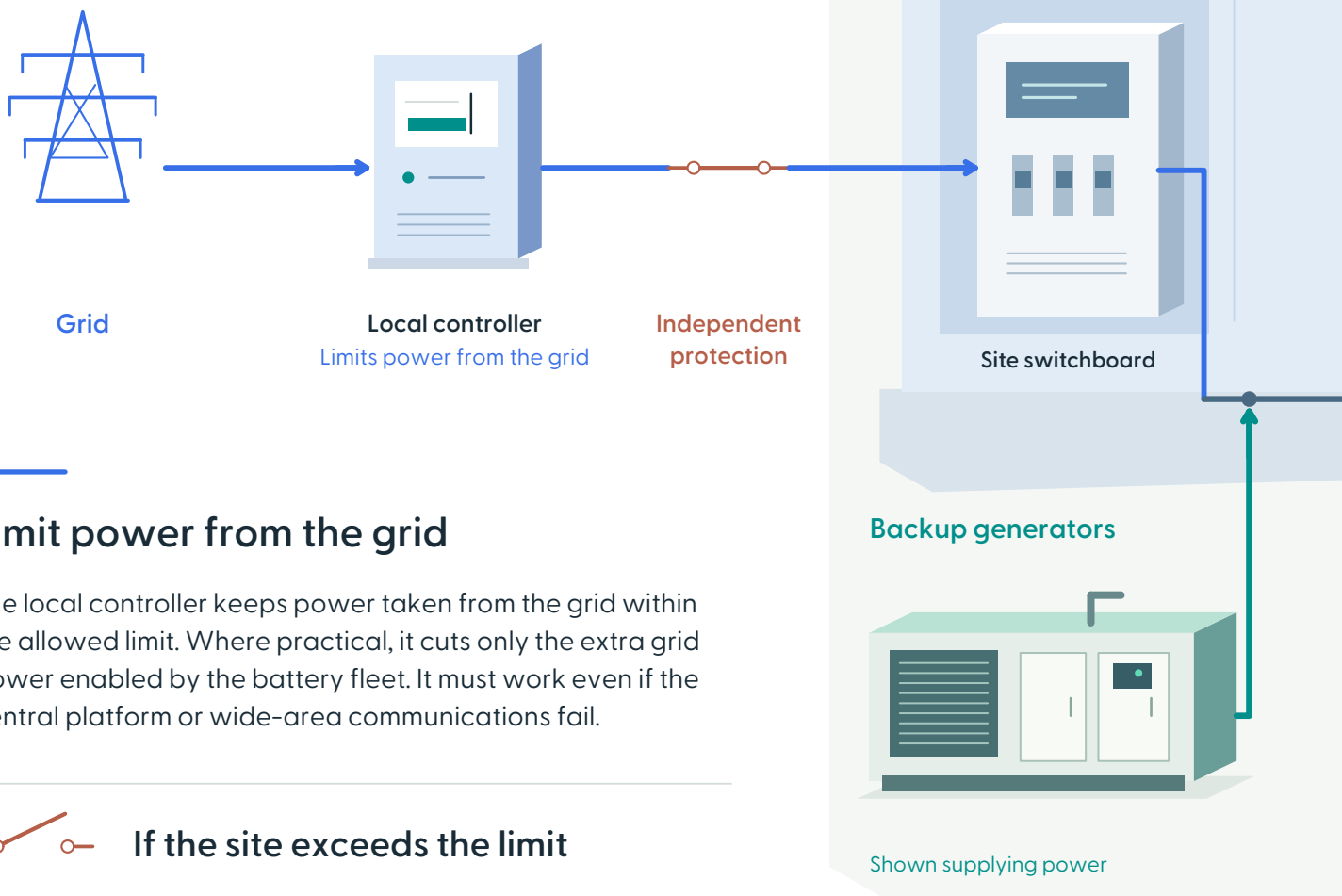
Conceptual response. The connection agreement sets the response times, tolerances and protective actions.

4.1 / A LOCAL BACKSTOP AT THE DATA CENTRE

How the data centre responds when the battery fleet falls short

If the battery fleet falls short

Other approved batteries can make up the shortfall if they have spare capacity. If a shortfall remains, or delivery cannot be verified within the agreed time, the limit on power taken from the grid is reduced.



