Gas Transmission

Network Capability

19th February 2019

nationalgrid

Objectives for today

- Share our description of day to day operational challenges
- Share potential range of metrics of network capability
- Show how these link to customer behaviour
- Gain feedback on approach
- Introduce linkages with Access Review

Who are we?

Jenny Phillips

Gas System Operator
RIIO2 Manager

Jenny Pemberton

Stakeholder Engagement Manager

Logistics

- Should last for approximately an hour
- Polling via Webex
- Your questions are welcomed throughout via chat function
- All callers will be placed on mute

Quick Poll – Getting to know you

1. **Please tell us your name**

2. Which of the following best describes you / your organisation?

3. On a scale of A to E, where A is know nothing and E is know a great deal, how much would you say you know about National Grid Gas Transmission's operational activities?

A. Know nothing

B.

C.

D.

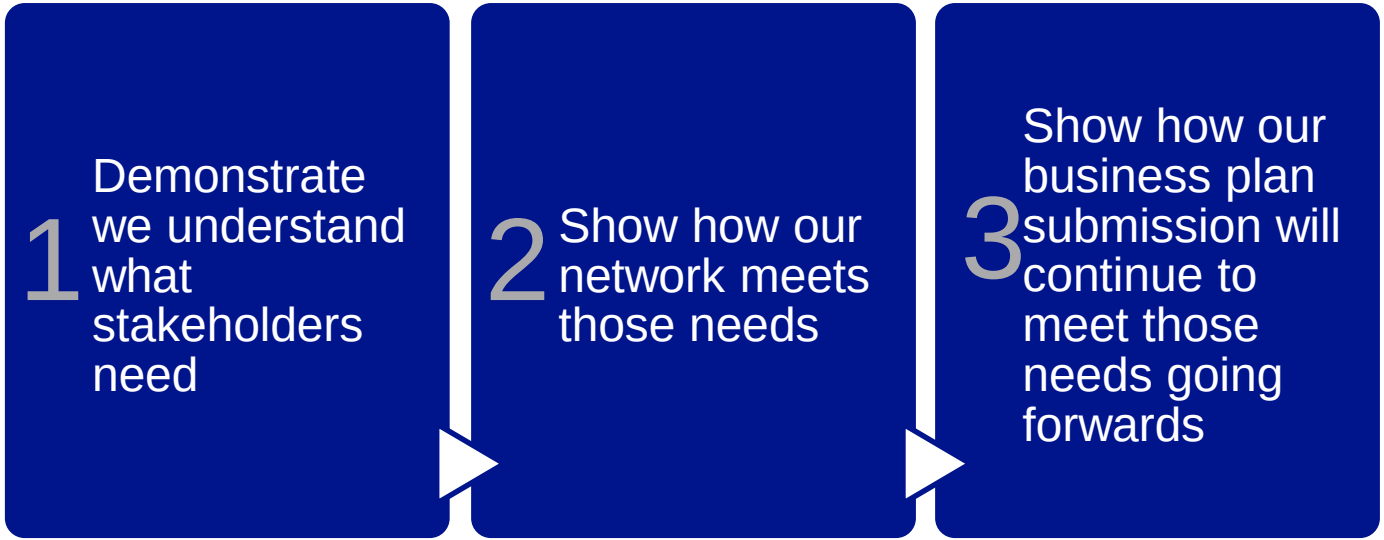
E. Know a great deal

Gas
Transmission

Network Capability

nationalgrid

Network Capability – Ofgem's challenge



All to be framed within a new way of describing the capability of the network that can be measured

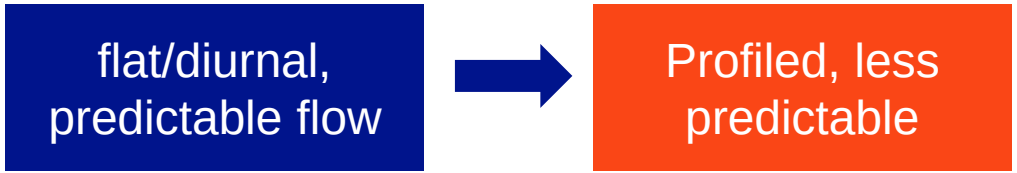
Current situation

We have not told the story of how we are using the assets differently to meet the variable needs of customers

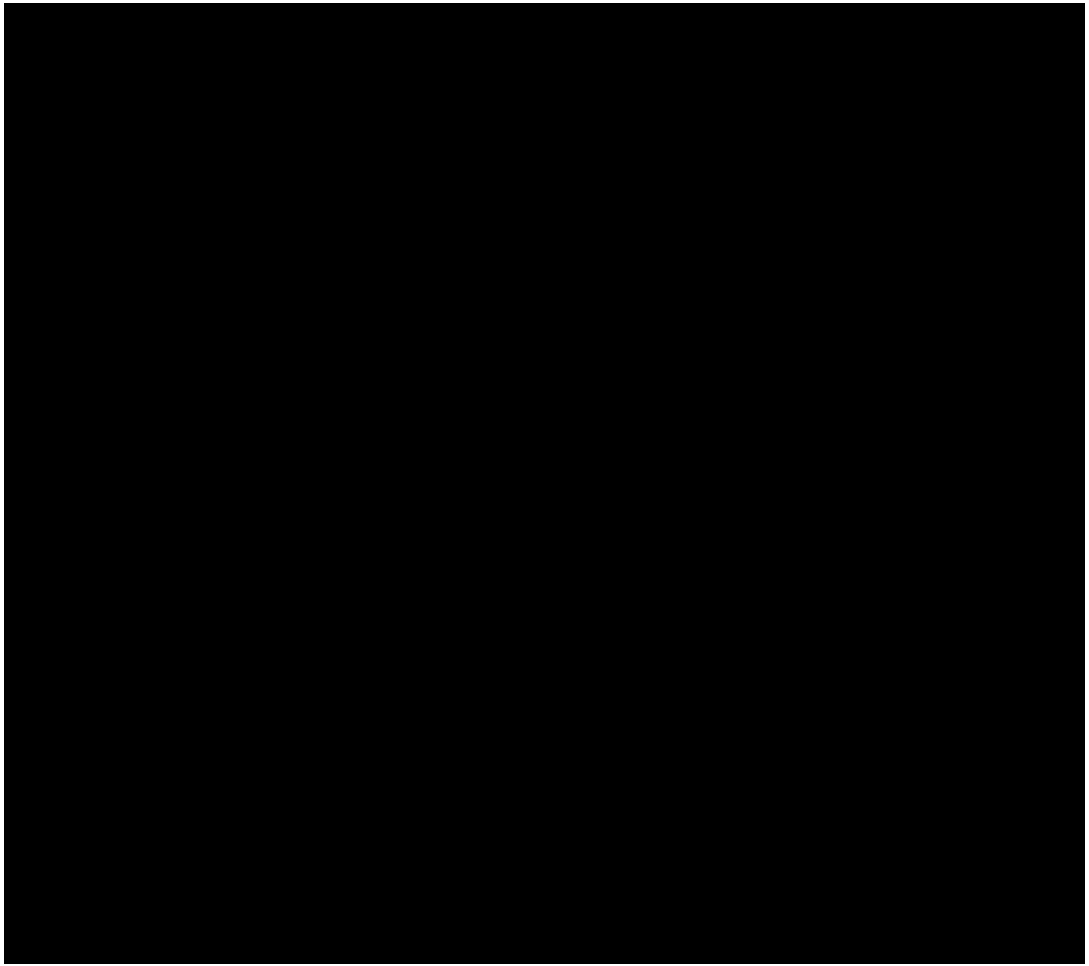
Customers want to:

- flow gas on or off the NTS
- be able to profile that flow across the 24 hour gas day
- be able to change their mind about the profile, end of day volume and location

We have seen flow patterns change:



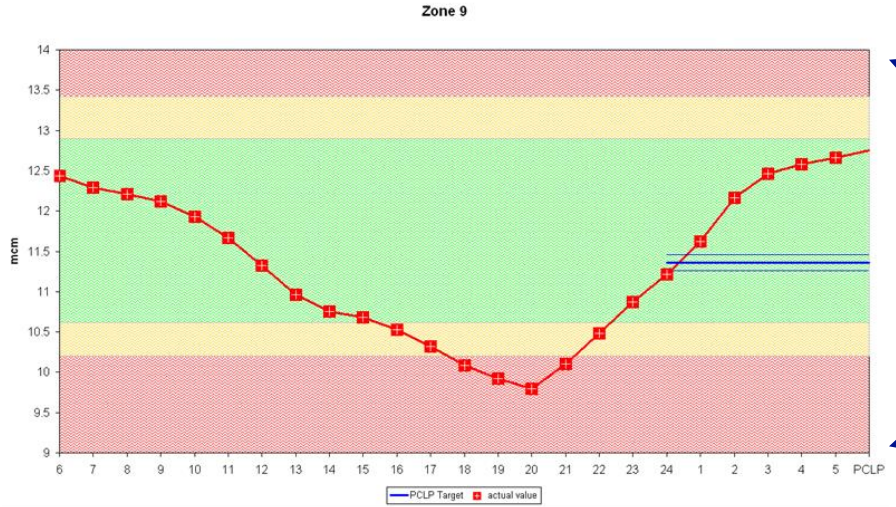
Using the assets we have, we've been able to meet these needs



This video shows the cumulative changes received before and during a gas day. It was not an unusual or challenging day operationally.

Linepack management

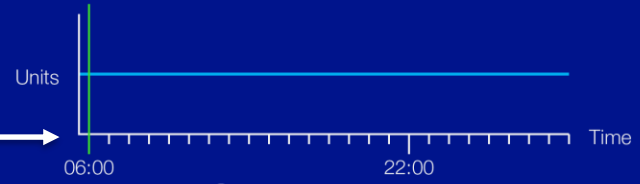
The max and min levels are determined by the volume of gas we can get in the pipework in the zone



Limited at its high end by maximum safe pressure …

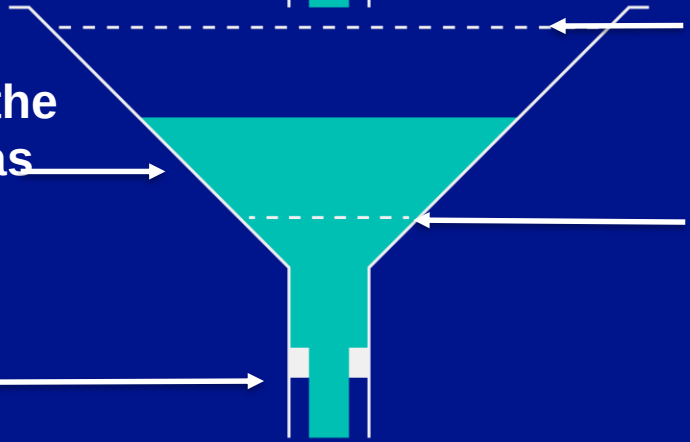
…and at the low end by connected customer safety and operational needs

Rate of gas coming in across 24 hours



Gas coming in

Container representing the pipes on the National Gas Transmission Network

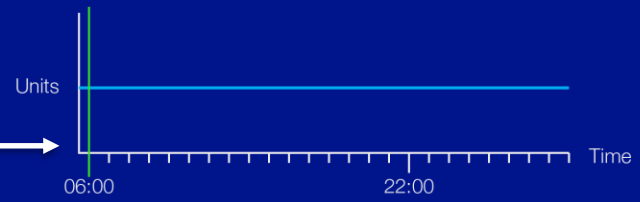


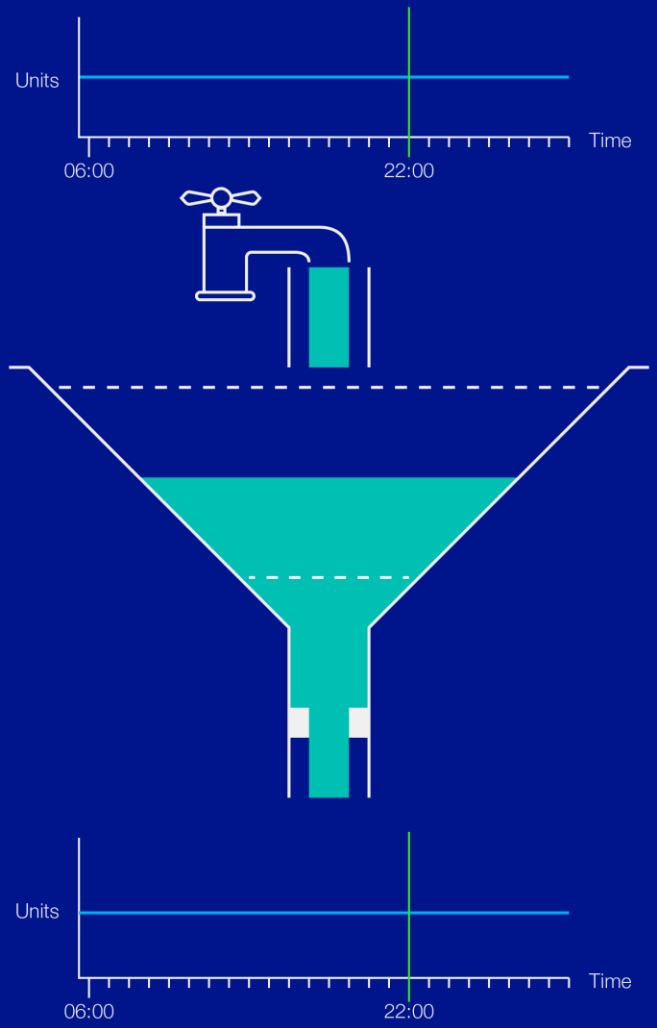
Maximum level for safety (high pressure)

Minimum level to meet customer needs (low pressure)

