

Revenue Stacking

Last Updated: November 2024

This page presents consolidated information on revenue stacking, approved by the National Energy System Operator (NESO) and all GB Distribution System Operators (DSOs). If you have feedback or questions, please contact opennetworks@energynetworks.org.

We have heard from stakeholders that information on revenue stacking can be difficult to find, inconsistent and even contradictory. The purpose of this page is to improve the clarity of revenue stacking rules and highlight existing opportunities.

What is Revenue Stacking?

Revenue stacking is where a single flexible asset participates in multiple markets, to maximise its value to the energy system. Flexibility providers can receive multiple payments as a result.

Revenue stacking can be split into three categories: 'Co-delivery', 'Splitting' & 'Jumping':

Co-delivery: a single asset receives multiple payments for using the same capacity, at the same time, in the same direction.

Splitting: a single asset receives multiple payments for using different capacity, at the same time.

Jumping: a single asset receives multiple payments for services in different times (adjacent or non-adjacent).

	<u>Co-delivery</u>	<u>Splitting</u>	<u>Jumping</u>
Asset	Same	Same	Same
Capacity	Same	Different	Same / Different
Time	Same	Same	Different
Direction	Same	Same / Different	Same / Different

Below we provide illustrative examples of Co-delivery, Splitting and Jumping.

Co-delivery

A single asset receives multiple payments for using the same capacity, at the same time, in the same direction.

The example on the left shows how a single asset can be paid for providing Capacity Market (CM) and Dynamic Containment (Low). The asset, which can offer 10MW of generation turn up, is able to be paid twice for that 10MW. The Capacity Market can be co-delivered with 'relevant balancing services' as defined [here](#).

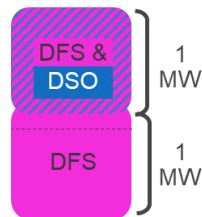
The example in the middle illustrates that a single asset (or group of assets) can Co-deliver against the Demand Flexibility Service (DFS) and a scheduled DSO service. The asset, which can deliver demand turn down of 2MW, can deliver and be paid against both the DFS and DSO service.

The **Capacity Market (CM)** and **Dynamic Containment (DC)**



Combining the Capacity Market with any **Relevant Balancing Service**.

Demand Flexibility Service (DFS) and a scheduled **DSO service**



Delivering DFS as well as a scheduled DNO service. Overdelivering on the DNO service is likely.

Wholesale Market and a **DSO service**

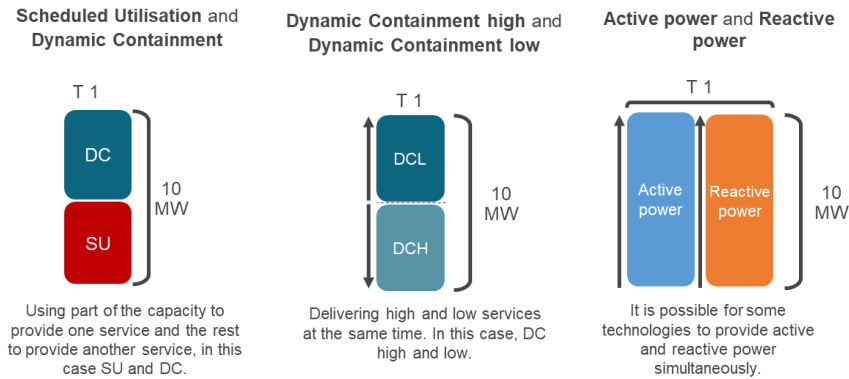


When participating in DSO services, providers must also trade their DSO utilisation in the Wholesale Market to avoid imbalance cost.

Splitting

A single asset receives multiple payments for using different capacity, at the same time.

The examples below show different ways of splitting flexible capacity between two services. The first example illustrates where services are in the same direction, and where the baseline of one service may be adjusted for the other. Examples 2 illustrates where services are delivered in opposite directions - either because of adjusted baselines, or because services are not required simultaneously (e.g. Dynamic Containment High and Low). The final example shows additional stacking potential in cases where an asset can provide flexibility in both active (kW) and reactive power (kVA).



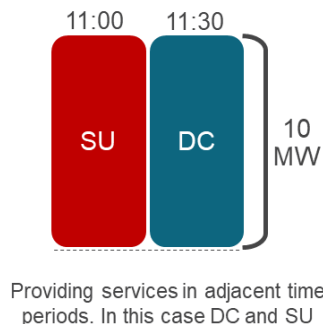
T = Time | DC = Dynamic Containment | SU = Scheduled Utilisation | WM = Wholesale Market

Jumping

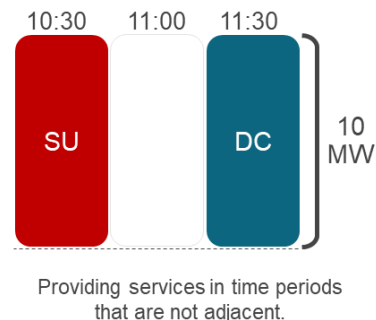
A single asset receives multiple payments for services in different times (adjacent or non-adjacent).