Limit power from the grid

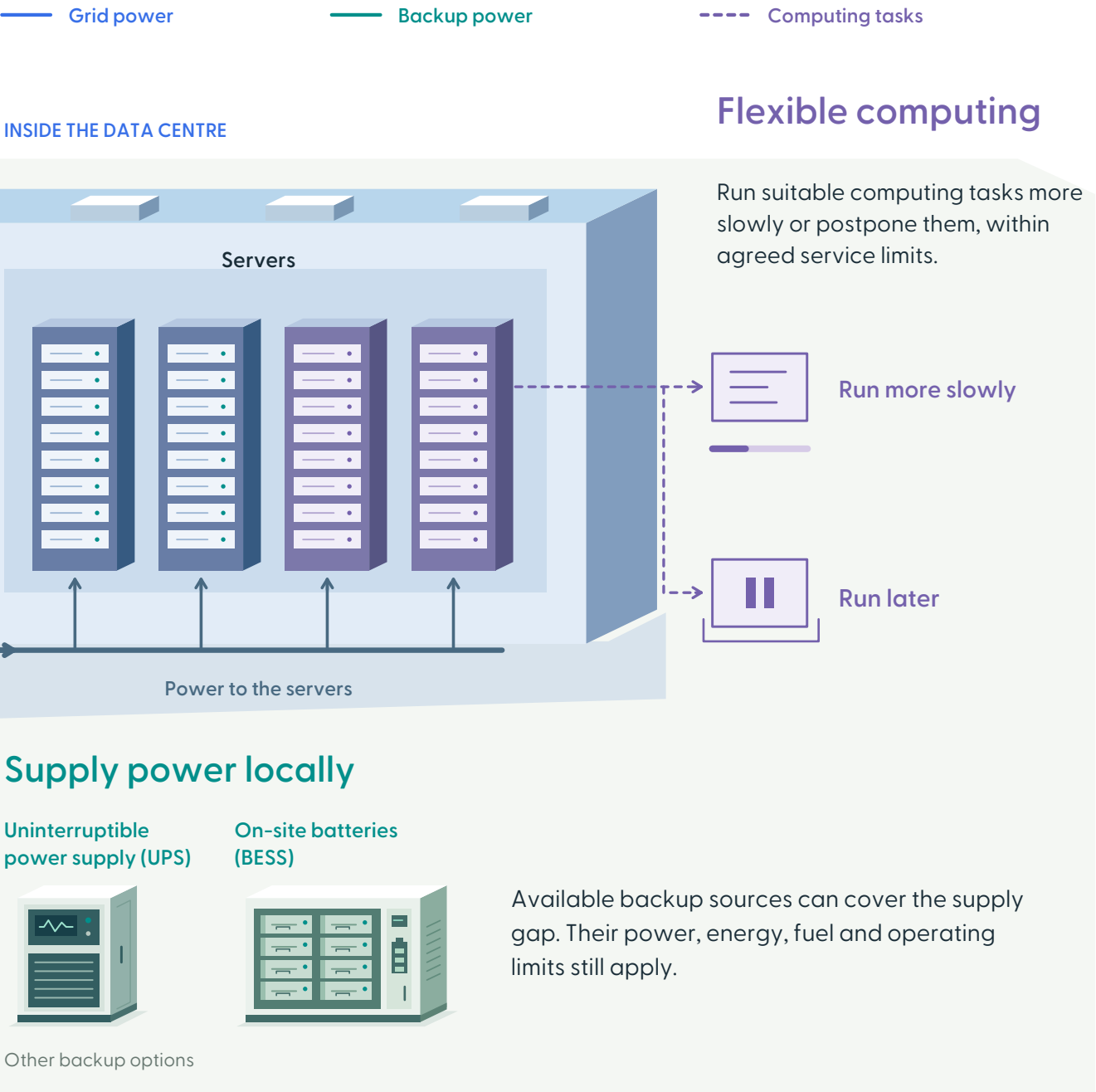
The local controller keeps power taken from the grid within the allowed limit. Where practical, it cuts only the extra grid power enabled by the battery fleet. It must work even if the central platform or wide-area communications fail.