Gas going out

Rate of gas going out across 24 hours

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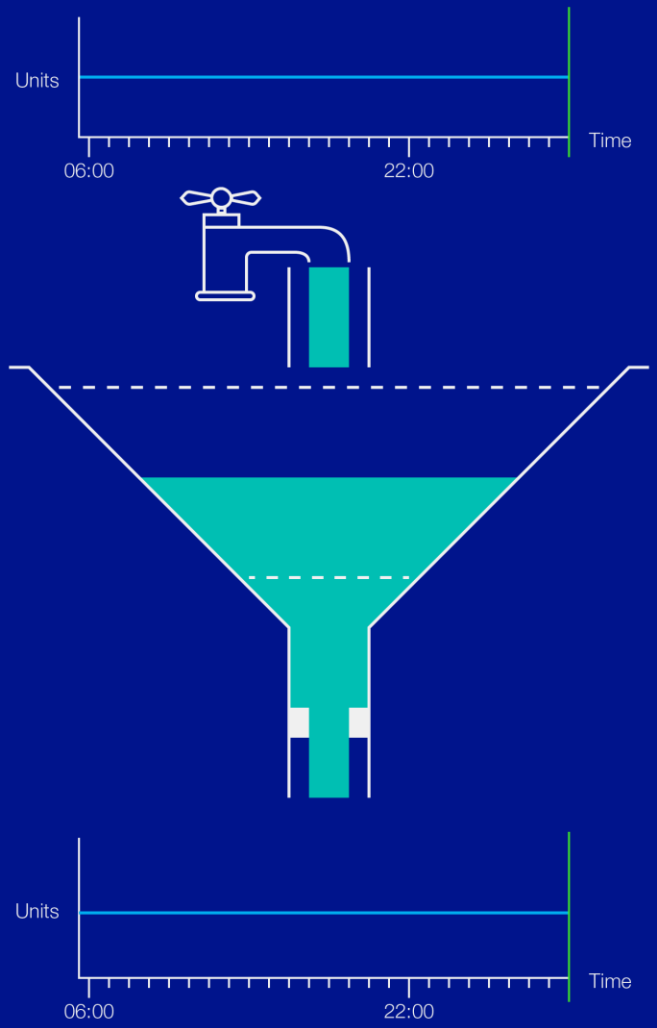
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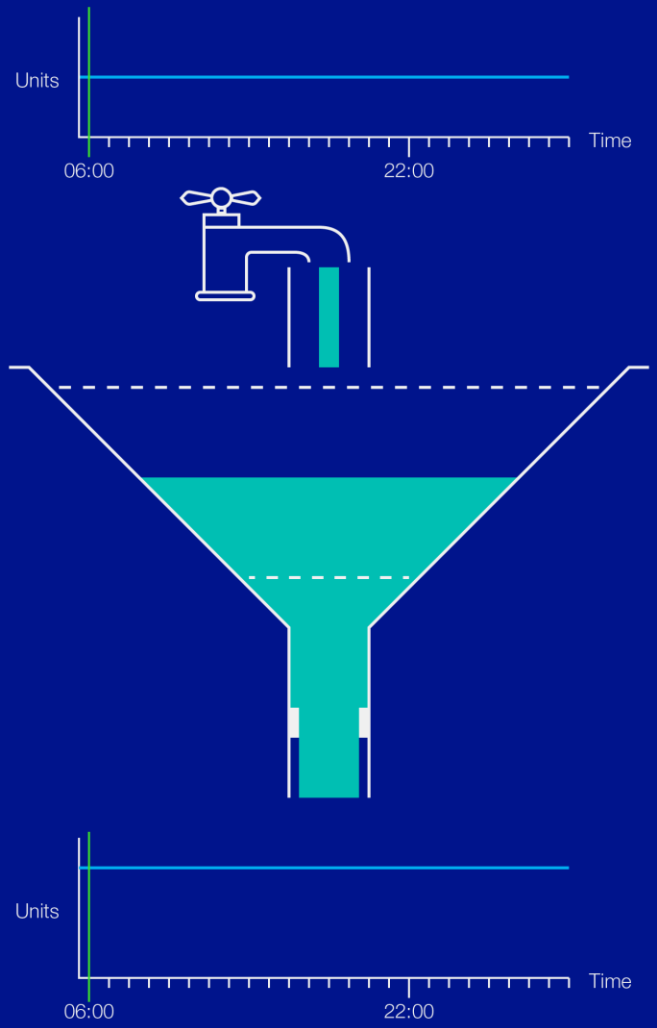
But…what if there’s a mismatch between supply and demand?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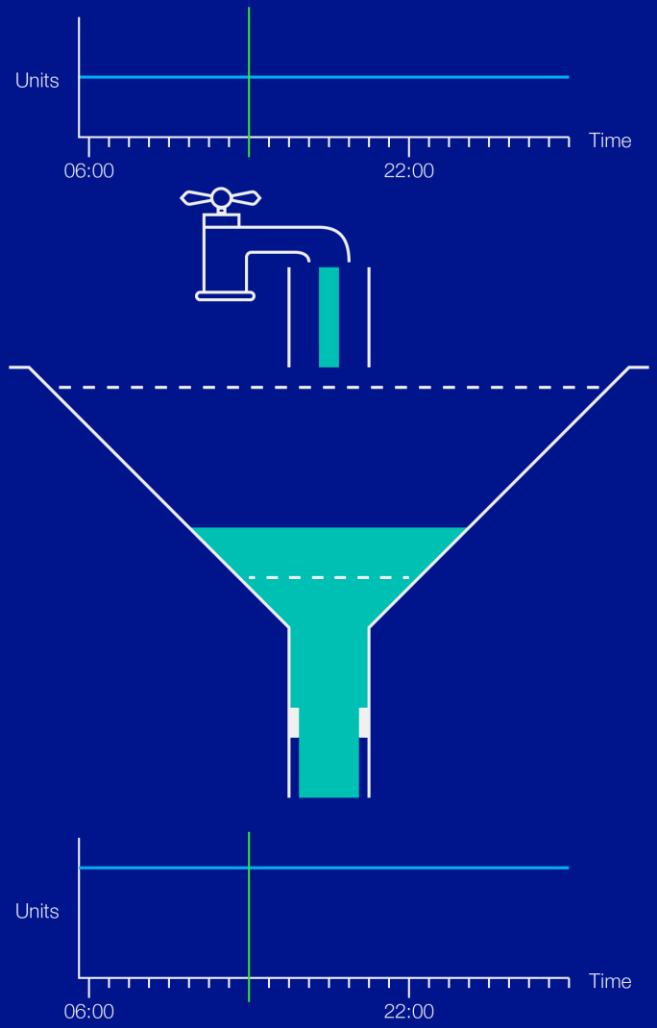
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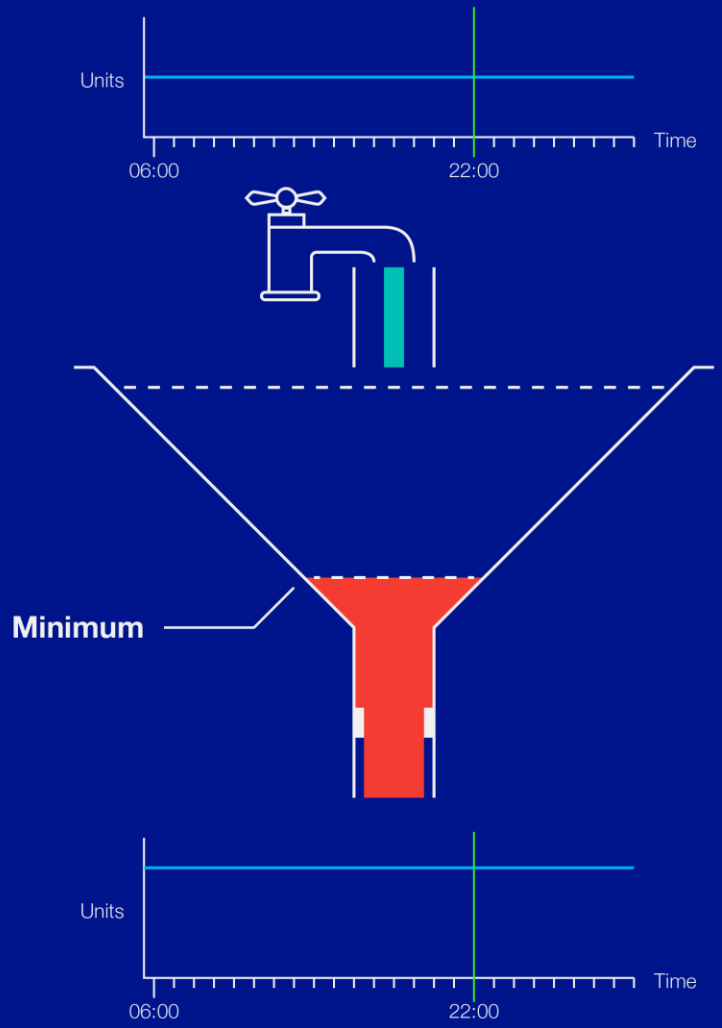
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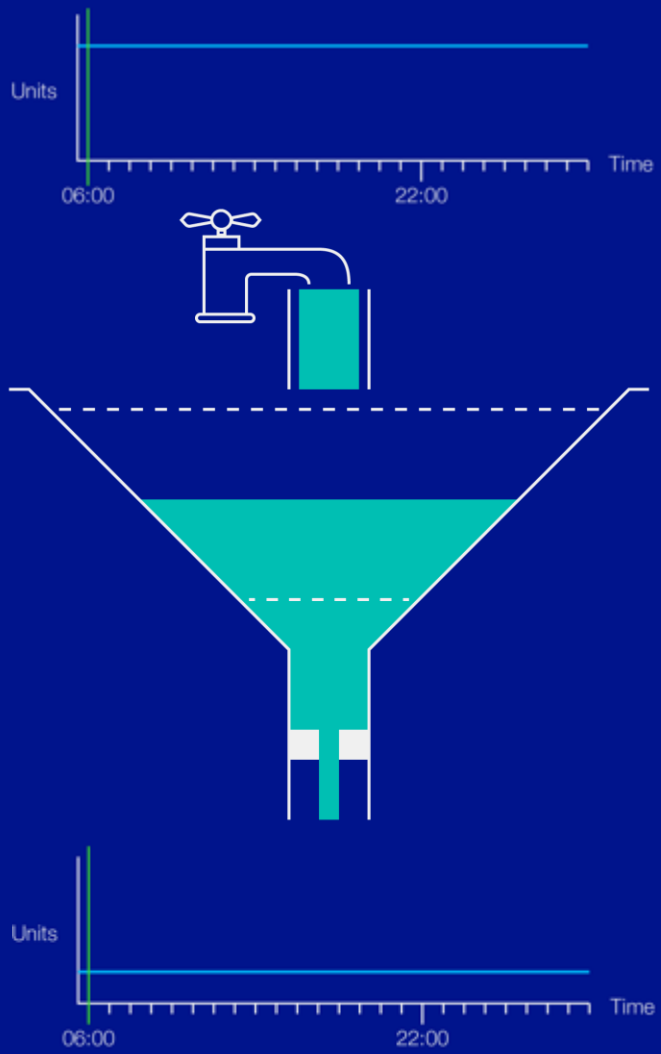
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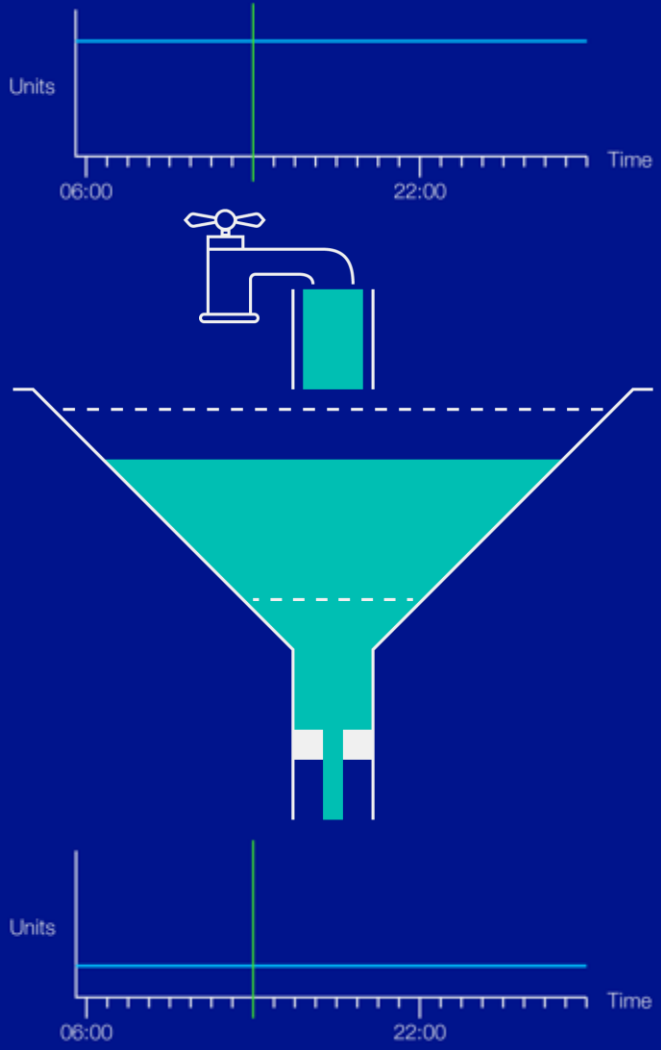