Examples where Jumping is permitted are widespread. That said, providers should consider any technology related constraints (e.g. maximum duration of response or time between activations). There may also be limitations how quickly assets can be registered or de-registered from a service.

Adjacent: Dynamic Containment (DC) and Scheduled Utilisation (SU)



Non-adjacent: Dynamic Containment (DC) and Scheduled Utilisation (SU)



T = Time | DC = Dynamic Containment | SU = Scheduled Utilisation

What revenues can you stack?

The Revenue Stacking Excel Tool was created as an authoritative and intuitive tool for stakeholders.

The tool includes revenue stacking information from the NESO's [Markets Roadmap](#) and the ENA's [Revenue Stacking Assessment for DSO Services](#). The tool has been validated by the NESO and all DSOs.

We welcome feedback on the tool, particularly related to its usefulness, usability and potential. If you have ideas for how it can be improved, please email: opennetworks@energynetworks.org.

Revenue Stacking Summary

Jumping

			ESO														
	CM	WM	BM	BR	QR	SR	STO	DC	DM	DR	SFFR	MW	LCM	DFS	PR	SO	OU
CM																	
WM																	
BM																	
BR																	
QR																	
SR																	
STOR																	
DC																	
DM																	
DR																	
SFFR																	
MWD																	
LCM																	
DFS																	

[ENA Open Networks - Revenue Stacking Assessment Tool](#)

FAQs

Can I be paid twice for the same kWh?

In some cases, yes. This is called **co-delivery**. Co-delivery is where multiple services can be delivered from the same capacity at the same time, increasing the revenue earned for delivered power. Examples of services which can be co-delivered:

- DSO services and wholesale markets
- The Demand Flexibility Service and DSO services
- The Capacity Market and most NESO services (see 'Relevant Balancing Services')

To do this both services must be required at the same time and in the same direction. Care should be taken when entering into such an arrangement such that there is not a risk of conflicting signals or instruction from one buyer that could result in under delivery to the other buyer.

What are the benefits of stacking?

By allowing flexible assets to provide multiple services, we reduce the total amount of flexibility we need in the system and increase the revenue potential for each flexible asset. It therefore has value to the efficiency and operability of the whole system, as well as benefits to participants.

Are there any risks in stacking?

By combining different services there is a potential increase in utilisation of the asset, or increased disruption to its normal operation.

Different services may have different technical requirements, such as response time and ramp rates. The differing requirements may increase stress on an asset and this should be considered when entering into the markets.

There could be additional commercial risk and complexity for providers for stacking services. For example, if an asset was unavailable resulting in non-delivery of multiple services, the commercial impact would be higher.

A particular consideration for stacking is baselining, and agreeing the baseline with both contracting parties. This is particularly true for Splitting where baselines might suddenly increase/decrease as other contracts start and end.

Who can I speak to, in order to find out more?

To find out more about revenue stacking you can contact either your area's Distribution System Operator (DSO) or the National Energy System Operator (NESO).

Do I need to let System Operators know that I am planning to stack services?

You should consult the contractual terms for the relevant services, but it is likely you will need to alert the buyers, not least to ensure you are appropriately baselined and not penalised for stacking. However, unless explicitly stated you are not obligated to inform the contracting parties of your *detailed* arrangements.

You may also wish to provide feedback to a specific operator on how a service could be adjusted to improve ease of stacking. All DSOs and NESO are interested in hearing this feedback and are looking to further improve these opportunities.

What is primacy?

As DSOs and NESO, we are responsible for different aspects of one interconnected electricity system. Actions that one party takes has the potential to impact another party. In particular, an action by one system operator may create a need for another system operator to compensate.

Primacy is about managing these interactions in a clear and efficient way. A working group under the Open Networks programme is currently developing the necessary rules and data exchanges. While this stacking page focuses on what a single asset can do, primacy is focused on the potential conflict between the actions of different assets within the same electrical network.

Further reading

For more detail on current stacking opportunities

- Revenue Stacking Assessment (2024, ENA, supported by Cornwall Insights).
Provides further description of considerations when stacking products, along with the compatibility of specific services

For more detail on technical requirements of NESO and DSO flexibility products

- The standard DSO flexibility products (2024, ENA)

For more detail on what is being done to improve stacking opportunities

- Markets Roadmap (NESO)
- Open Networks Stackability Focus Group (2024, ENA). Describes activities over late 2024 / early 2025 within the Open Networks Stackability Working Group