If the site exceeds the limit

If the site does not reduce its grid draw enough, independent protection steps in. This includes disconnecting the site from the grid where specified.

Connection shown closed in the main diagram.

If the battery fleet cannot deliver the agreed reduction in network demand, the data centre must take less power from the grid. Backup equipment can supply power on site. Some computing tasks can also run more slowly or later, within agreed service limits.



SECTION 05

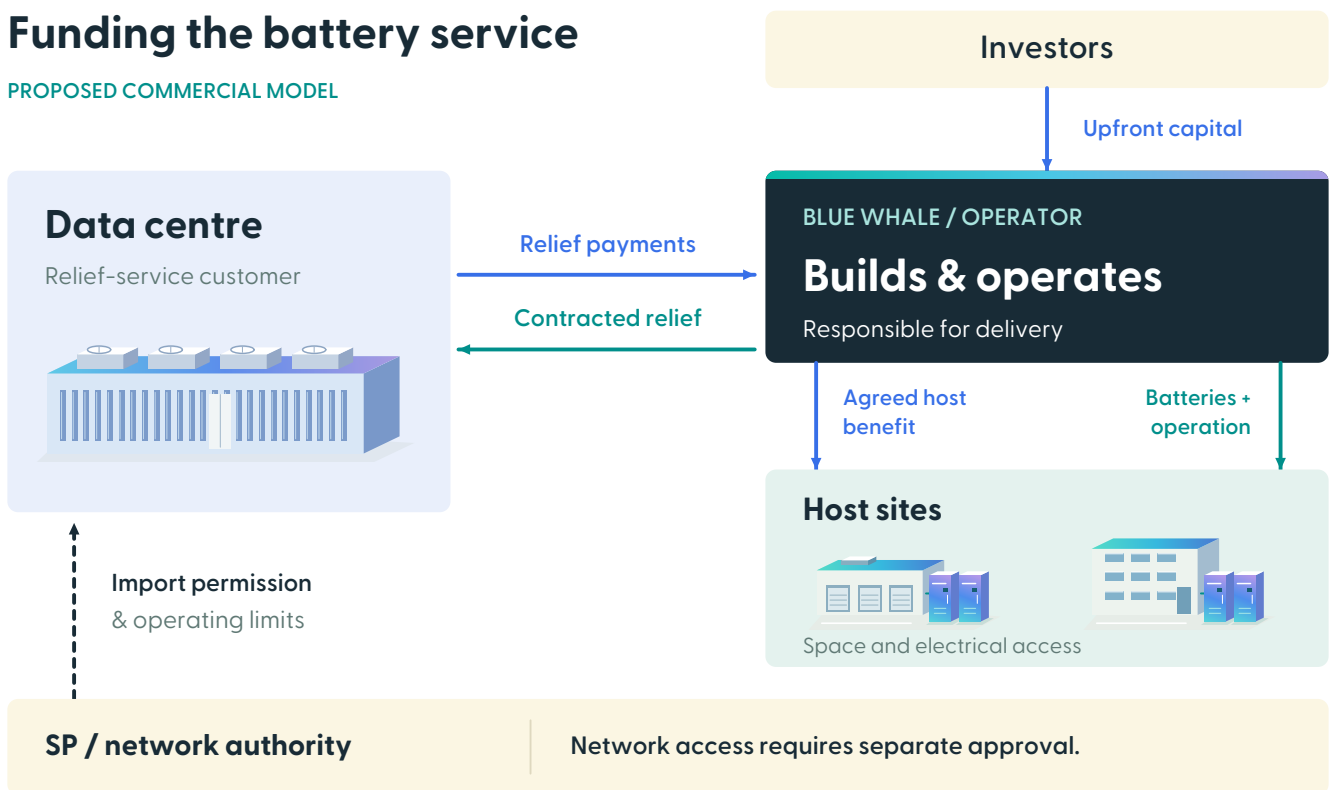
Who pays and what Singapore gains

The data centre pays for network relief so it can operate sooner. Its contract helps finance batteries at commercial and industrial sites, and those businesses receive an agreed financial benefit for hosting them.

As developer and aggregator, we build and run the battery fleet. SP and the relevant authorities retain control over network access and operating limits.

