nationalgridESO

ESO Forward Plan 2019-21

Monthly Reporting - November

20 December 2019

Foreword

Welcome to our monthly performance report for November 2019. Each month we report on a subset of metrics, which have data available at monthly granularity. Our mid-year report was published[1] in October, and gave a fuller picture of our performance in the first half of the 2019-20 reporting year together including an update on our progress against the deliverables set out in our current Forward Plan[2].

A summary of our monthly metrics covering November is shown in Table 1 below.

Contents

Metric	Performance	Status
Balancing cost management	£83.1m outturn against £99.9m benchmark	●
Energy forecasting accuracy	Demand forecast error met target; wind forecast error below target.	●
Month-ahead BSUoS forecast	42% forecasting error	●
System access management	2.63/1000 cancellations[3]	●
Connections agreement management	100%	●
Right first time connection offers	89%	●

● **Exceeding expectations**
● **Meeting expectations**
● **Below expectations**

Table 1: Summary of monthly metrics

You can find out about our vision, plans, deliverables and full metric suite in the Forward Plan pages of our website[4].We welcome feedback on our performance reporting to box.soincentives.electricity@nationalgrideso.com .

Louise Schmitz

ESO Regulation Senior Manager

1 https://www.nationalgrideso.com/document/154826/download
2 https://www.nationalgrideso.com/document/140736/download
3 The number has been corrected on 13 Jan 2020.
4 https://www.nationalgrideso.com/about-us/business-plans/forward-plans-2021

Role 1 Managing system balance and operability

Operate the system safely and securely, whilst driving overall efficiency and transparency in balancing strategies across time horizons

Support market participants to make informed decisions by providing user friendly, comprehensive and accurate information

Metric 1 – Balancing cost management

November 2019 Performance

For monthly breakdown of costs, please refer to our balancing costs webpages[5].

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
Benchmark cost (£m)	83.2	97.5	75.3	85.6	87.4	96.6	103.3	98.4	91.0	82.6	81.9	81.1	1063.9
Additional cost forecast due to WHVDC fault (£m)	11.3	11.3	1.0	0	0.5	1.0	0	1.5	0	0	0	0	26.6
Benchmark adjusted for WHVDC (£m)	94.5	108.7	76.3	85.6	87.9	97.6	103.3	99.9	91.0	82.6	81.9	81.1	1090.4
Outturn cost (£m)	80.2	60.9	86.5	67.2	104.9	107.9	130.1	83.1					720.8 [YTD]

Table 2: Monthly balancing cost benchmark and outturn.

Note that we are including an adjusted benchmark figure due to restrictions on Western HVDC link availability during April, May, June, August, September and November as these events were outside of our control.

To apply seasonality to the monthly benchmark figures, we have apportioned the calculated benchmark for the year (£1063.9m) across the 12 months in the same ratio as our year-ahead monthly BSUoS forecast[6]. Note that outturn cost excludes cost associated with Black Start.

[5] https://www.nationalgrideso.com/balancing-data
[6] https://www.nationalgrideso.com/document/141946/download

Supporting information

Western Link was unavailable for 4 days in early November due to a planned outage, so an uplift was added to the benchmark to reflect this. Balancing costs fell significantly in November from October and outturned £17m below the benchmark. A combination of more benign weather and the restoration of some network capabilities following summer outages led to lower constraint costs. Wind output was 700GWh lower in November than October, with Scottish Wind 340GWh lower, thus reducing thermal constraint costs due to network congestion in Northern England and Scotland. Along with reductions in thermal constraint costs there was also a reduction in RoCoF, Reserve and Reactive costs compared to October, as higher demands led to more synchronous generation running and reducing the amount of balancing actions needed to manage these requirements.

Metric 3 – Energy forecasting accuracy

November 2019 Demand Forecasting Performance

Figure 1: Demand Forecasting Performance, shows our performance for November as the green histogram against the blue target line.