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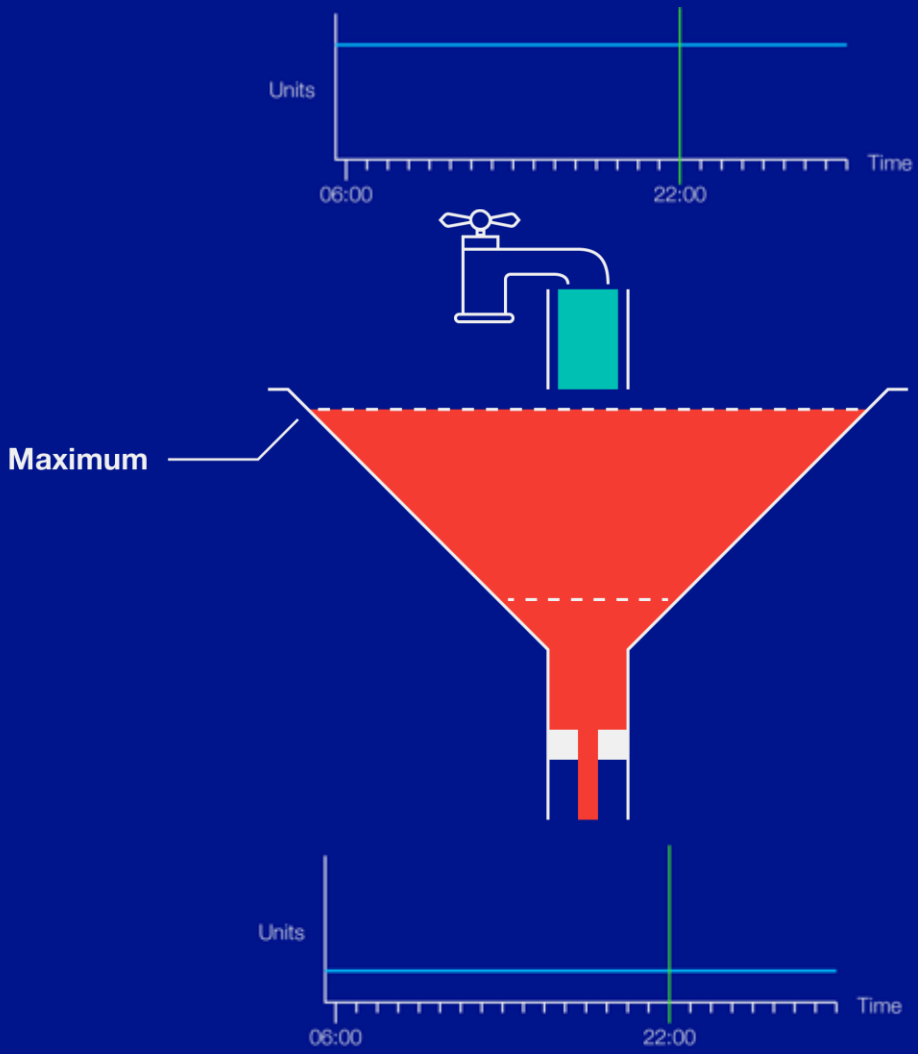
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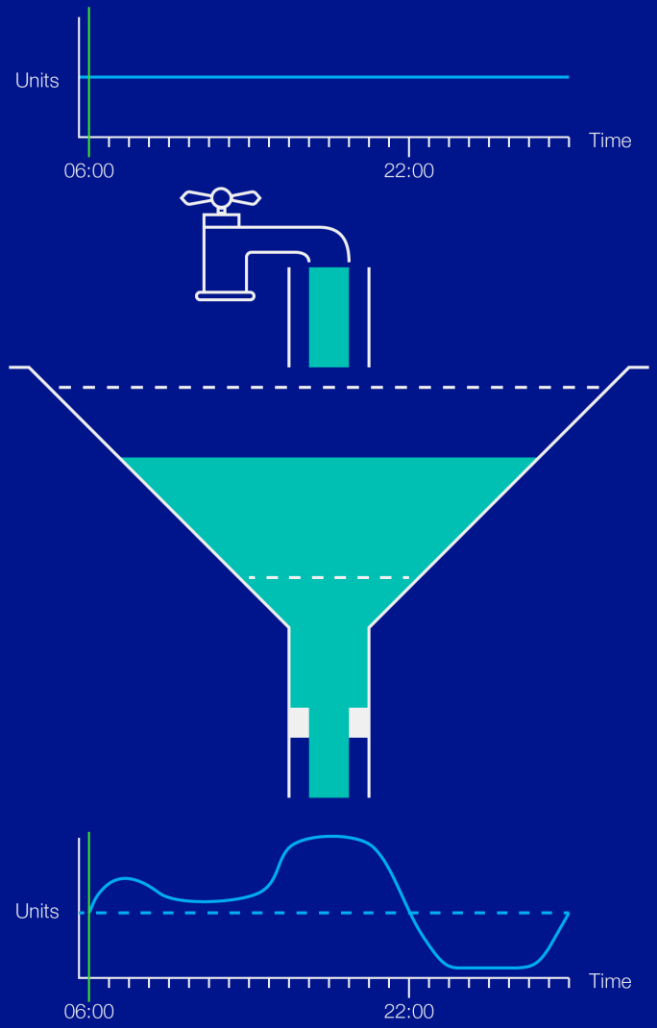
What if there’s a profile of demand?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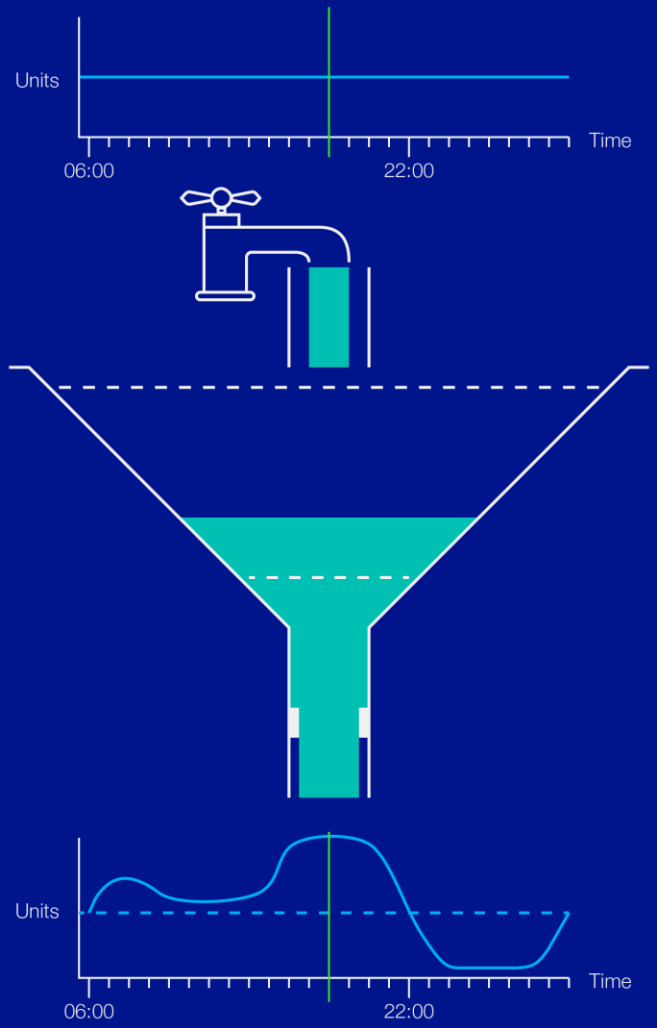
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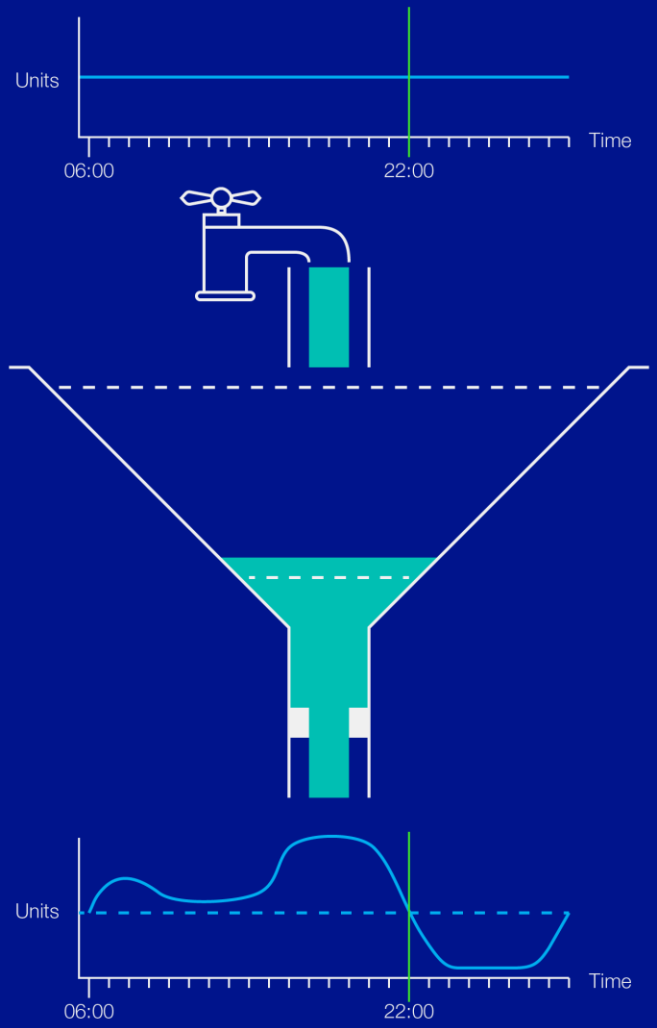
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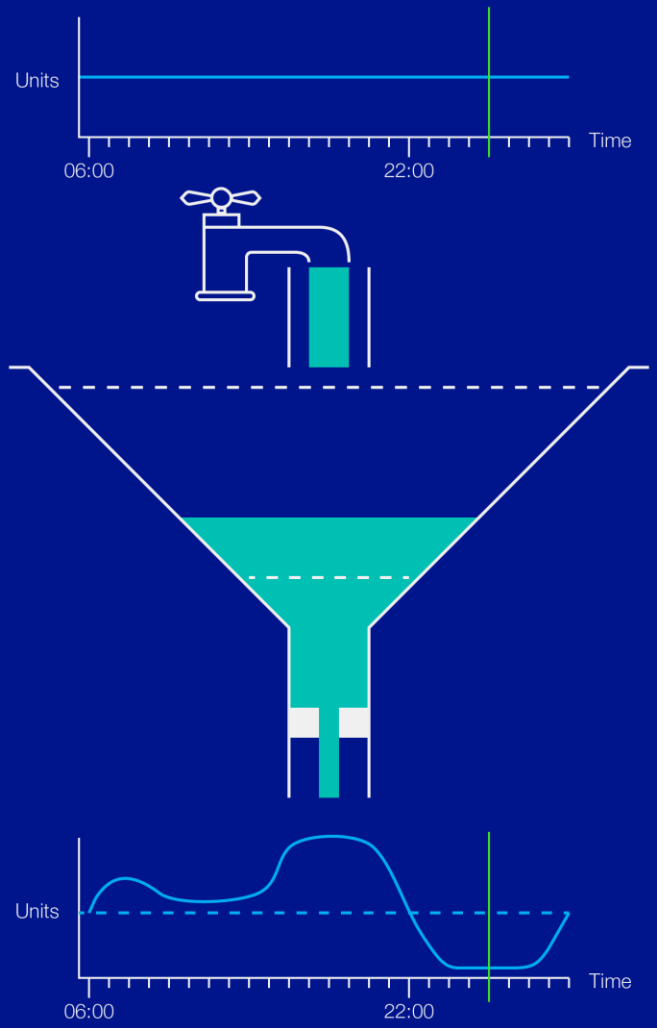
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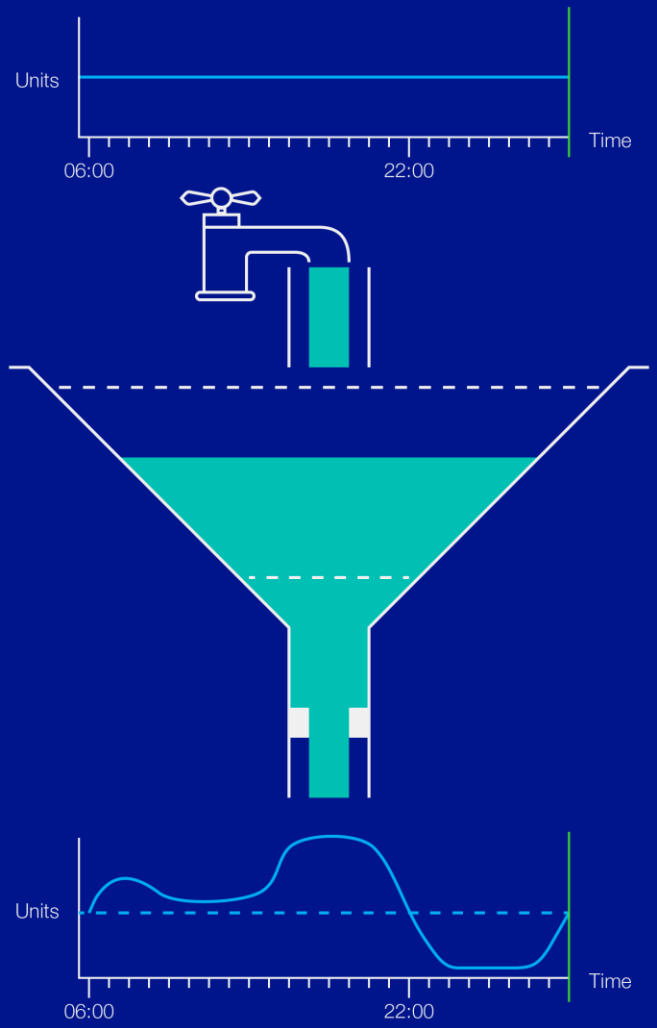
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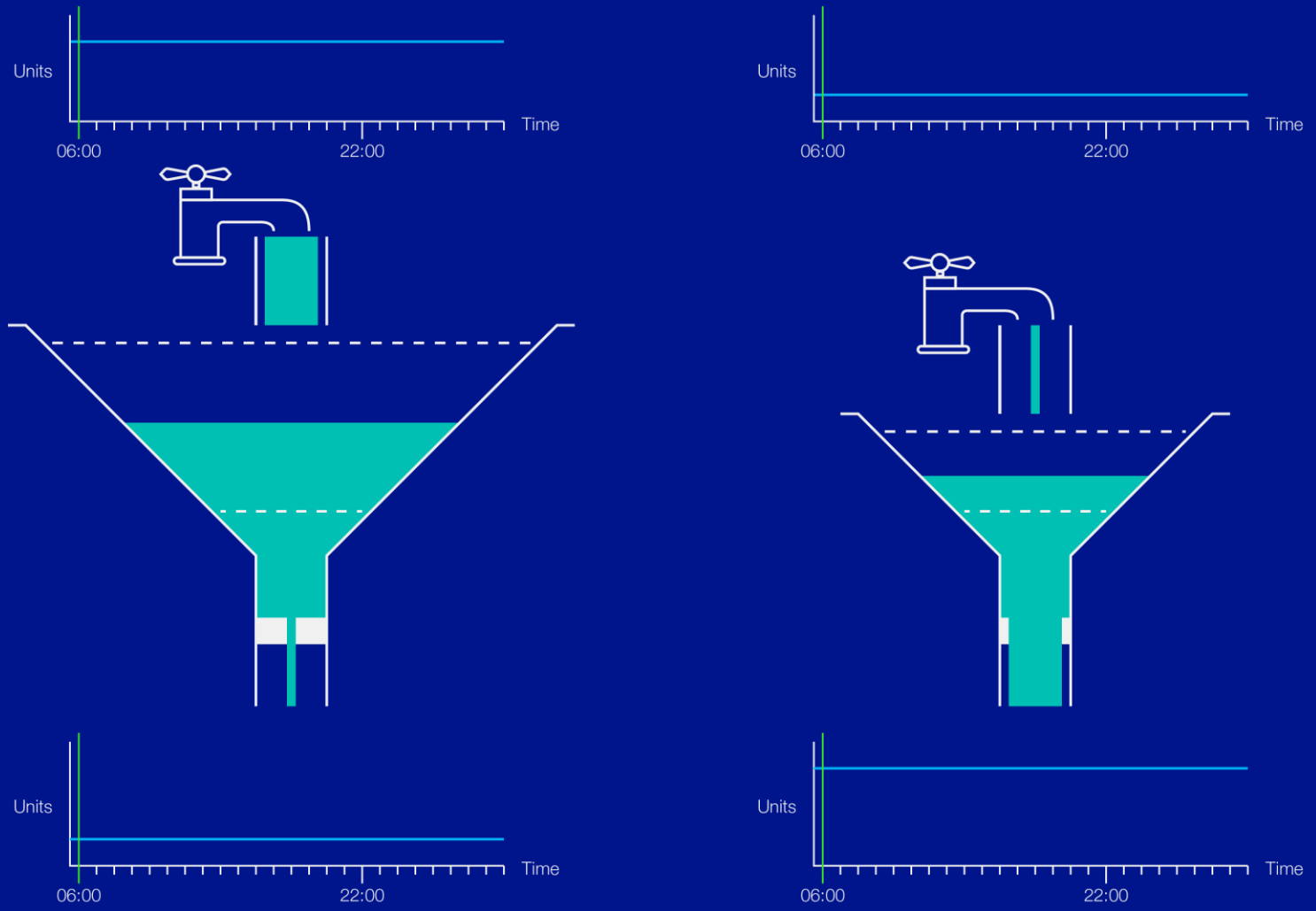