Funding the battery service

PROPOSED COMMERCIAL MODEL



Proposed roles. A qualified developer or aggregator can provide the service. Arrows show payments, services and permissions.

The data centre gets an earlier start. Its payments help fund a fleet that can serve other approved uses, subject to battery capability, network conditions and existing commitments.

5.1 / THE VALUE OF STARTING EARLIER

Bringing 20 MW online 12 months earlier

In this example, the data centre and its customers are ready. With network approval, battery relief lets it draw an extra 20 MW from the grid 12 months earlier.

When the extra capacity can start operating



ILLUSTRATIVE GROSS REVENUE

US\$63.4m

Before operating costs, payments for battery relief and other costs.

Revenue earned during those 12 months

HOW THE REVENUE IS CALCULATED

16,000 IT kW

20 MW grid ÷ PUE 1.25 = 16 MW IT

×

US\$330

per IT kW per month

×

12 months

of earlier operation

WHY THE DATA CENTRE MAY PAY

The data centre can pay for battery relief and still be better off if the value of starting earlier exceeds the service payments and all other costs.

Assumes the extra capacity is fully leased and operating throughout the 12 months. The calculation allows 16 MW for IT equipment and 4 MW for cooling and other facility needs (PUE 1.25). The 20 MW is extra grid capacity, not battery capacity.

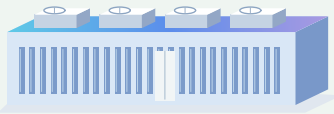
Assumed rental rate: US\$330 per IT kW per month. Source: CBRE, Global Data Center Trends 2026 (Q1 data). The benchmark is for 250-500 kW of capacity; using it for 16 MW is illustrative.

5.2 / FINANCING THE FLEET

How a data-centre contract helps finance the battery fleet

An AI data centre can be an anchor customer. Its contract sets out future payments that investors can assess against the fleet's costs and risks.

Data centre



PROPOSED FUNDING MODEL

A contract to buy network relief

The data centre pays for the service.
Blue Whale delivers the agreed relief.

WHAT INVESTORS NEED TO ASSESS

The customer's ability to pay, the contract's payments and duration, delivery costs and risks, and what happens if relief falls short.

BEFORE SERVICE BEGINS

Investment upfront

Developer and investors

- Before installation

Fund the batteries and installation

WHILE THE SERVICE OPERATES

Payments over time

Data centre



Support operating costs and investment returns



One fleet across several business sites

Blue Whale builds, operates and maintains the batteries.



Host businesses receive an agreed payment or other financial benefit.

Network approval is separate; the service contract must match its terms. Other battery services must not compromise relief. The 12-month earlier start in 5.1 does not set the contract length.

5.3 / VALUE FOR HOST BUSINESSES

How businesses benefit from hosting batteries

Businesses with suitable sites can earn income or save on electricity charges by hosting a battery. The site agreement sets out the benefits and each party's responsibilities.



The business provides

Space for the battery and agreed access to the site and electrical equipment.

Blue Whale handles

Battery installation, operation and maintenance.

During the agreed service window, the battery supplies part of the business's power needs. The business draws less power from the grid, reducing demand on the shared network.

What the business can receive

The site agreement may include:

A payment

For hosting the battery.

A share of earnings

From other battery services that do not compromise the agreed reduction in network demand.

Potential savings

On charges for contracted grid capacity and other applicable electricity charges.

5.4 / VALUE FOR THE NETWORK OPERATOR

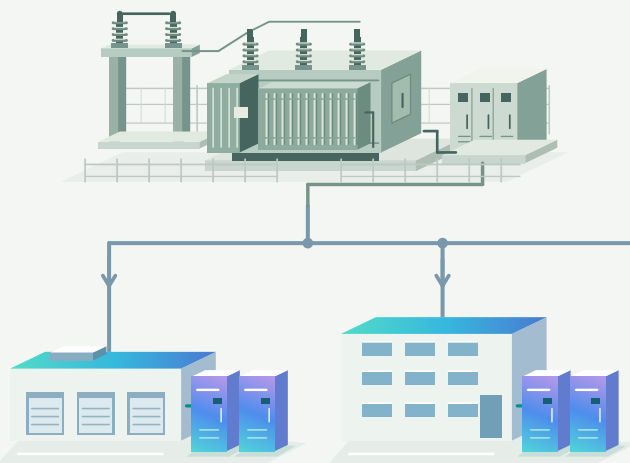
Serving new demand sooner with customer-funded batteries

Battery relief could help the network operator accommodate data-centre demand within approved limits while permanent upgrades proceed. Blue Whale builds and operates the fleet.