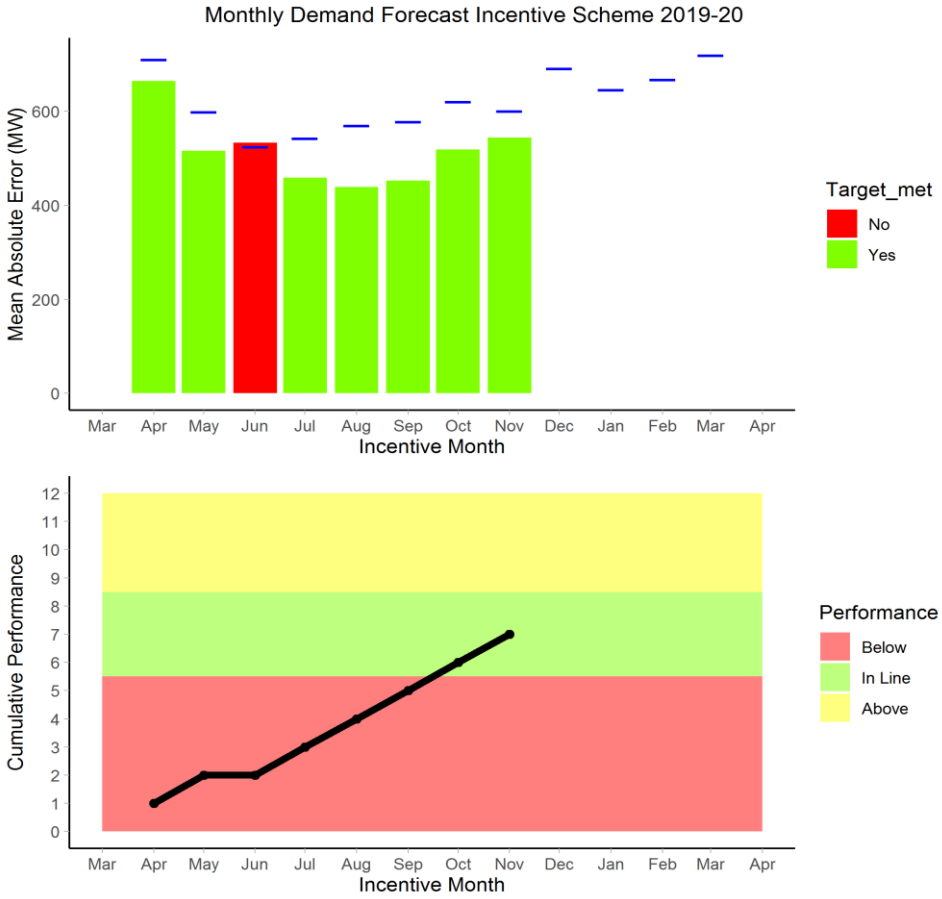


Figure 1: Demand Forecasting Performance

Supporting information

In November 2019, our day ahead demand forecast performance was better than the target of 601 MW. November's Monthly Mean Absolute Error (MMAE) was 543 MW. This was the 7th month for this financial year (2019-20) for which this target has been met.

November is the beginning of the triad season, and increased demand uncertainty occurred over the darkness peak because of uncertainty on the amount of triad avoidance that would take place. Despite this, day ahead demand forecasting accuracy was within the target.

The forecasting team is continuing to trial the new forecasting tool to help improve accuracy.

Performance benchmarks

At the end of the year, we will count how many months we have met our targets and apply the benchmarks:

- Below benchmark: 0-5 months;
- In line with benchmark: 6-8 months;
- Exceeds benchmark: 9-12 months.

November 2019 Wind Generation Performance

Figure 2: Wind Forecasting Performance, shows our performance this month as the green histogram, against the blue monthly target.