The NTS is more complex than just one zone – let’s consider two zones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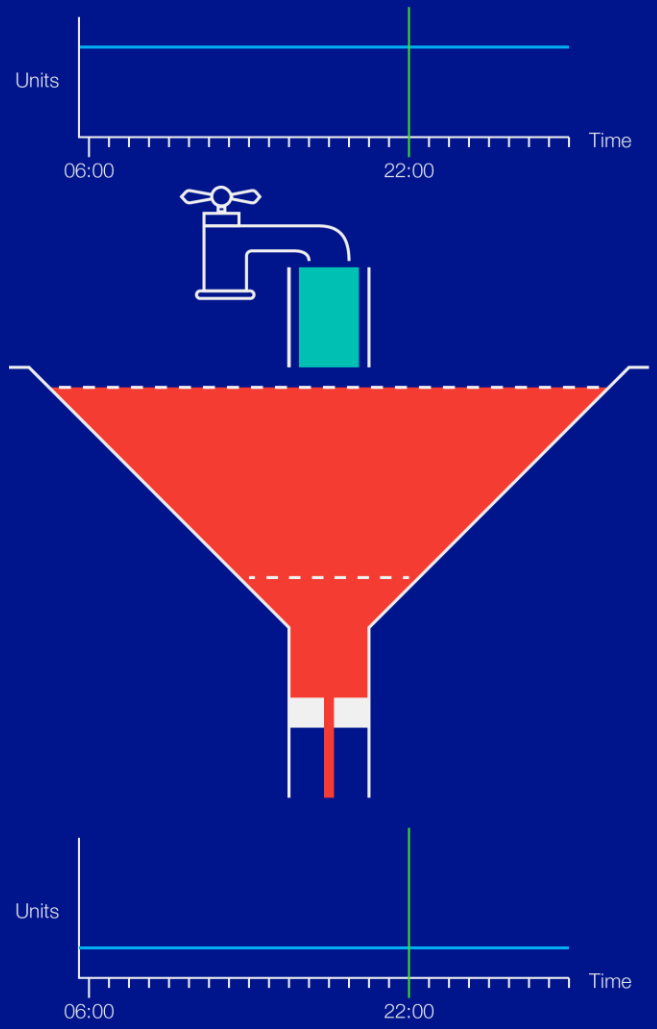
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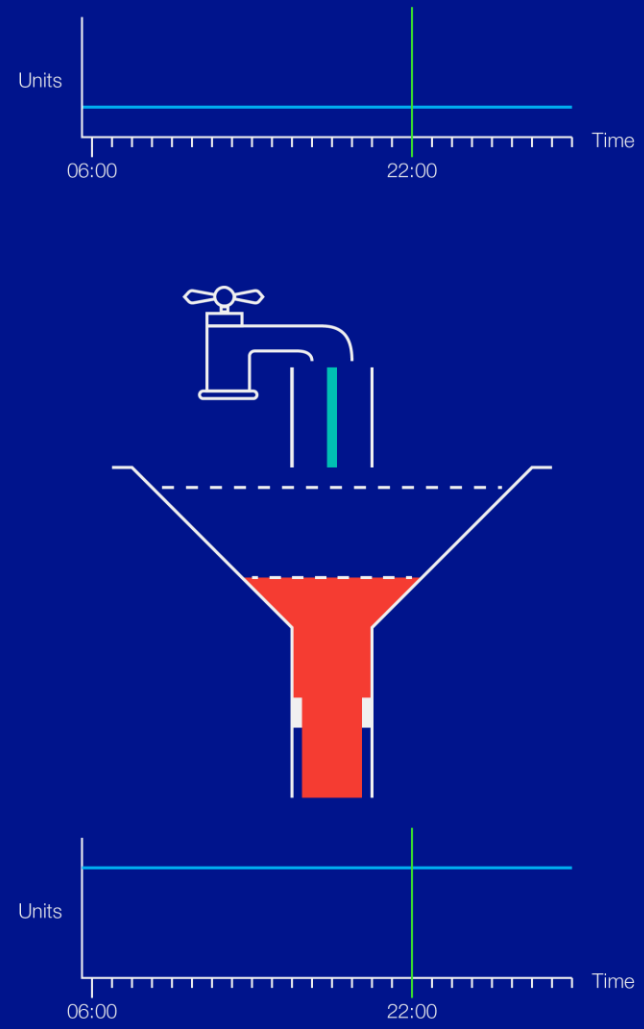
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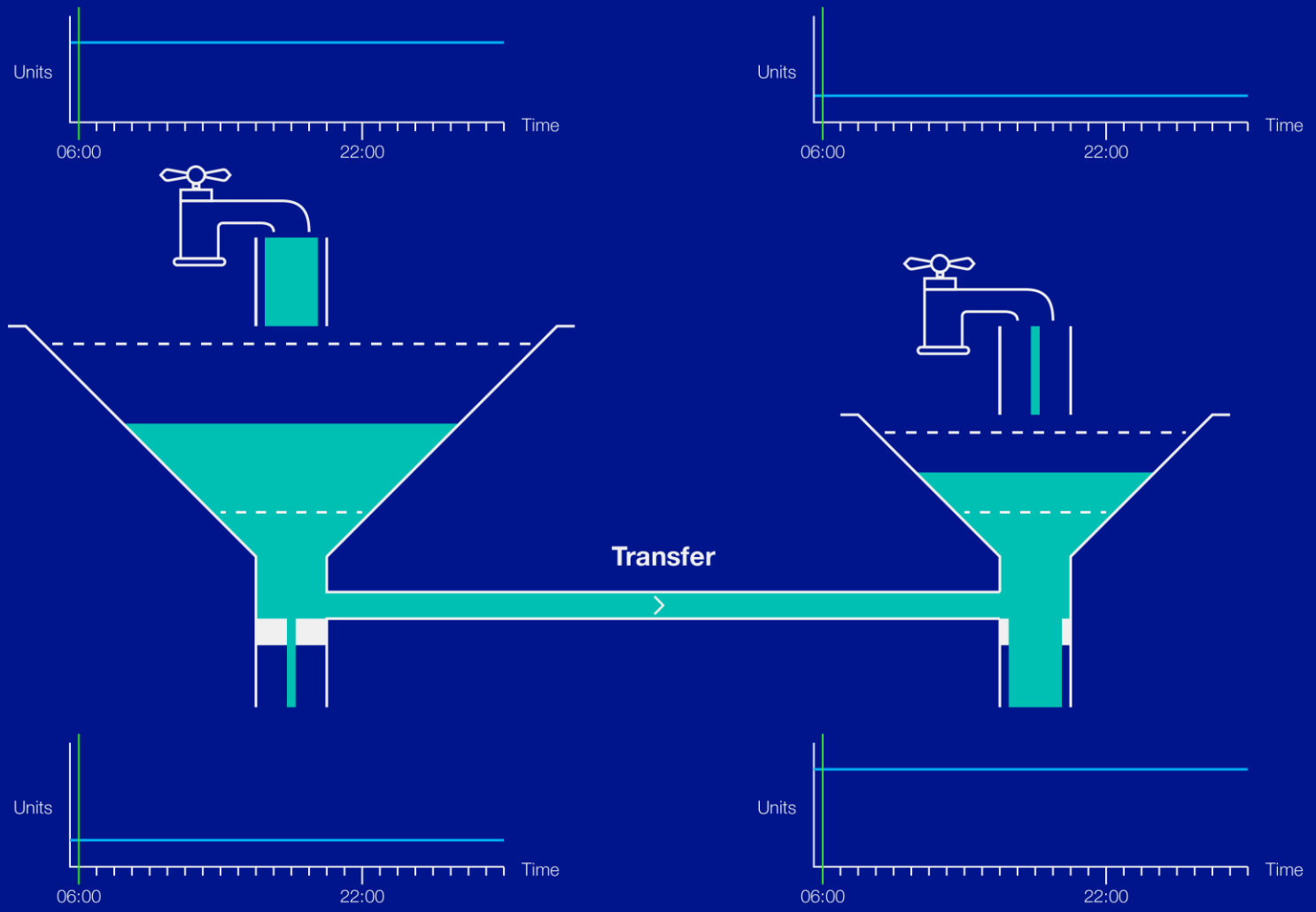
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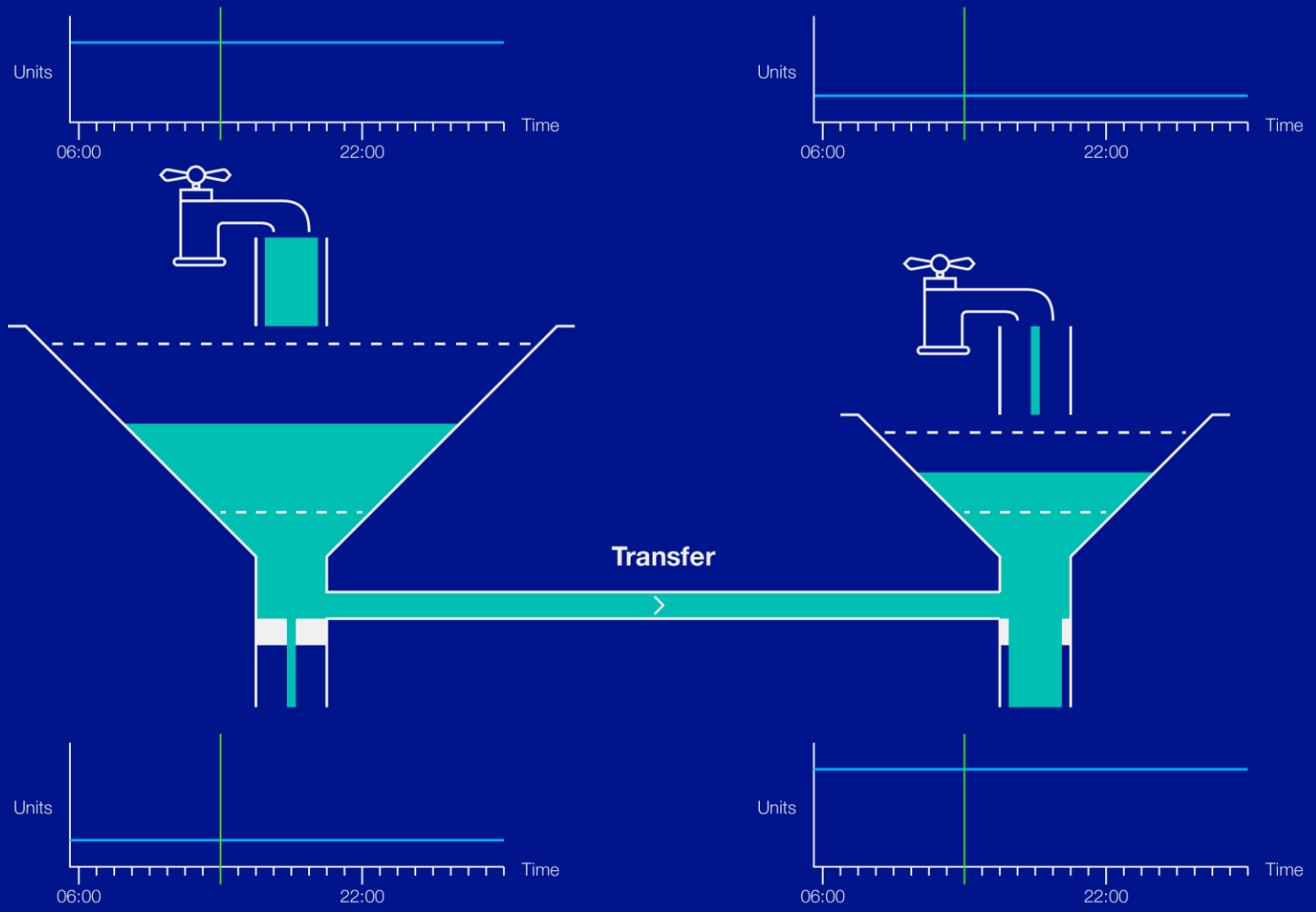
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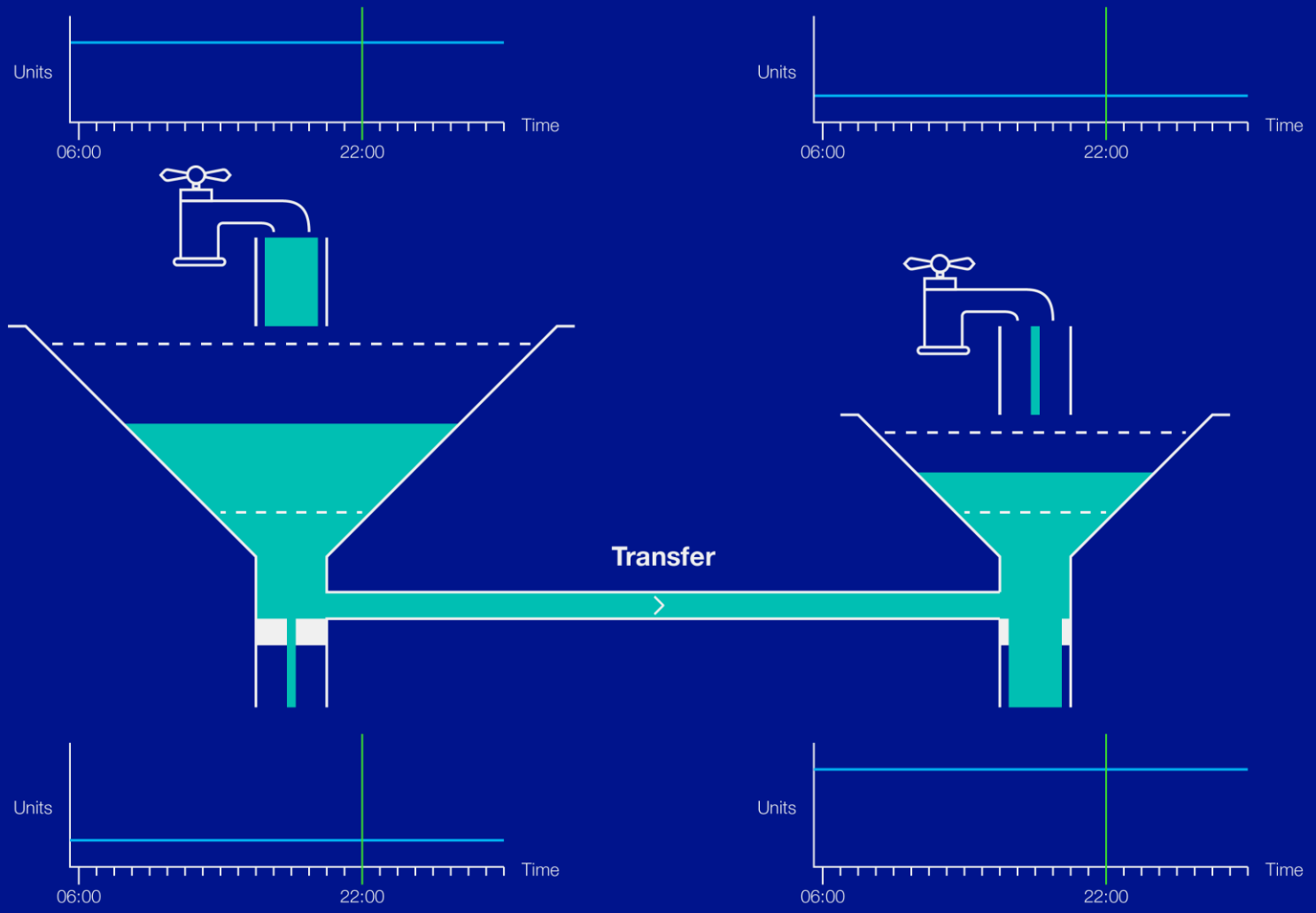
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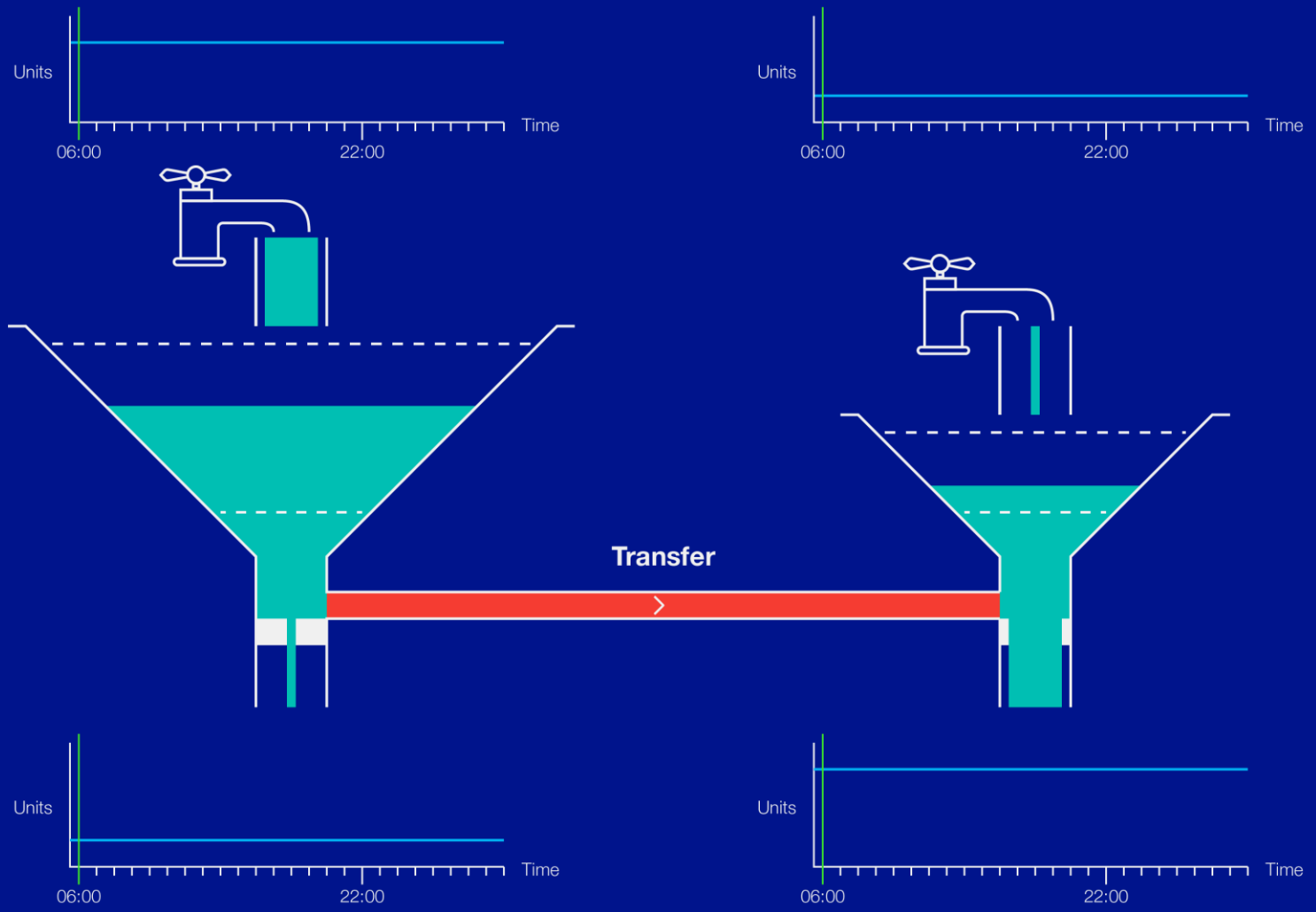