Less grid demand at host sites can make room for the data centre

On the same network equipment, within approved limits.

Shared network equipment

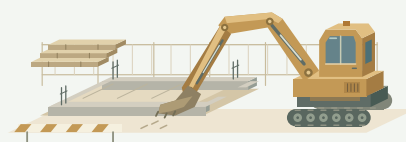


Host businesses draw less from the grid

Batteries supply part of their power during agreed hours.

Meanwhile, upgrades continue

More capacity to carry power



Data centre can start earlier

With network approval

Illustrative

A fleet the operator does not have to build or own

The data-centre contract helps the developer and investors fund the batteries.

One provider is responsible for the battery service

Blue Whale agrees terms with host businesses, installs and maintains the batteries, and delivers the agreed reduction in their grid demand.

Conditions for network approval

Network studies must confirm that the batteries reduce demand where capacity is limited. Safeguards must be agreed and tested. If the batteries fall short, the data centre must take less power from the grid as required.

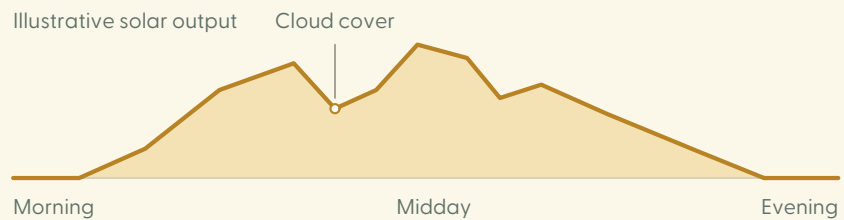
5.5 / LONGER-TERM VALUE FOR SINGAPORE

As Singapore adds solar, the need for flexibility grows

Solar output changes with daylight and cloud cover. Batteries can help by changing when businesses draw power from the grid, while still meeting their electricity needs.

3 GWp

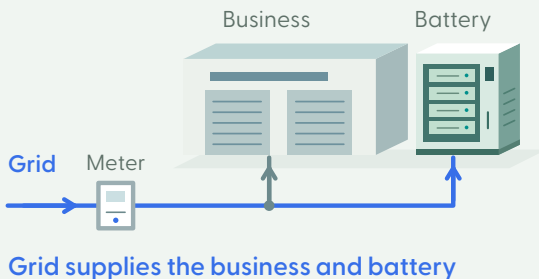
Solar capacity target by 2030



Singapore also targets ~6 GW of low-carbon electricity imports by 2035.

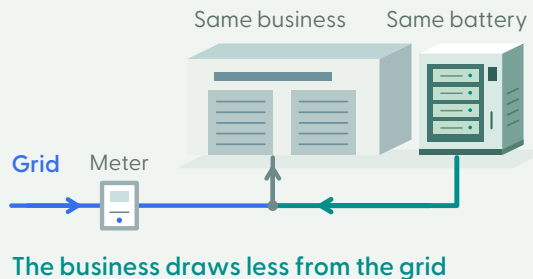
Charge from the grid

When supply and local network capacity allow



Use stored energy later

Supply part of the business's electricity needs



Discharge can be planned or requested

Eligible batteries could also provide an agreed reduction in hosts' grid draw on request through demand response, or deliver other approved system services.

Potential uses after the first bottleneck is resolved

The first customer's contract can help fund the fleet. Its batteries, delivery records and operating experience could support further approved uses.

Further uses depend on remaining battery life and capability, site and network approvals, service eligibility and existing commitments. Resolving the bottleneck does not end contracts automatically.

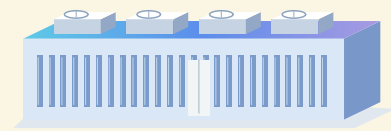
Sources: EMA [Solar](#) · [Electricity imports](#) · [Energy Storage Systems](#) · [VPP initiative](#)

CONCLUSION

Earlier data-centre operation can help fund a more flexible grid.