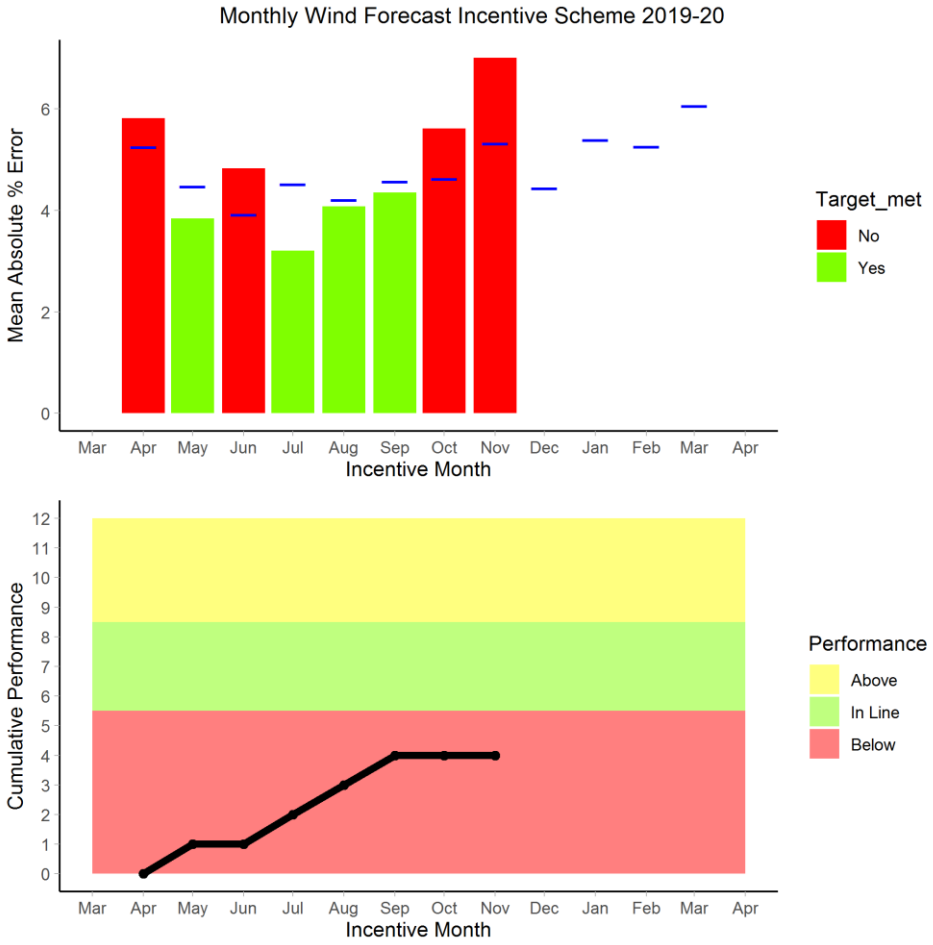


Figure 2: Wind Forecasting Performance

Supporting information

In November 2019, our day ahead wind forecasts were less accurate than the benchmark of 5.32%. November's Monthly Mean Absolute Percentage Error (MMAPE) was 7.01%.

There were several occasions of very large wind power forecasting errors in November. These occasions coincided with unusually strong weather fronts and low pressure atmospheric systems progressing across the UK. The forecasting errors were caused by errors in predicting the timing and direction of this progression.

Further efforts to improve our wind power forecasting are ongoing. This includes refining our forecasting models, identifying and improving bad metering data and further analysis of availability data submissions from wind farms via the Transmission Outage and Generator Availability (TOGA) system. We are continuing to investigate the large errors that occurred in November and further recommendations will be implemented over the coming months.

Performance benchmarks

At the end of the year, we will count how many months we have met our targets and apply the benchmarks:

- Below benchmark: 0-5 months;
- In line with benchmark: 6-8 months;
- Exceeds benchmark: 9-12 months.

Notable events this month

Nemo Link intraday market went live

The new Nemo Link intraday market and associated product went live on 14 November 2019. The new market has 24 intraday gates and capacity is sold in four auctions for each day. The intraday mechanism allows the flow on Nemo to be managed via trading actions among interconnector capacity holders. Being the first link to operate under the new Intraday access rules model, Nemo's outturn flows are not known until much closer to real time compared to other interconnectors. We have demonstrated the ability to operate the system in a more flexible market and ensure a secure energy supply. Carefully increasing the volumes on a weekly basis, we have successfully traded 3,430 MWh on Nemo in November.

Loss of mains application

The first application window of loss of mains was closed in November. Over 2,000 applications were submitted successfully prior to being assessed and, where acceptance criteria are met, accepted for payment in return for changing loss of mains settings. The application process remains open for the subsequent windows.

Role 2
Facilitating Competitive Markets

Ensure the rules and processes for procuring balancing services maximise competition where possible and are simple, fair and transparent

Promote competition in wholesale and capacity markets

Metric 9 – Month ahead forecast vs outturn monthly BSUoS

November 2019 Performance

Month	Actual	Month-ahead Forecast	APE	APE>20%	APE<10%
April-19	2.87	3.02	0.05	0	1
May-19	2.48	3.12	0.26	1	0
June-19	3.39	3.07	0.09	0	1
July-19	2.75	3.23	0.18	0	0
Aug-19	3.97	3.34	0.16	0	0
Sept-19	3.94	3.71	0.06	0	1
Oct-19	3.86	4.02	0.04	0	1
Nov-19	2.49	3.52	0.42	1	0

Table 3: Month ahead forecast vs. outturn BSUoS (£/MWh) November 2019 Performance

Performance benchmarks

Exceeds benchmark: Exceeding is meeting baseline performance and five or more forecasts less than 10% APE.

In line with benchmark: Of the 12 forecasts over a financial year, baseline performance is less than five forecasts above 20% APE.

Below benchmark: five or more forecasts above 20% APE.