What if the transfer capability between zones isn’t sufficient?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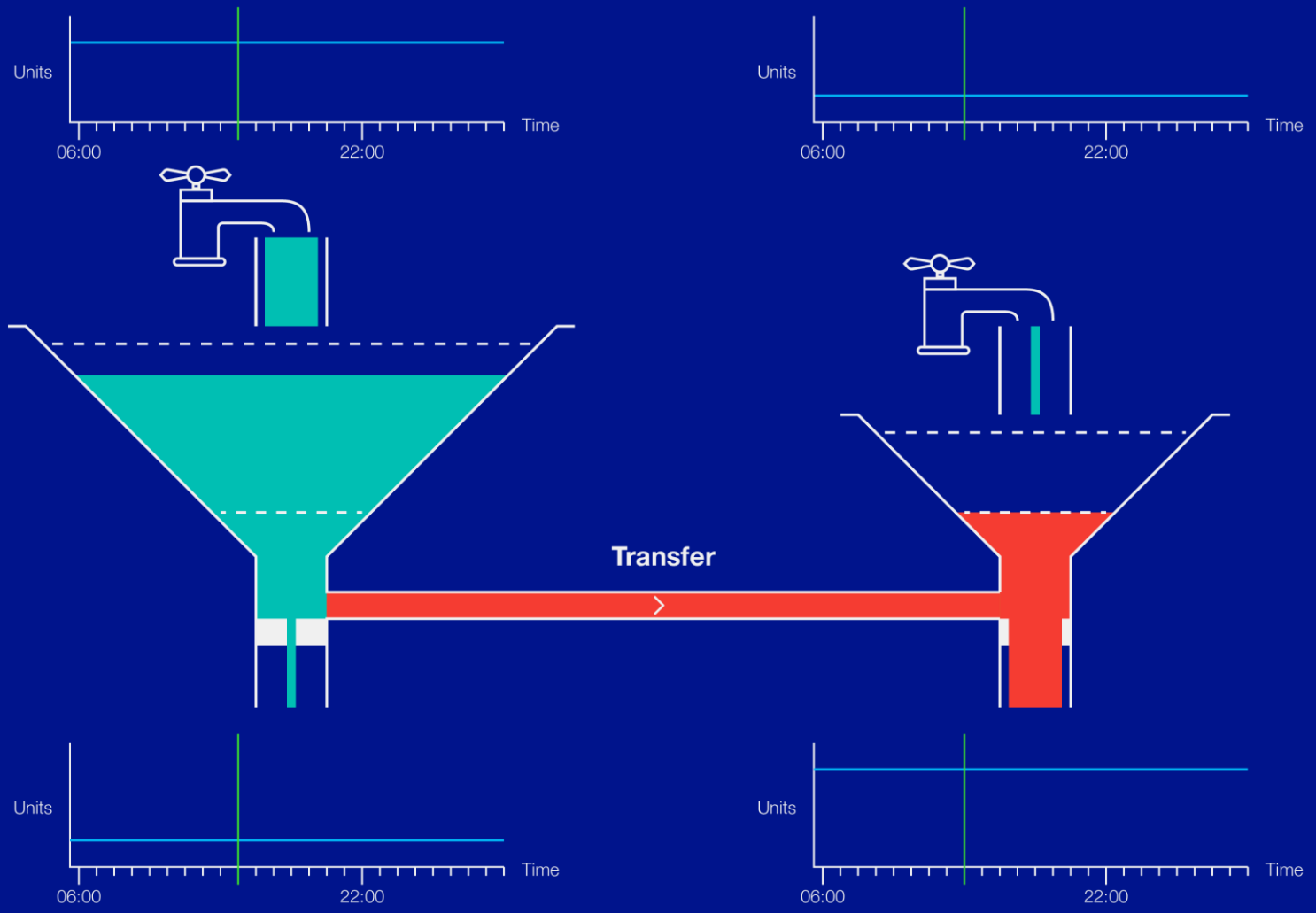
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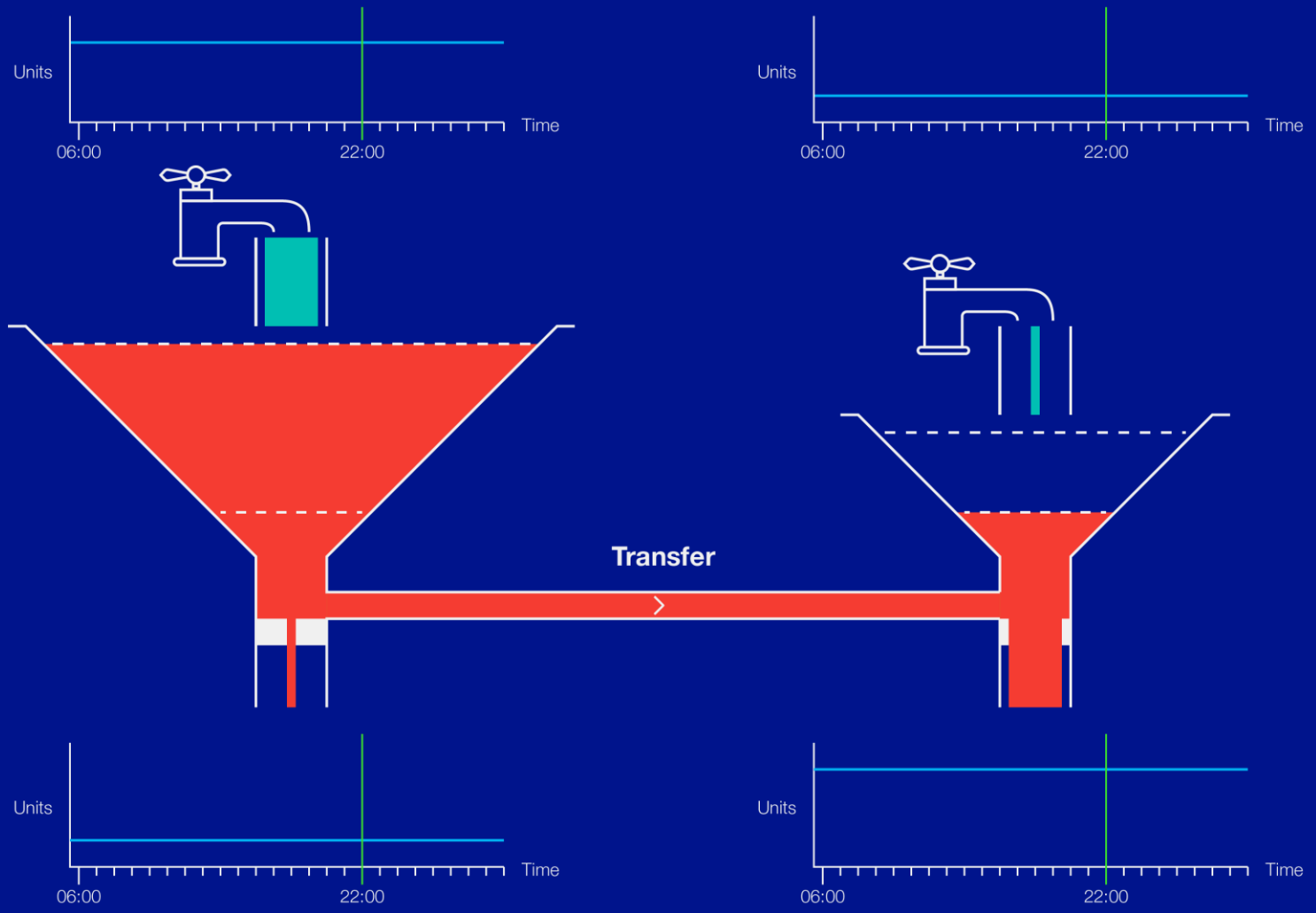
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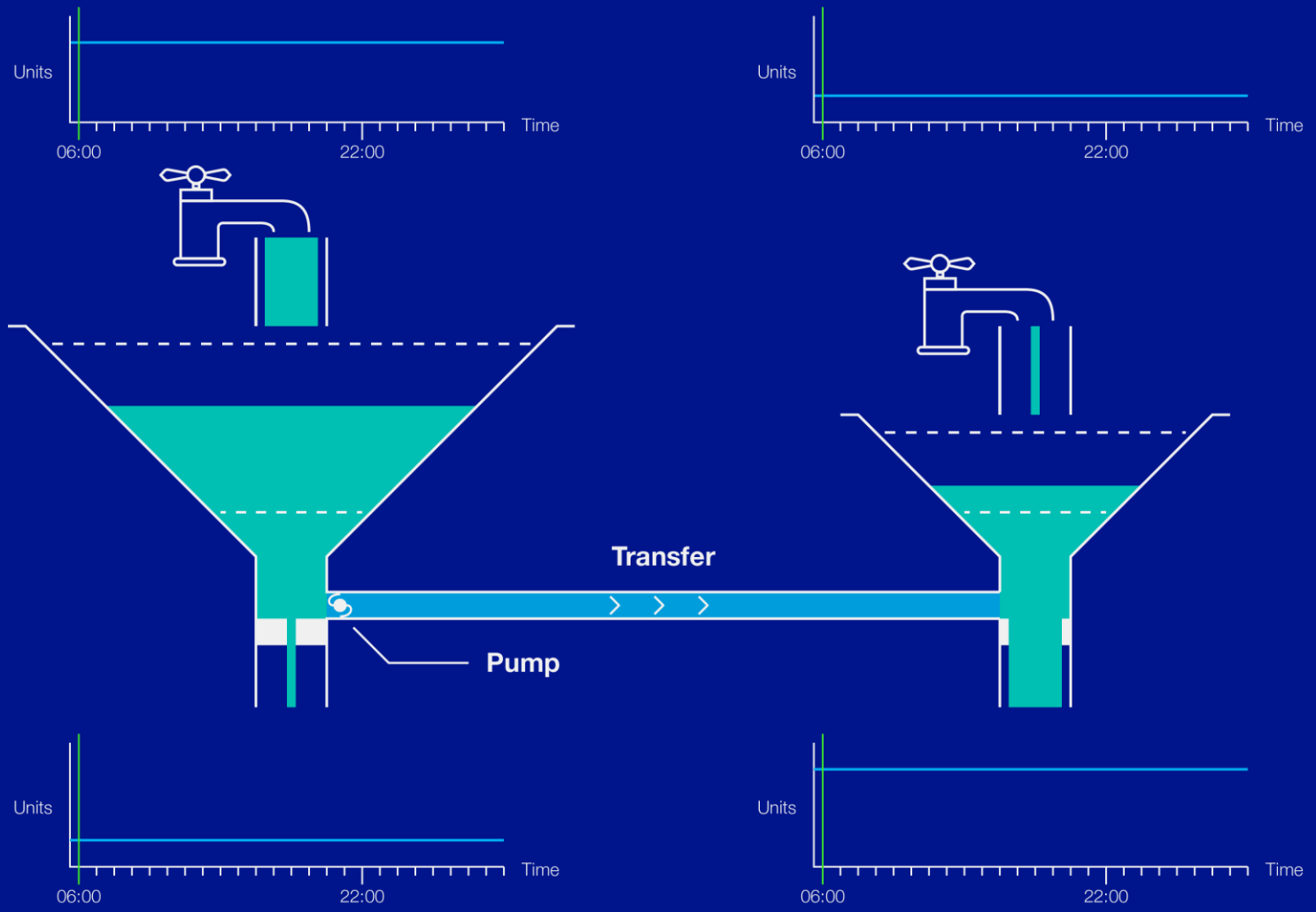
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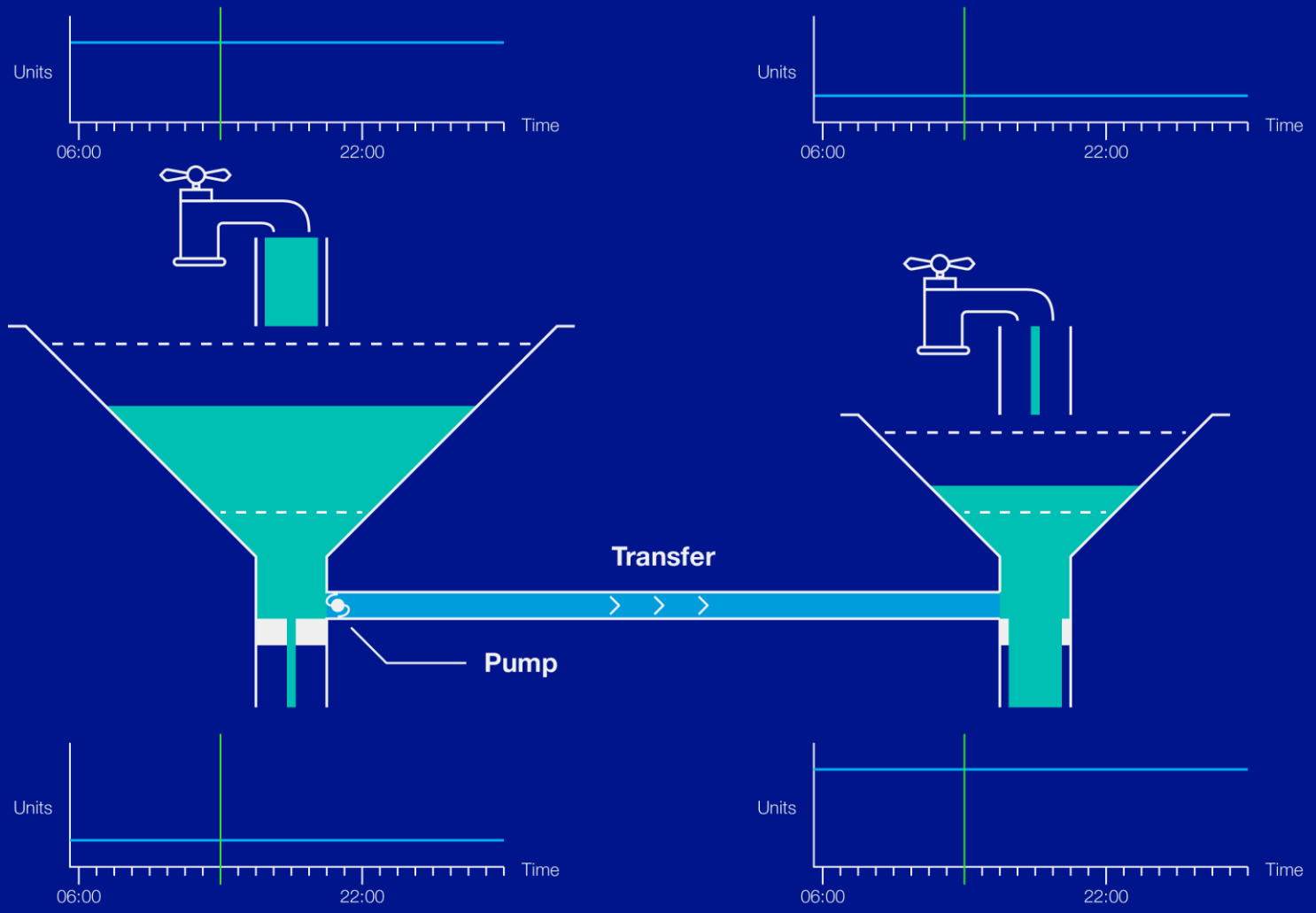
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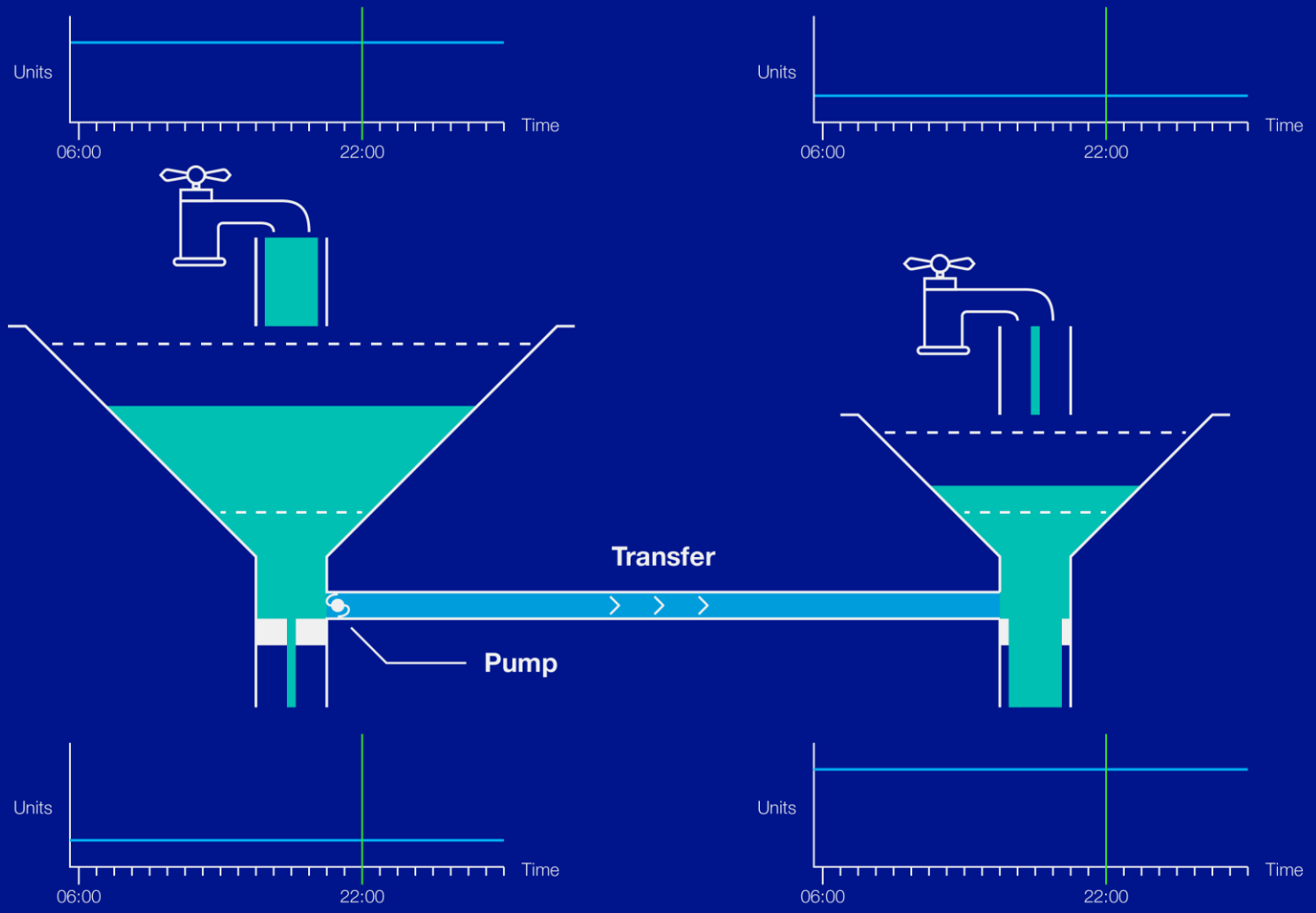
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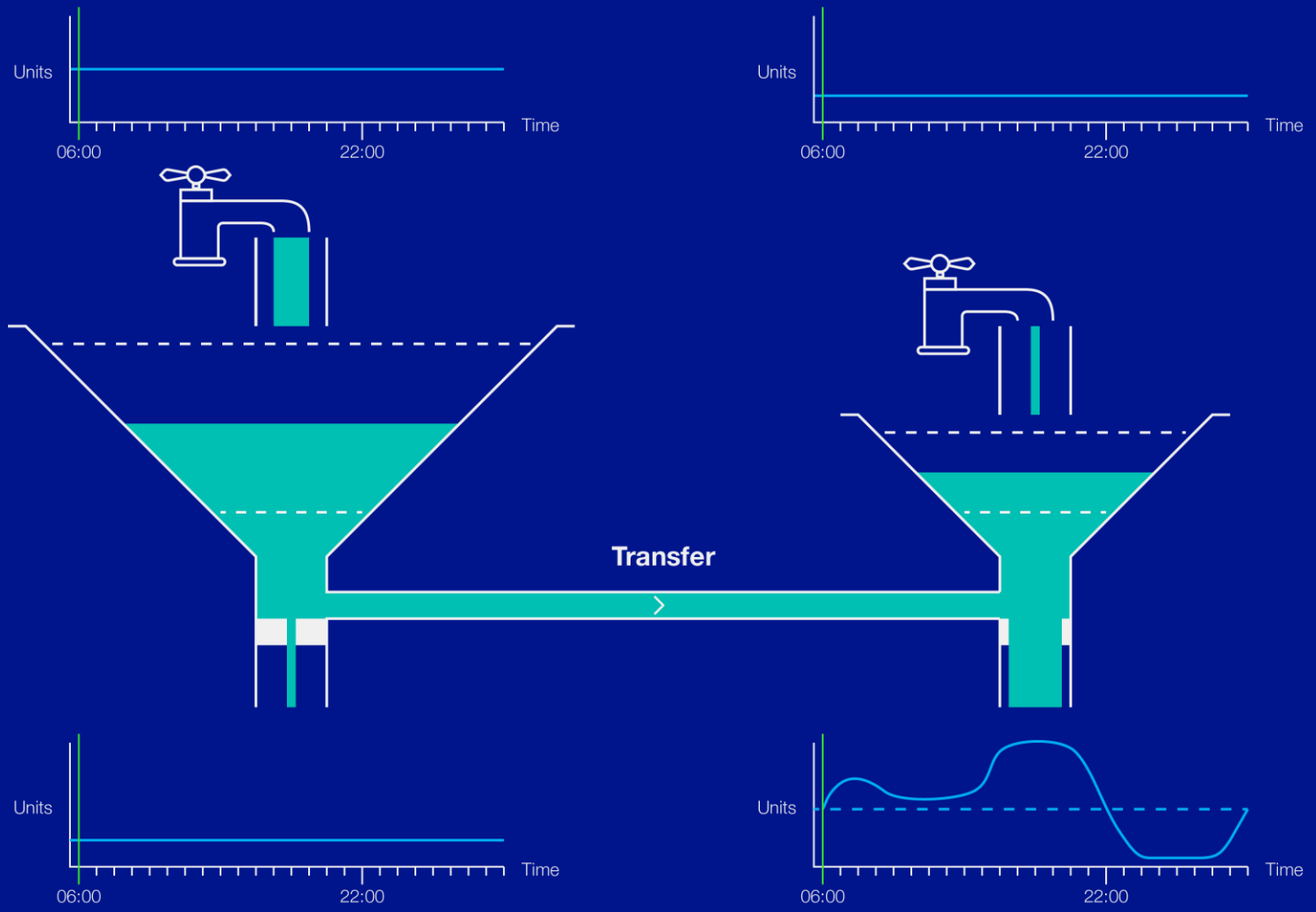
This has explained bulk transfer of gas on a 24/7 basis and how we deliver end of day obligations using our assets.