Starting earlier can make battery relief worth paying for. A data centre's service contract can help finance batteries at local businesses.

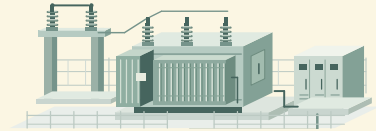
DATA CENTRE



HOST BUSINESSES



SHARED NETWORK



Earlier operation

Within approved network limits.

Payments or savings

As agreed in each business's hosting contract.

Room for new demand

Battery relief during agreed hours while upgrades proceed.

The batteries and operating experience could remain useful after the first bottleneck is resolved. Further services would depend on battery capability, approvals and existing commitments.

Funding secured. Construction underway.

All data-centre customers have signed agreements and funded the pilot. Construction has started at host sites. Blue Whale is building the software and monitoring systems to coordinate the batteries.

The pilot will measure network relief and test safeguards. Its operating record will help assess wider use.

Q1 2027

Pilot operations begin

References

Sources cited in the text and supporting background reading. Further sources are linked on the relevant pages.

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[6] Smarter Network Storage (SNS)

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[7] The Value Stack Reference Guide for Energy Storage Developers

NYSERDA. July 2020.

[8] Value Stack Credits Statement

National Grid / Niagara Mohawk Power Corporation.

[9] DSO Performance Panel Report 2025/26

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ADDITIONAL SOURCE

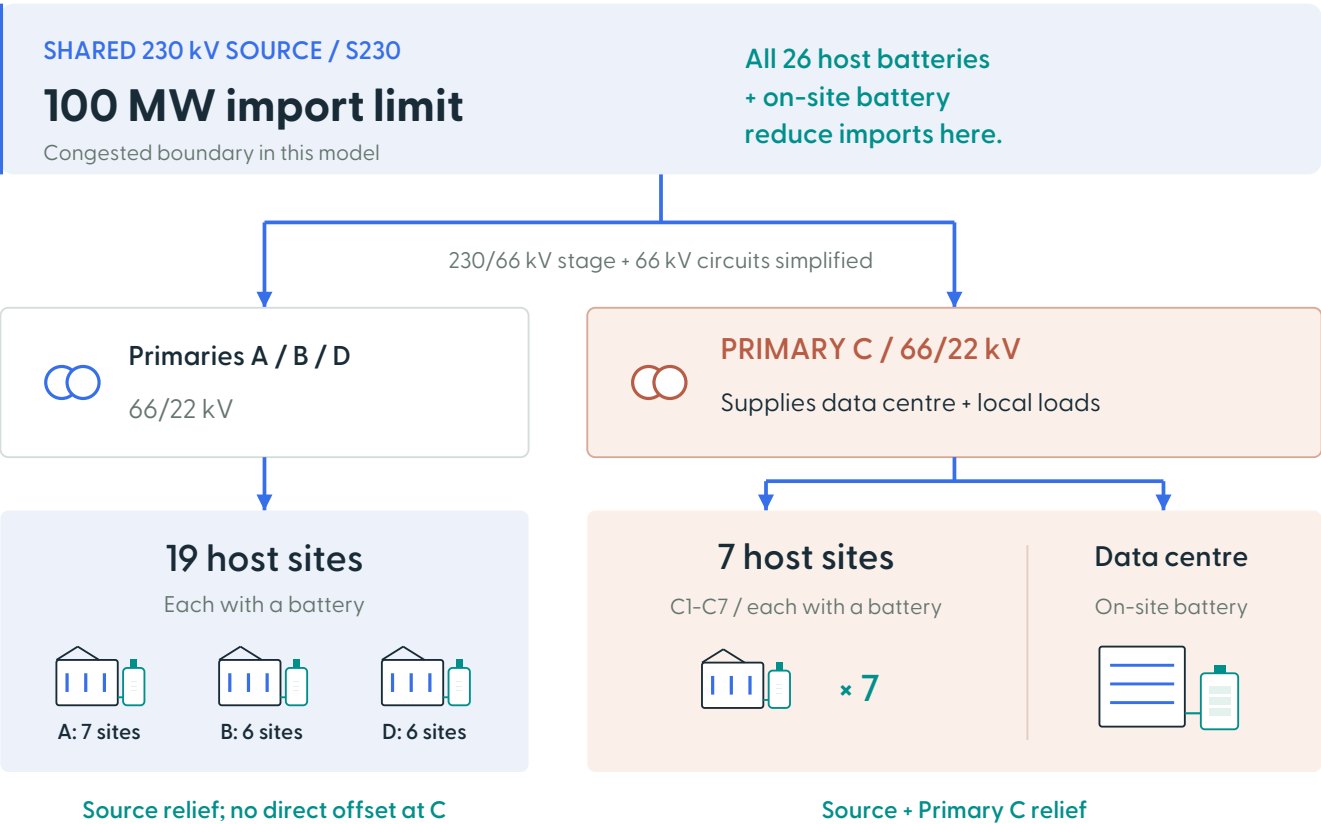
CBRE, Global Data Center Trends 2026. Rental benchmark used in Section 5.1.

ANNEX A / SYNTHETIC NETWORK SIMULATION

One shared constraint. Different local loading.

We use a constructed network to show why battery location matters. All 26 host batteries reduce imports at the shared 230 kV source. Only those behind the data centre's 66/22 kV transformer directly reduce loading on that transformer.

FOLLOW THE SUPPLY PATH



With ties open, A/B/D batteries reduce shared-source imports. C1-C7 and the on-site battery also directly offset demand through Primary C.

Full network: A-2 / Matched comparison: A-3

The same relief at the shared source can leave different loads on the local transformer.

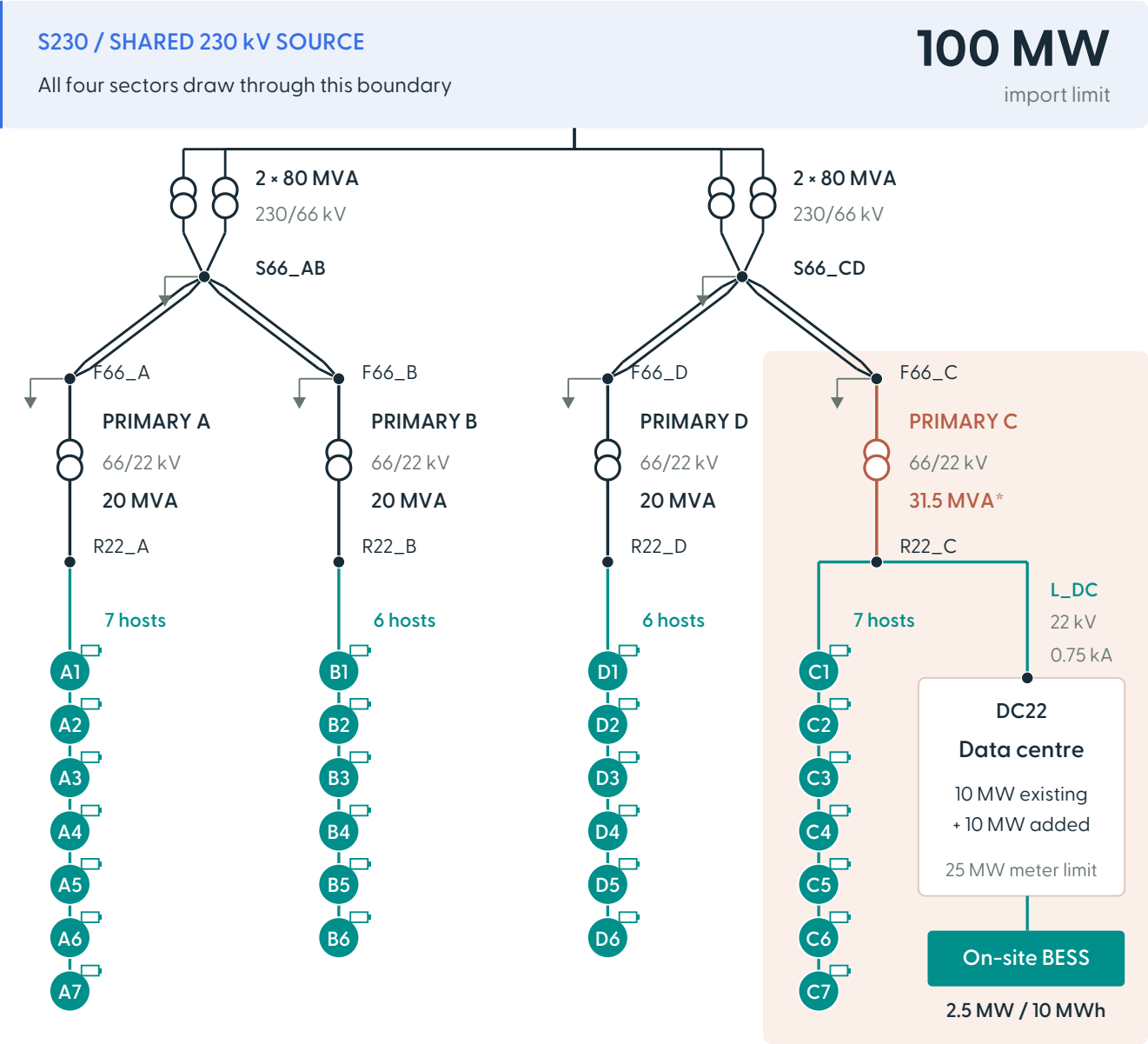
Scope: an hourly steady-state AC simulation on a synthetic network, with battery outages known before scheduling and local connection capacity assumed available. It does not test sudden failures or N-1 security and is not an SP Group connection assessment.