But…what if there’s a profile in one of the zones?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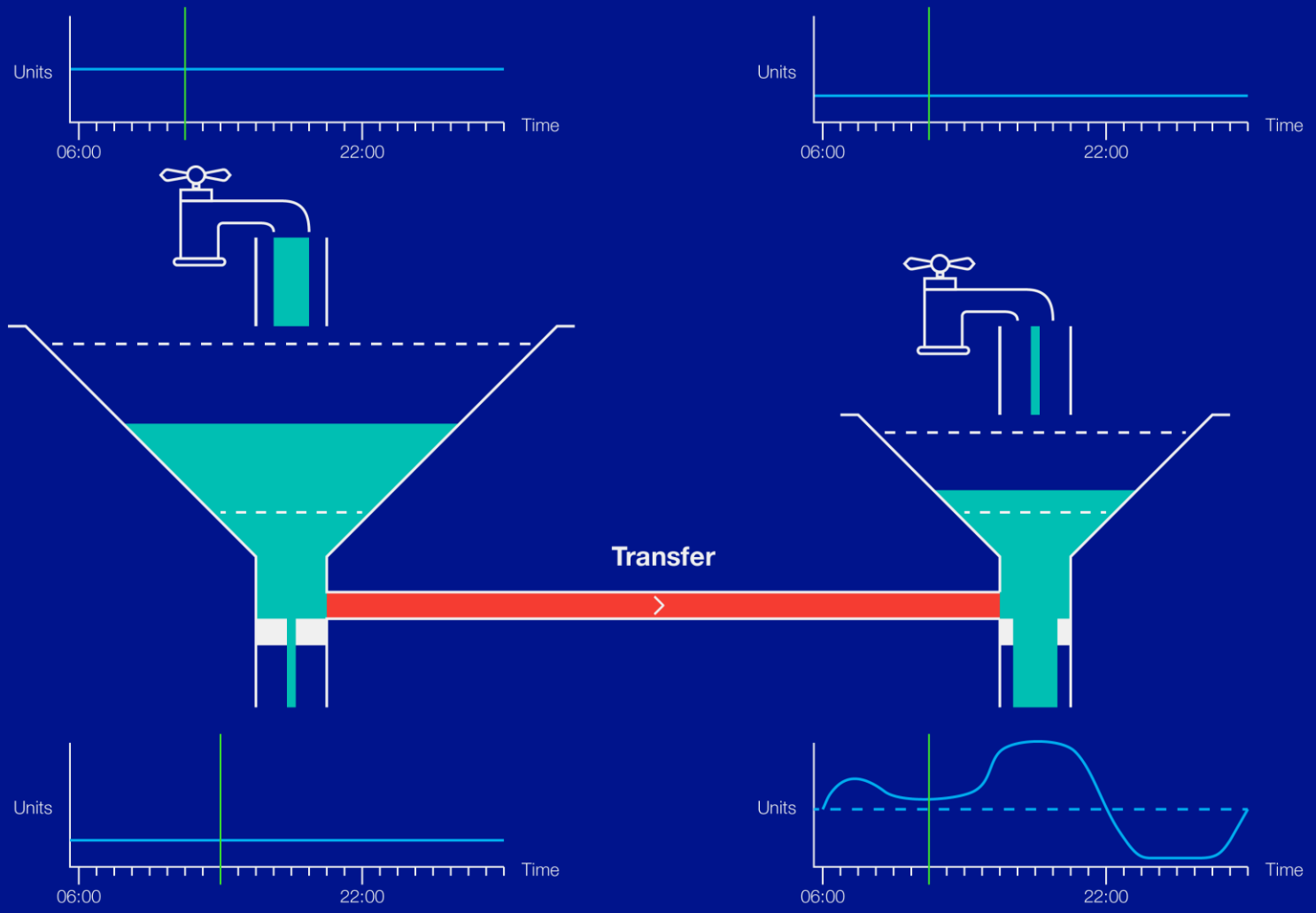
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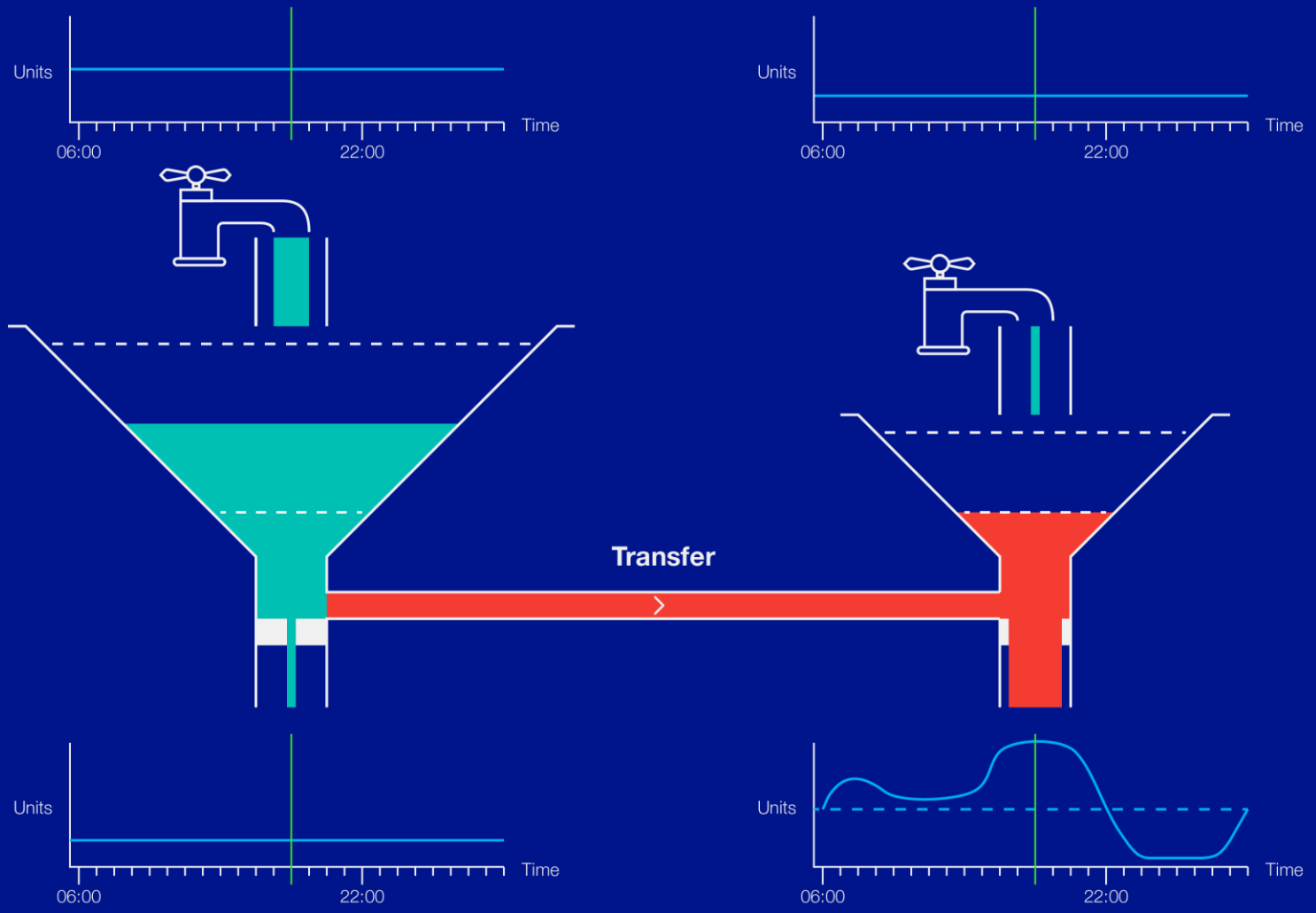
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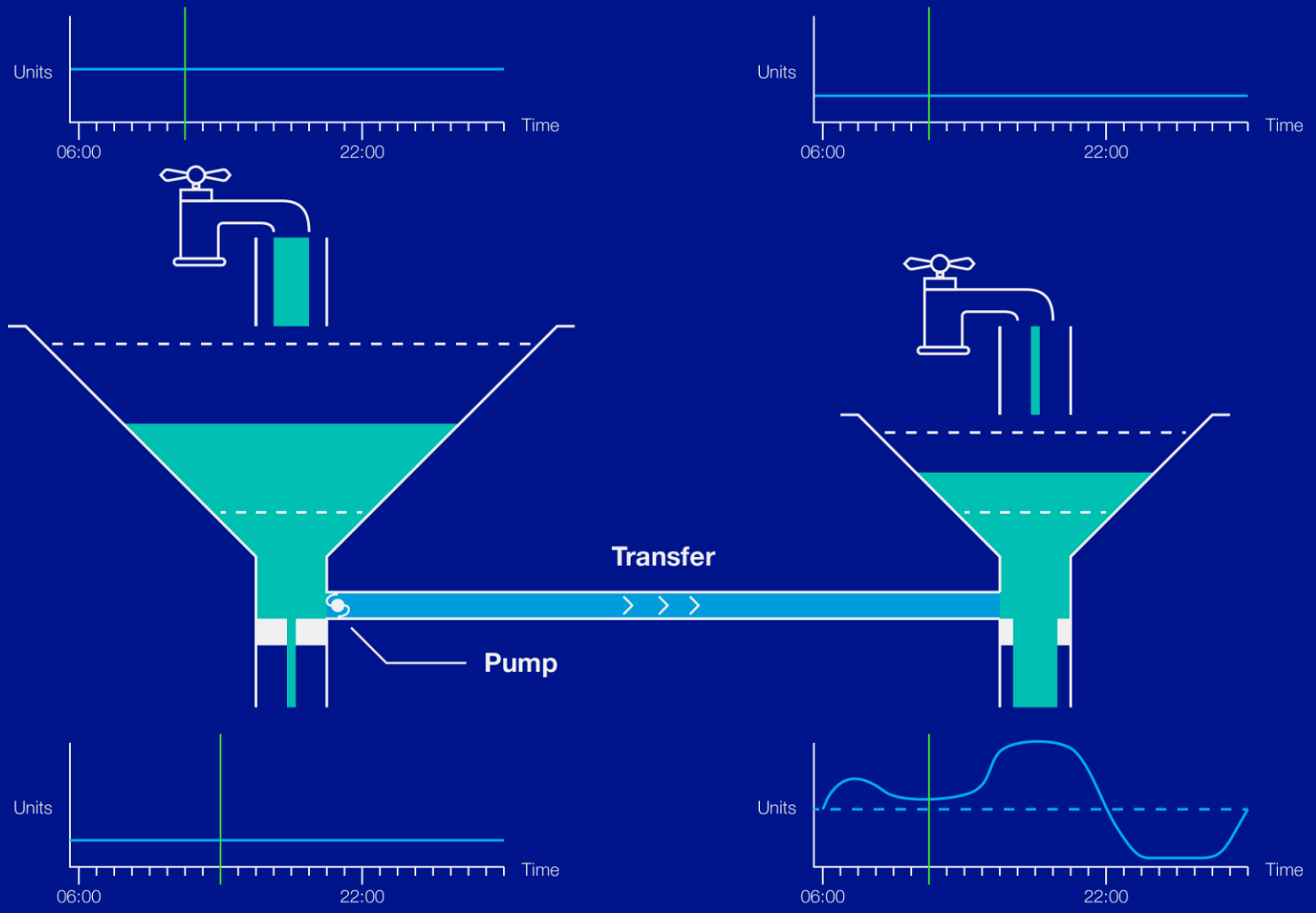
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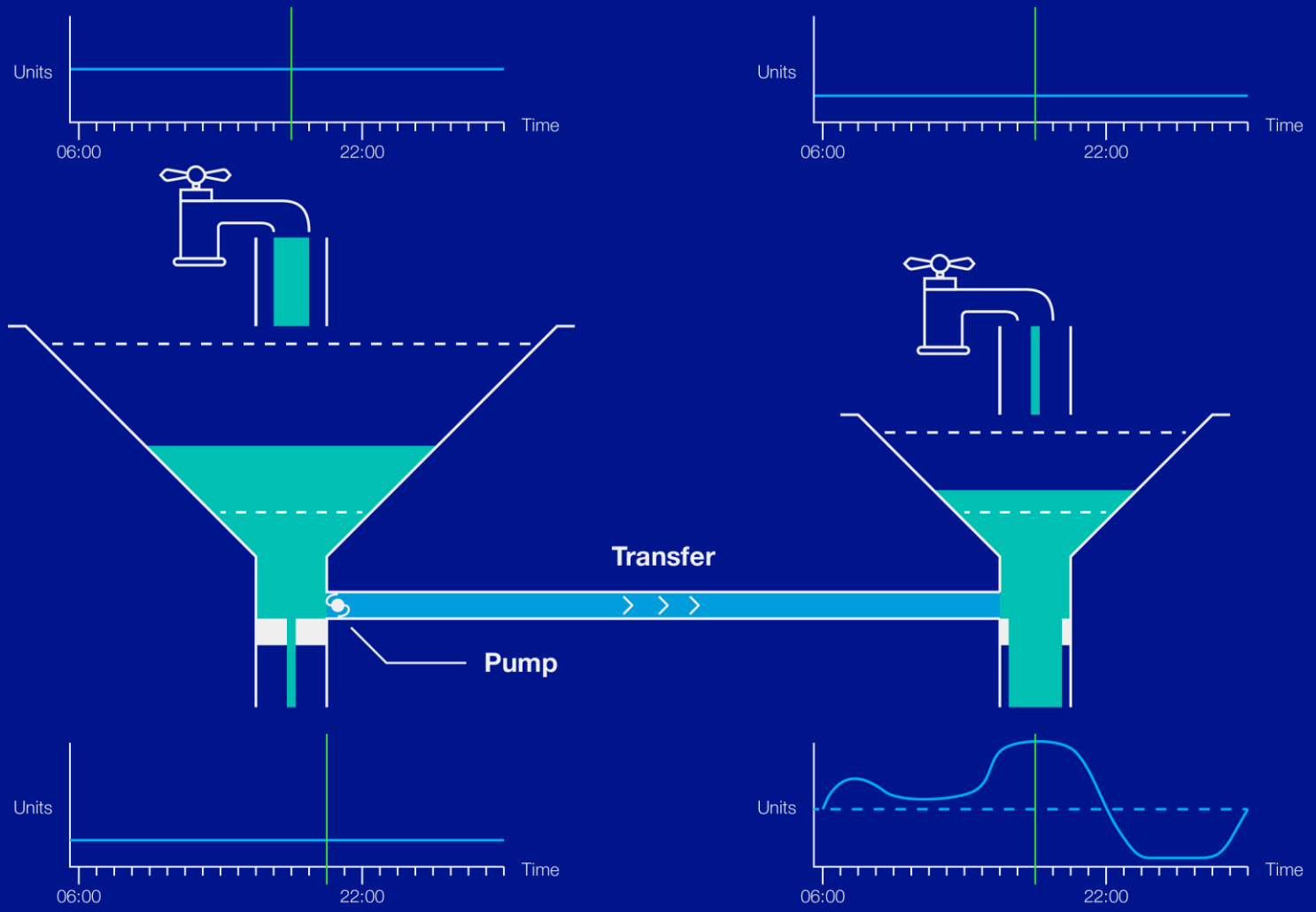
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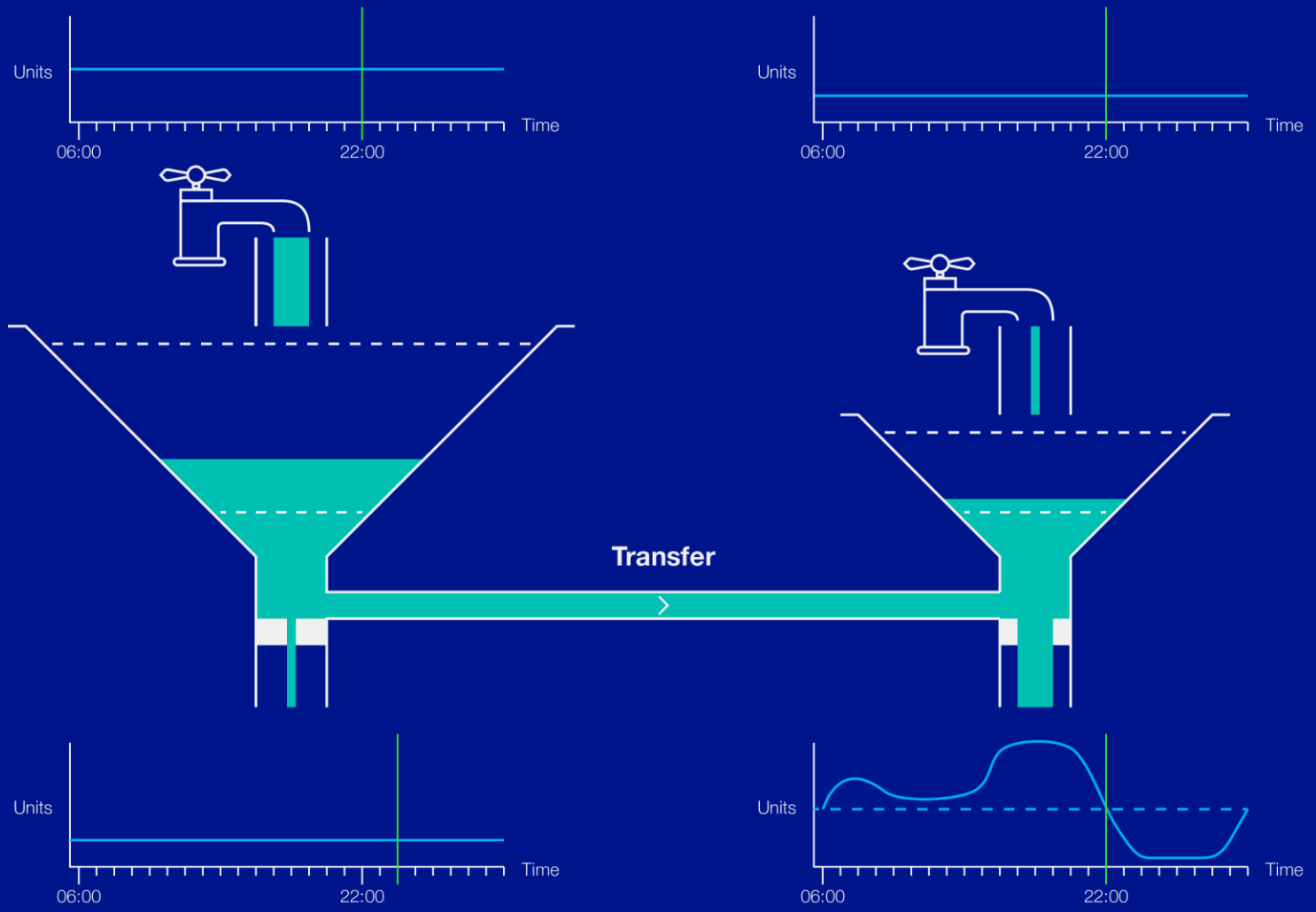
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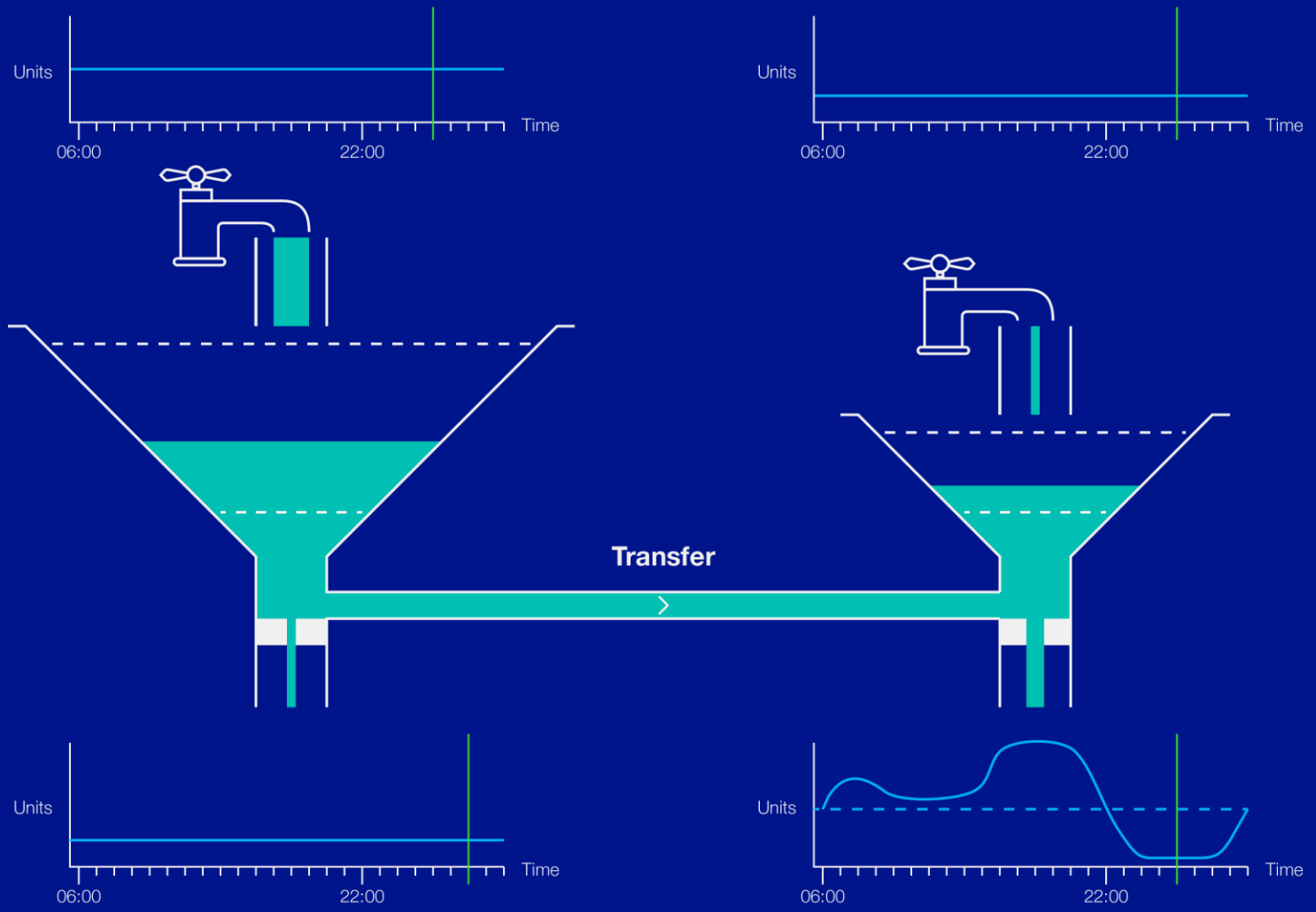
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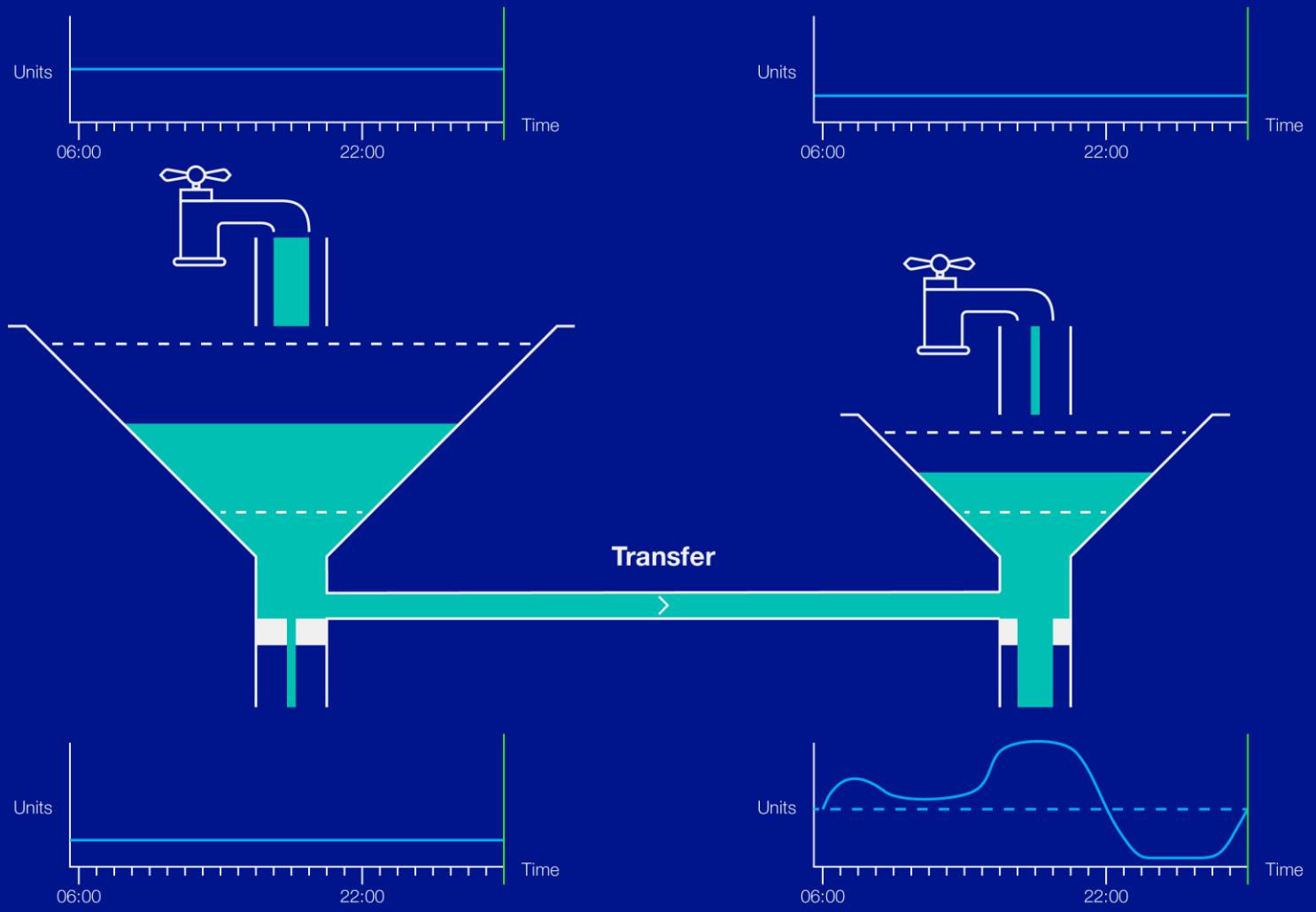
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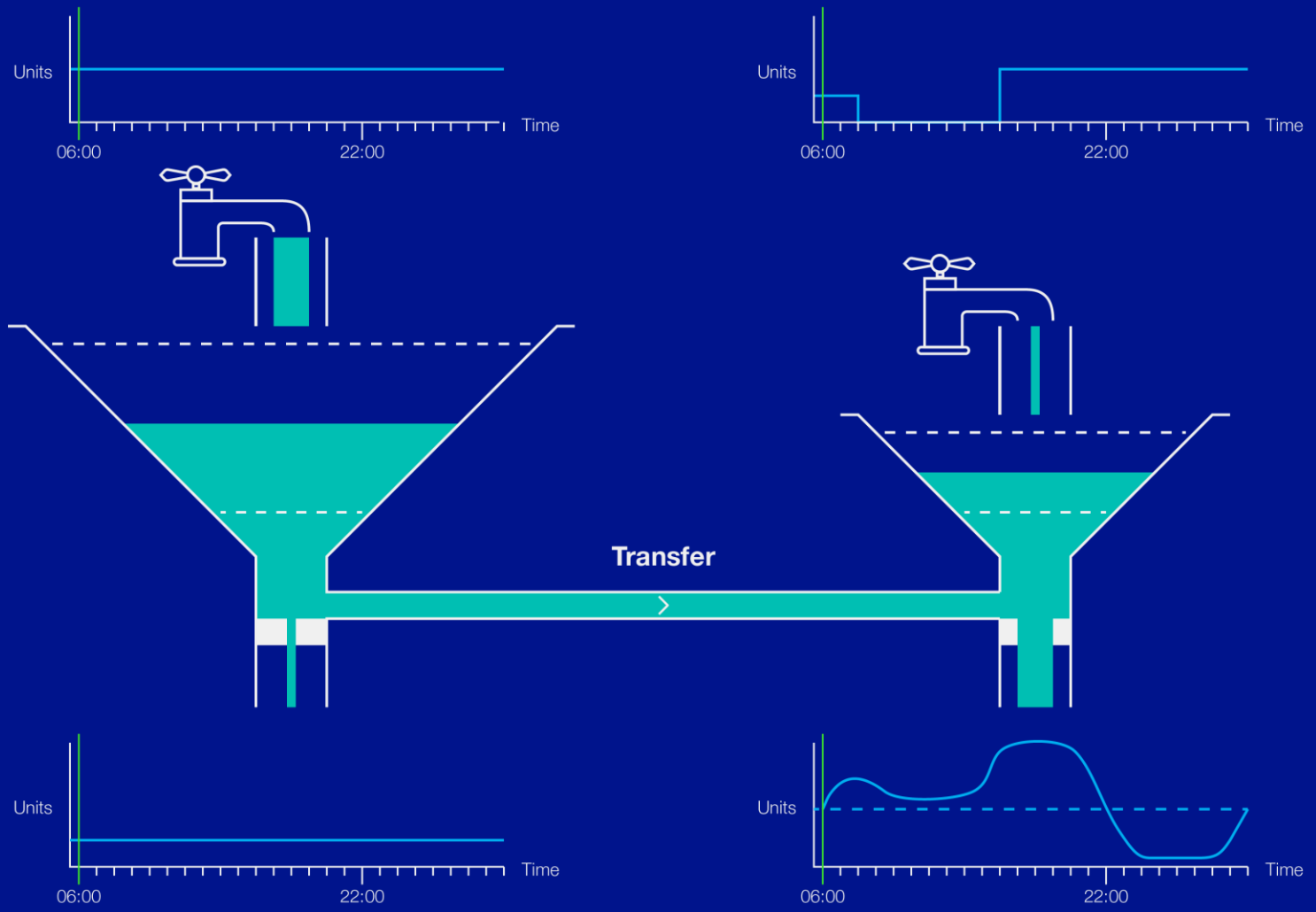
What if we have a customer driven change?