Source: Blue Whale Energy, Why electrical location determines battery value (24 September 2026). No new simulations.

A.2 / SYNTHETIC ELECTRICAL SCHEMATIC

The study network

38 buses / 47 circuits / 27 separately metered batteries



NORMALLY OPEN TIES / EXACT ENDPOINTS

TIE AB / OPEN	TIE BC / OPEN	TIE CD / OPEN	TIE DA / OPEN
A7 ----- R22_B	B6 ----- R22_C	C7 ----- R22_D	D6 ----- R22_A

Figure A1. Each host: 0.5 MW / 2 MWh. Total fleet: 15.5 MW / 62 MWh nameplate.

Solid lines: connected circuits; pairs: two 66 kV circuits. Triangles: other demand. Shading: C-sector hosts and on-site BESS share Primary C.

22 kV ratings: host chains 0.4 kA; open ties 0.25 kA; customer spur 0.75 kA. * Primary C: 31.5 MVA standard / 30 MVA sensitivity. Source cap is a separate MW limit. Synthetic ratings and schematic distances; not an installation design.

A.3 / SIMULATED BATTERY UNAVAILABILITY

What happens when batteries are unavailable?

We make the on-site battery and three host batteries unavailable, then schedule the remaining fleet. Host demand stays the same. We compare loading at the shared source and the transformer serving the data centre.

4 BATTERIES UNAVAILABLE / 23 HOST BATTERIES REMAIN

The 23 remaining host batteries (11.5 MW / 46 MWh nameplate) supply 8.5 MW from 16:00 to 20:00. Unavailability is known before scheduling; sudden-failure response is not simulated.

CASE 1

3 host batteries unavailable outside the customer sector

A7, B6, D6 + on-site battery



CASE 2

3 host batteries unavailable within the customer sector

C5, C6, C7 + on-site battery



TABLE A1 / DISPATCH AND NETWORK EFFECT

	Case 1	Case 2
Surviving fleet discharge	8.50 MW	8.50 MW
Shared source S230 / 100 MW cap	99.52 MW	99.53 MW
Battery output behind Primary C	2.59 MW	1.48 MW

UPSTREAM SUBSTATION / PRIMARY C TRANSFORMER

30 MVA rating sensitivity



Loading is solved transformer current / continuous rated current at nominal voltage. Both cases use zero battery reactive output and the same network configuration.

HOW THE TRANSFORMER RATING CHANGES THE RESULT

Both cases stay within the standard 31.5 MVA rating. The source study also shows that modelled reactive support removes the overload at 30 MVA. Battery location changes loading; the transformer rating and controls determine whether it exceeds the limit.

Same 8.5 MW fleet output. Both pass the shared-source limit. Only Case 2 exceeds Primary C's tighter limit.