…In this case, let’s consider an unexpected supply loss.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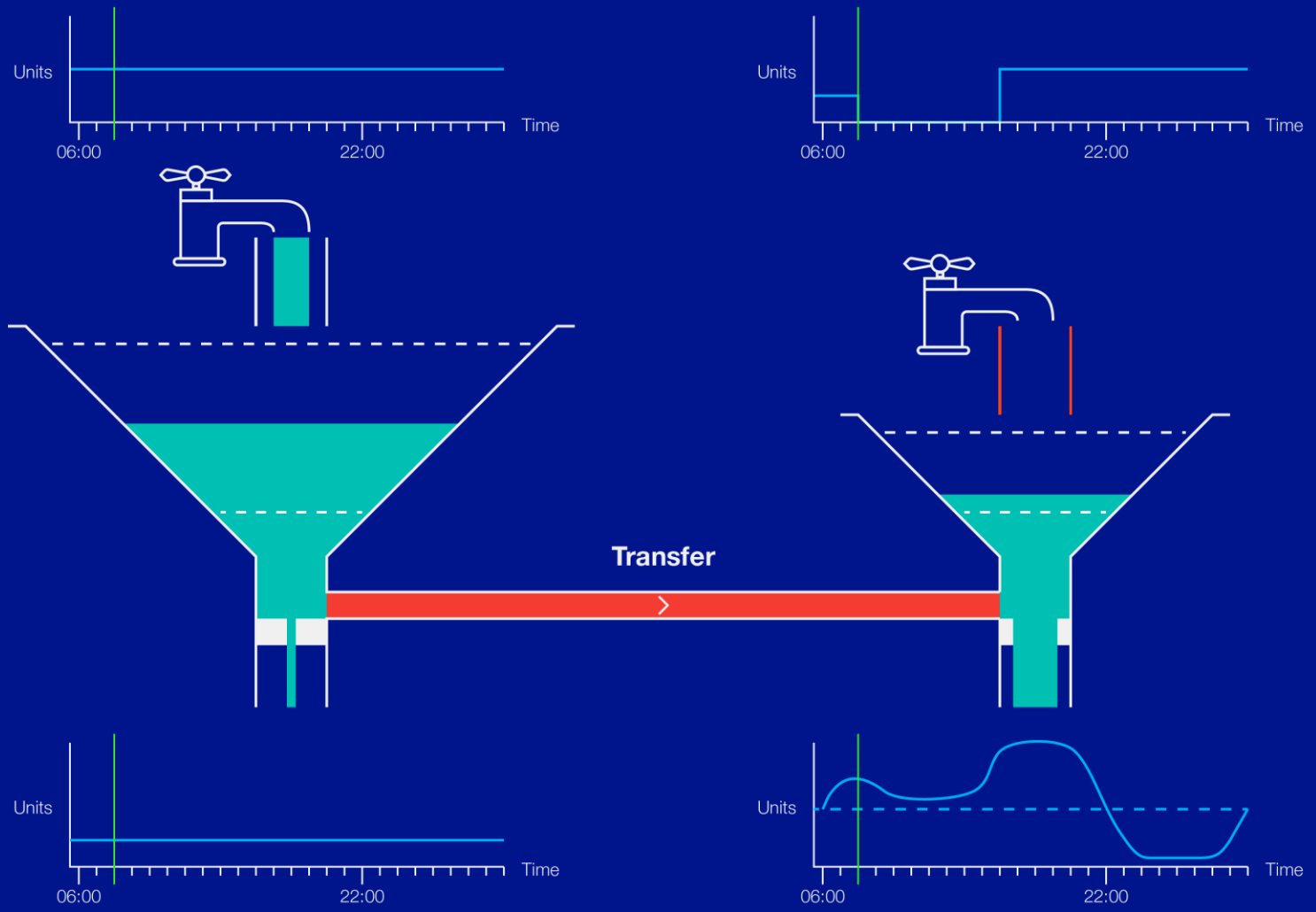
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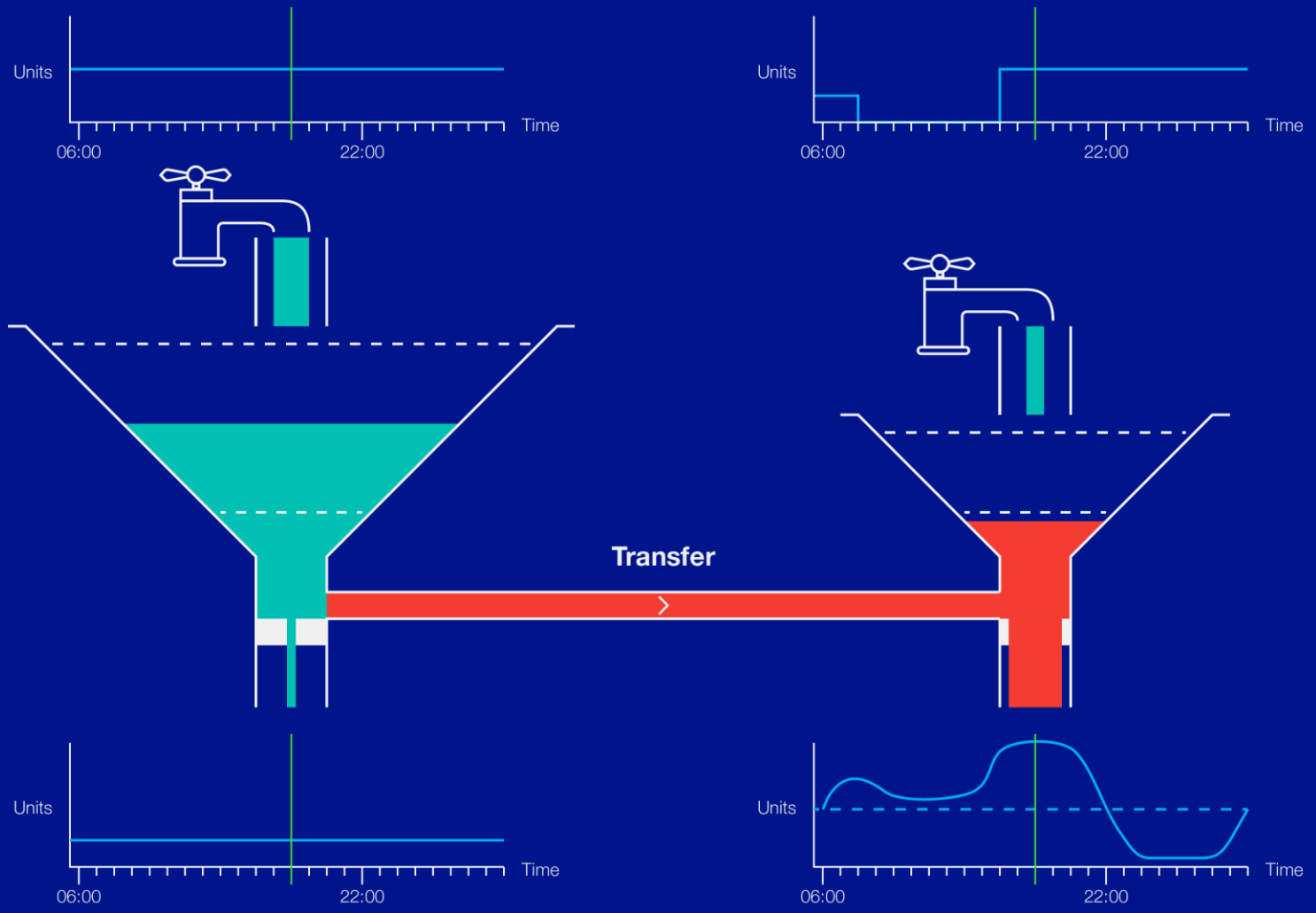
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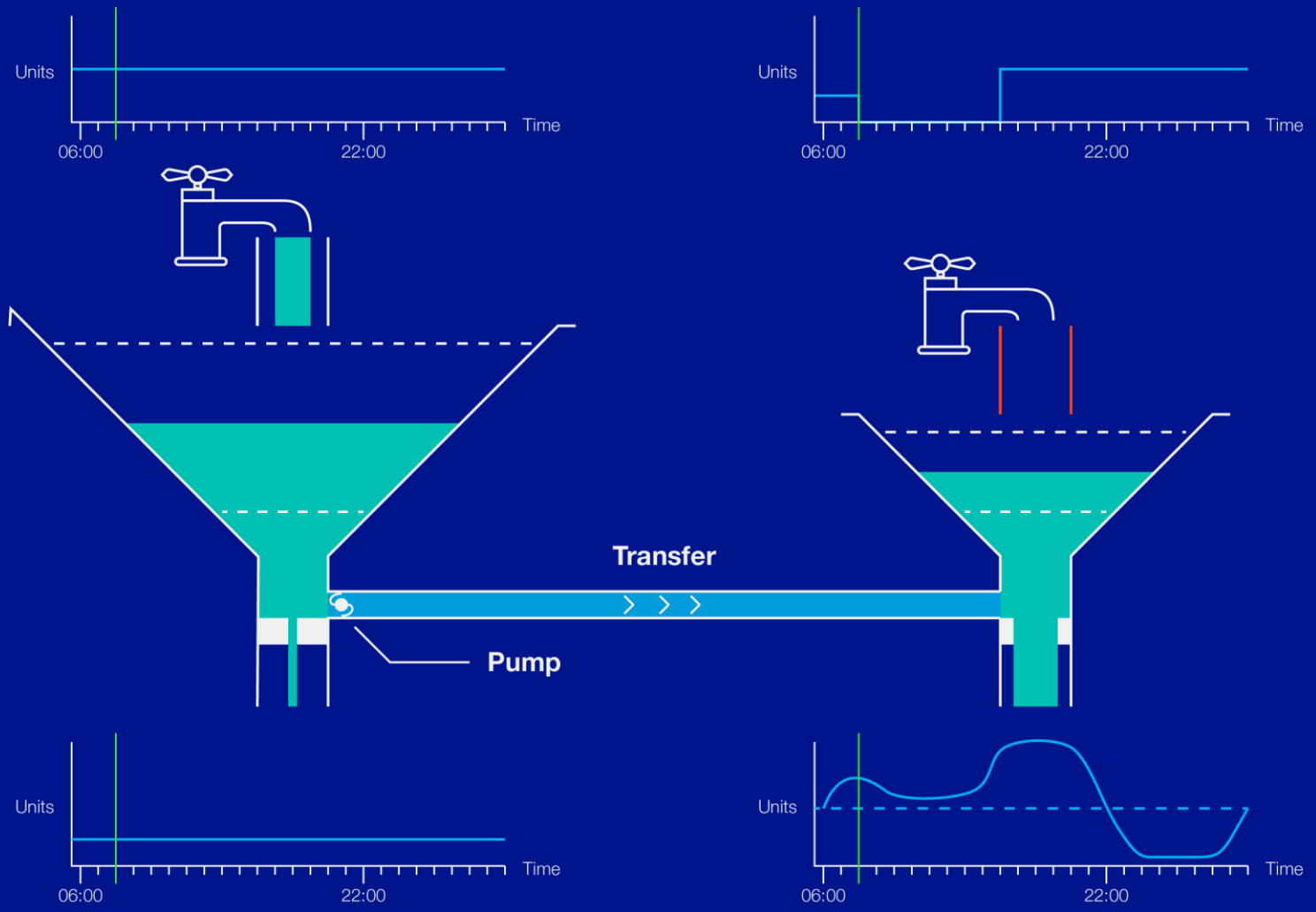
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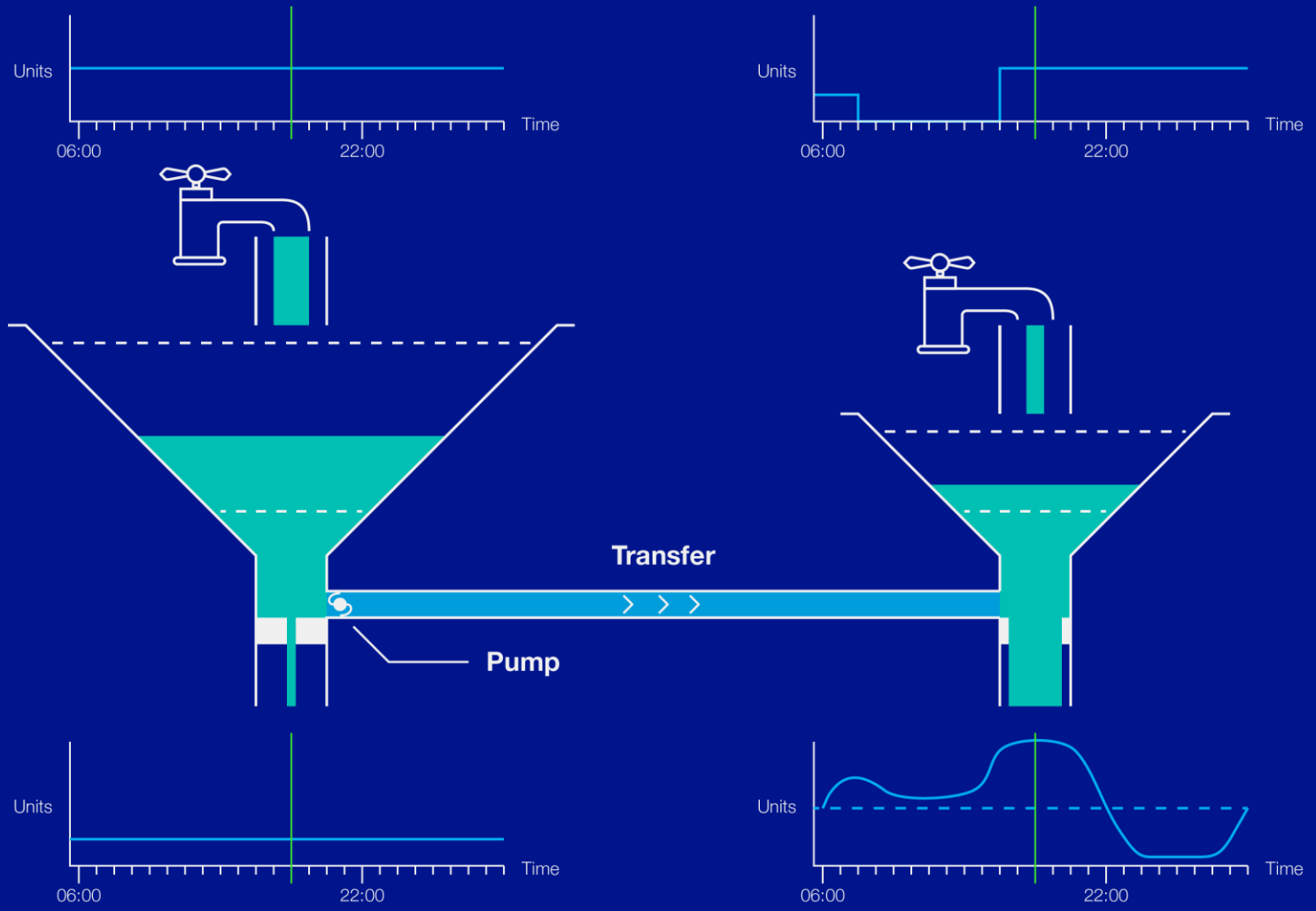
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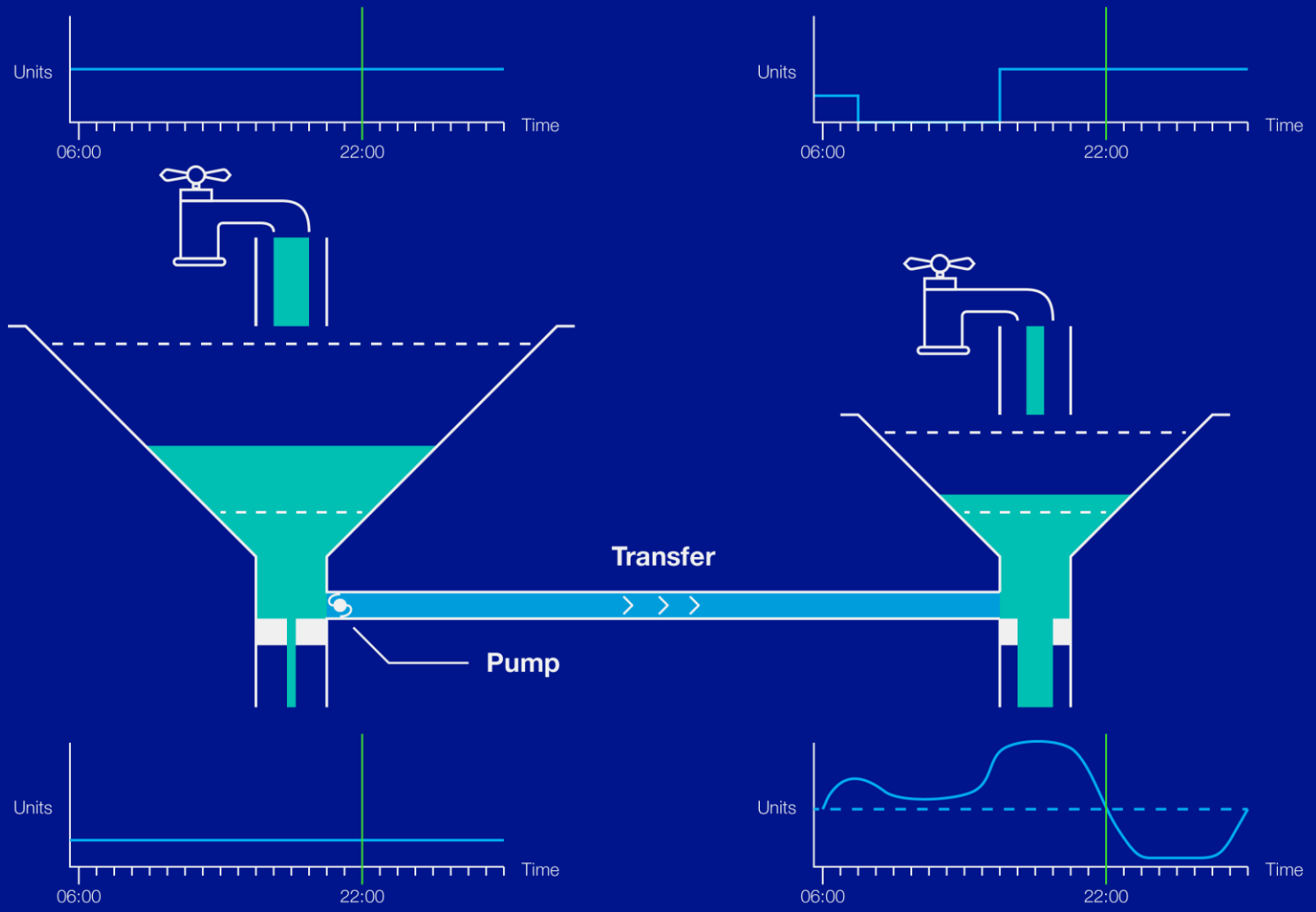
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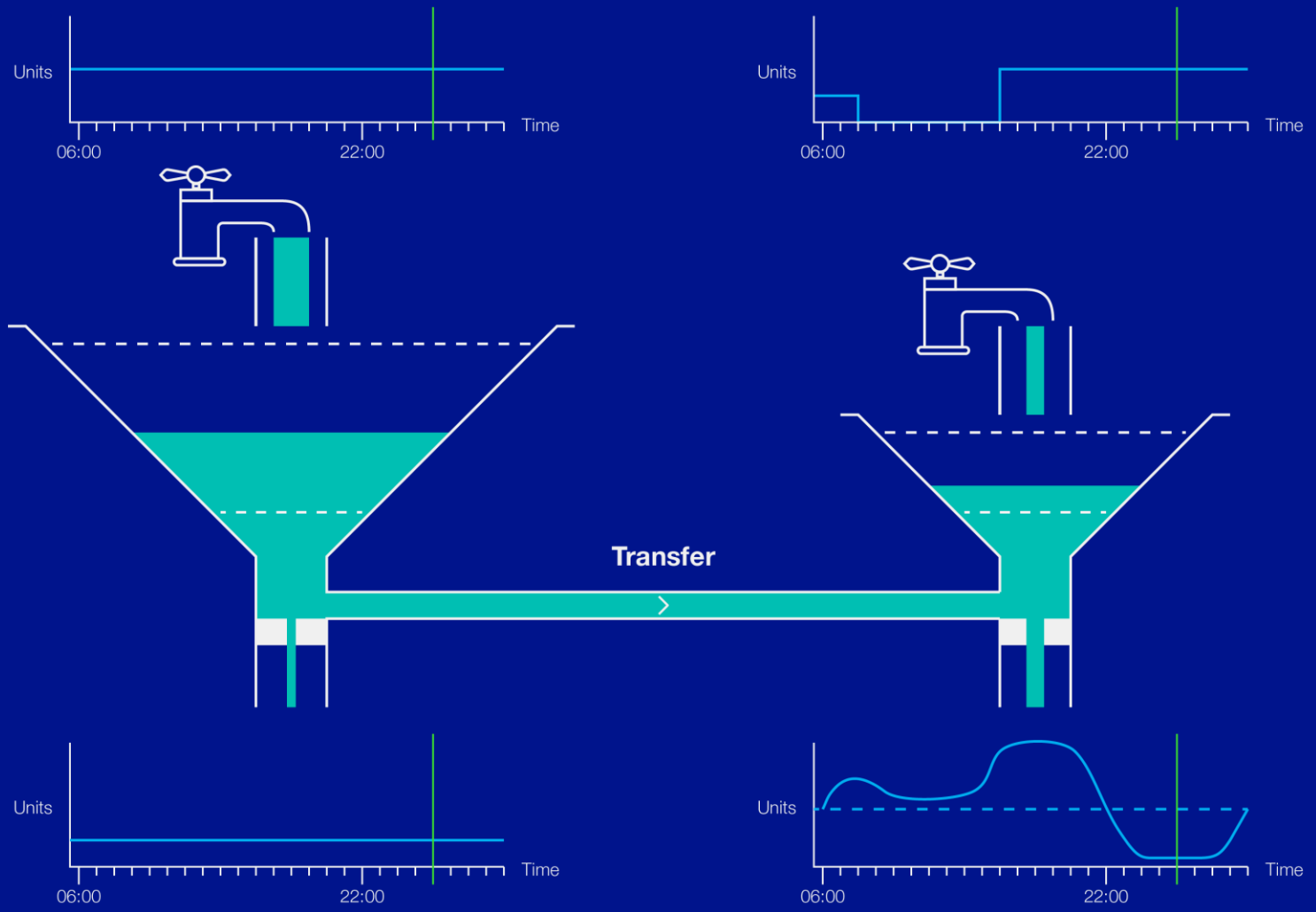
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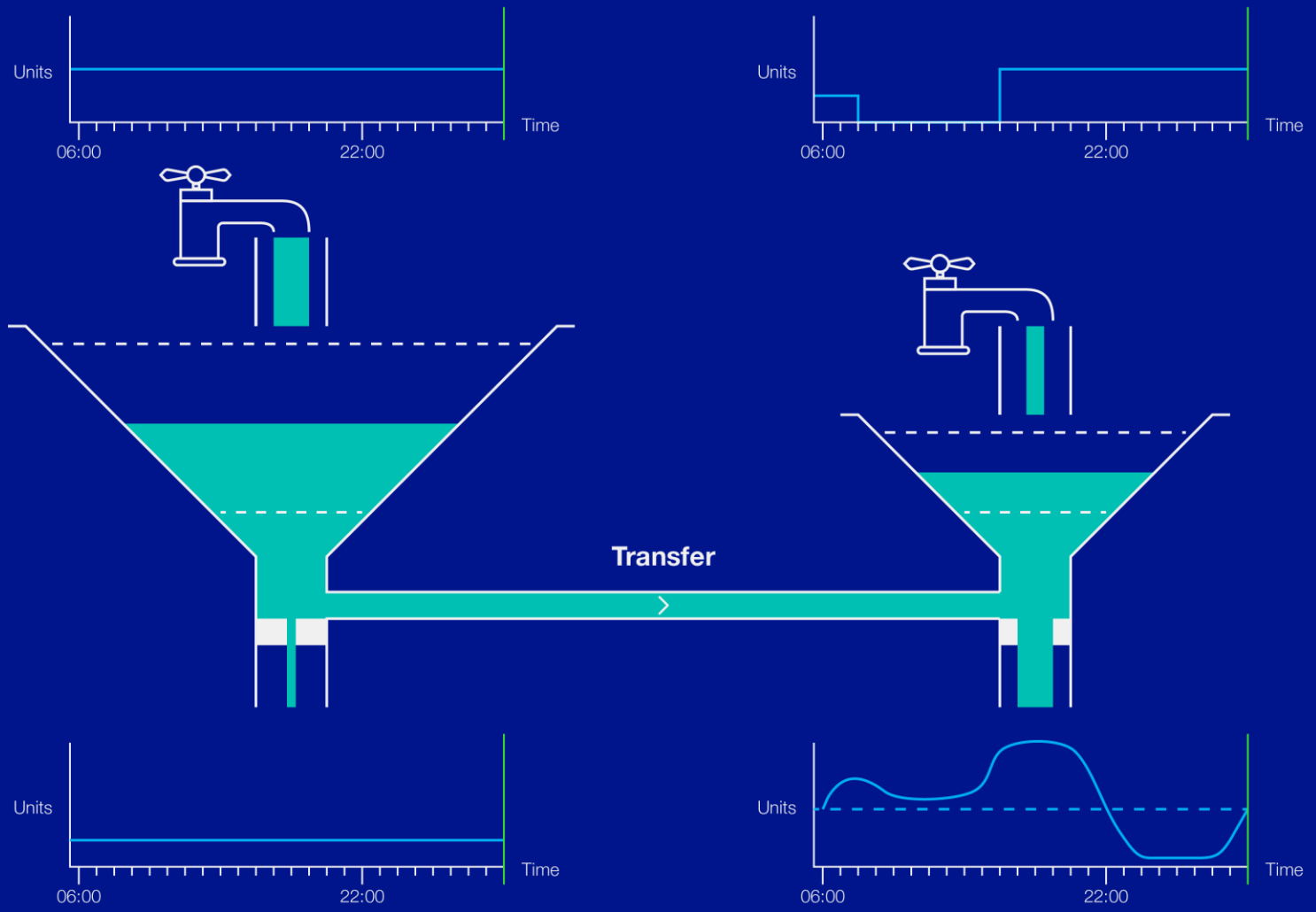
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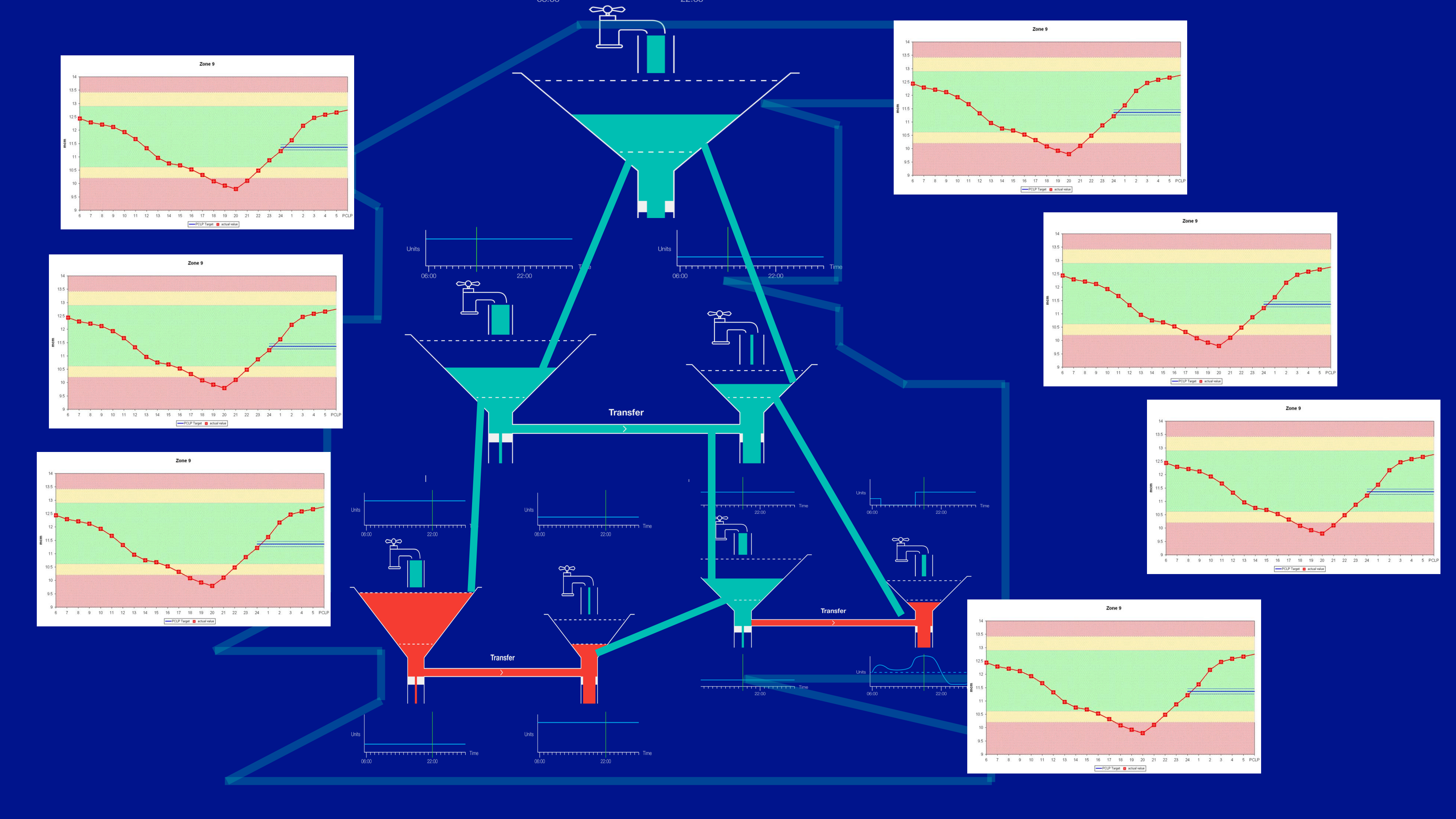
Zone 9
mcm
PCLP Target
actual value
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Transfer

Quick Poll – Impact and Interest

On a scale of A to E, where A is not impacted at all and E is impacted a great deal, how impacted are you or those you represent) by what we've just spoken about?

A. Not impacted at all
B.
C.
D.
E. Impacted a great deal

On a scale of A to E, where A is not interested at all and E is interested a great deal, how interested are you (or those you represent) by what we've just spoken about?

A. Not interested at all
B.
C.
D.
E. Interested a great deal

Quick poll

Have we explained how we manage the difference between supply and demand within the gas day?

Yes | **Somewhat** | **No**

Please explain your answer

Gas
Transmission

What does this mean to you?

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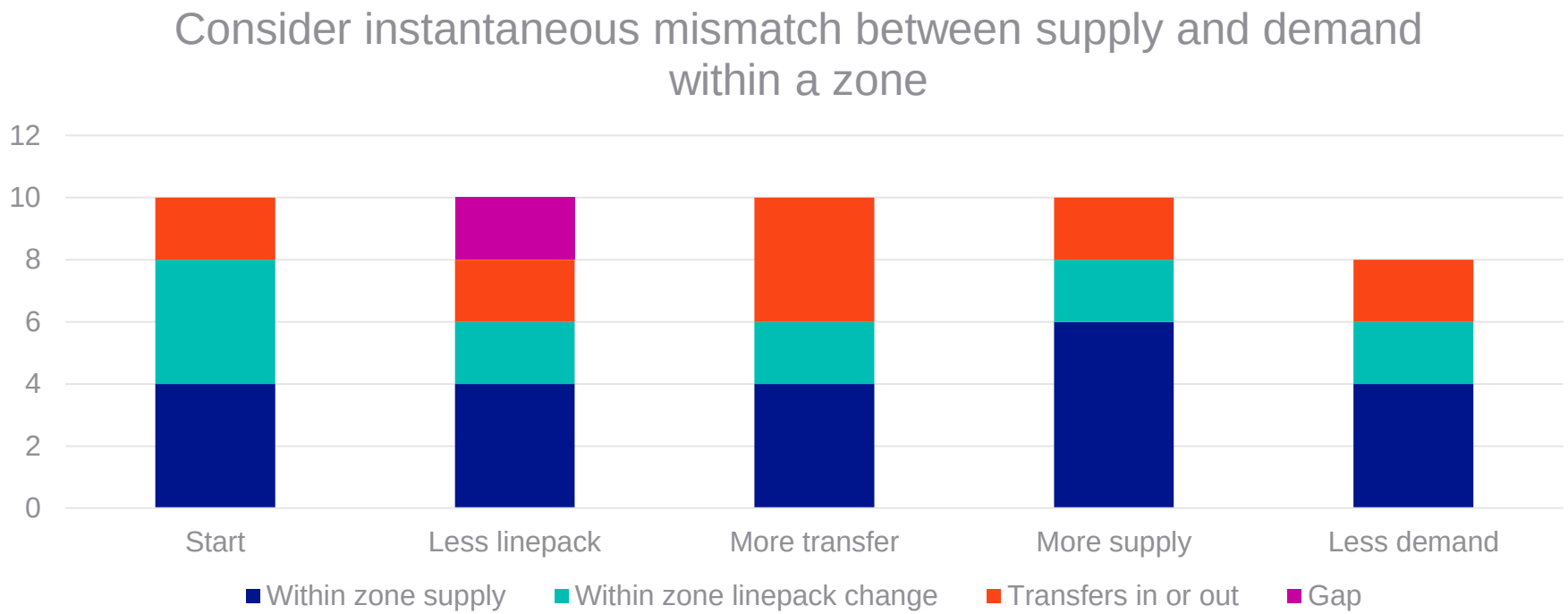
What does this mean for customers?



Potential options for delivering your needs

If boundary transfers are constrained, there are three options:

- Build/retain **assets** to avoid constraints
- Use **commercial tools** to manage, for example capacity buybacks – currently no profiling products
- **Market solutions** for example auction the product – not the current regime

If we can **measure** the capability of the network, we can more efficiently and effectively deliver your needs now and in the future

So how do we translate this into potential measures?

Break down into five elements

1. Customer driven change: Amount/level and type
2. Entry point capability in different conditions
3. Exit zone capability in different conditions
4. Linepack range within each zone
5. Boundary transfer rates

Potential metric 1 - Customer driven change

Suite of metrics to capture, measure and forecast customer behaviour and future requirements

- For example - peak end of day flows, profiles, type and amount of change, notice periods for change

	Peak EOD	Profile	Change	Notice
Shipper A	10	+/- 2	0 - 10 50 times a day	None

Potential metric 2 - Entry point capability

By each entry point

Entry flow assuming flat rate	High Demand	Low demand
Favourable conditions	140	100
Not favourable conditions	120	80

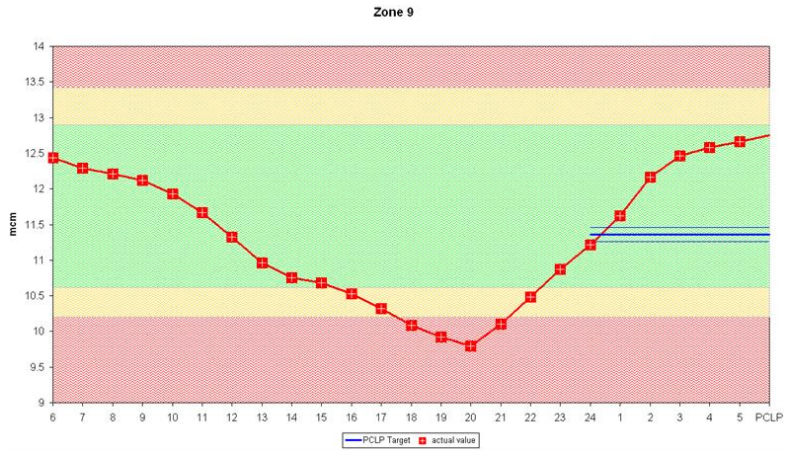
Potential metric 3 – Exit point capability

By each exit zone

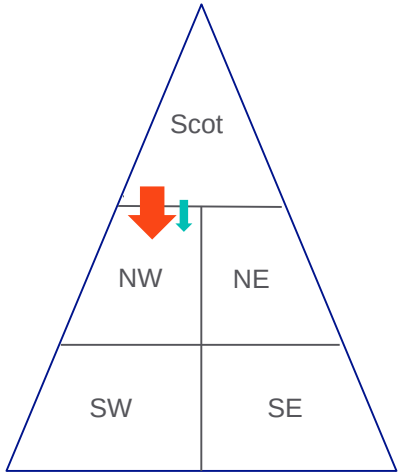
Exit flow assuming some profiling	High Demand	Low demand
Favourable conditions	120	90
Not favourable conditions	100	70

Potential metric 4 – Available linepack range

Amount of available linepack range within a zone



Potential metric 5 - Boundary Transfers between zones



Two components:

- **Bulk transportation**
- **To respond to profiles and within day changes**

Quick poll

Is it clear how we could link end of day flow requirements from entry and exit customers to the potential metrics?

Yes | **Somewhat** | **No**

Please explain your answer

Quick poll

Is it clear how we could link customer requirements to change their minds to the potential metrics?

Yes | **Somewhat** | **No**

Please explain your answer

Quick poll

Does this way of articulating the capability of the network work for you?

Yes | **Somewhat** | **No**

Please explain your answer

Should we develop these metrics further?

Yes | **Maybe** | **No**

What more information would you like to see to help you take an informed view?

Gas
Transmission

Access Review

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Arrangements for accessing unsold capacity

- As part of our RIIO business plan submission, Ofgem have asked us to prepare

'a report on revised arrangements for accessing unsold capacities on entry and exit'

- Ofgem have suggested we investigate zonal capacity products
- We are interested to hear stakeholder views on the current arrangements, what changes they would like to see and how that would translate to consumer value.

Initial survey: 22nd Feb

Follow up webinar: Early March

Exit point

Exit flow assuming some profiling	High Demand	Low demand
Favourable conditions	120	90
Not favourable conditions	100	70

Zonal arrangements

Potential **benefits** of zonal arrangements for accessing unsold capacity:

- more streamlined processes for accessing unsold NTS capacity from other points
- alleviate commercial congestion i.e. scenarios where an individual point is sold out of capacity.

Potential **drawbacks** of zonal arrangements for accessing unsold capacity:

- short/long term planning for National Grid is potentially less certain;
- increased constraint risk
- implications on charging – how to justify different charges within a zone? 'uneven' playing field?
- implementation costs (e.g. systems)

It is not clear how the potential user benefits above translate into consumer benefit.


QUESTIONS

Next Steps

- Continue to share & test the description of network capability with stakeholders
- Develop metrics further
- Explore market based options
- Explore stakeholder views on access review options
- Developing business plan for December 2019 based on network capability description & metrics


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Thank You

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