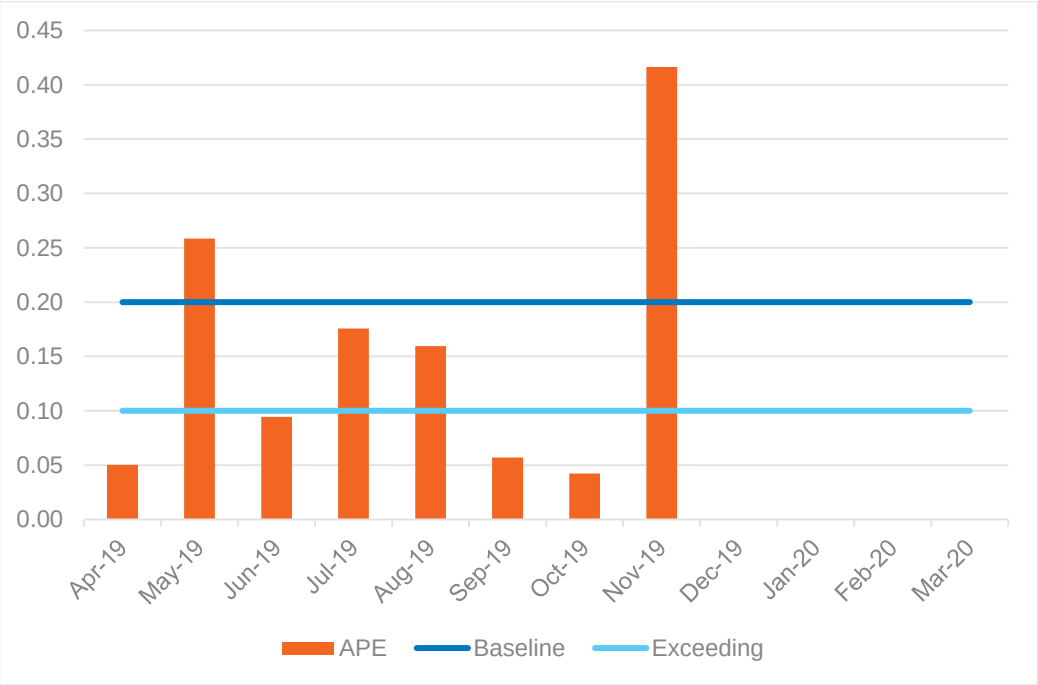


Figure 3: Monthly BSUoS forecasting performance

Supporting information

BSUoS charges were much lower in November than October, and well below the forecast value. Balancing costs were £47m lower than October and an increase of over 3TWh of BSUoS volume resulted in a £1.37/MWh reduction in BSUoS charges. We forecasted constraint costs to be more consistent with October, but a reduction of 340GWh of Scottish Wind output meant thermal constraint costs were lower than expected. Coupled with a higher-than-forecast increase in BSUoS volume, our forecast accuracy fell outside the 20% level.

Roles 3 & 4
Facilitating whole system outcomes and supporting competition in networks

Coordinate across system boundaries to deliver efficient network planning and development

Coordinate effectively to ensure efficient whole system operation and optimal use of resources

Facilitate timely, efficient and competitive network investments

Metric 11 – System access management

November 2019 Performance

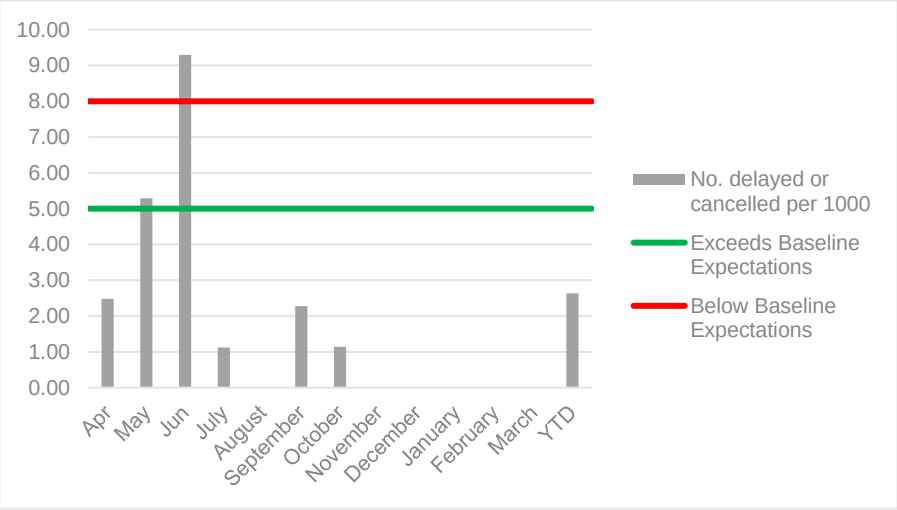


Figure 4: Number of outages delayed by > 1 hour, or cancelled, per 1000 outages [7]

Supporting information

For November, we are continuing to 'Exceed Expectations' on this metric of 2.63 outage cancellations[7] per 1000 outages. There was no outage cancellation this month.

Performance benchmarks

Exceeds benchmark: Less than or equal to 5 per 1,000 outages

In line with benchmark: Between 5 and 8 per 1,000 outages

Below benchmark: More than 8 per 1,000 outages

7 The number has been corrected on 13 Jan 2020.

Metric 13 – Connections agreement management

November 2019 Performance

Number of agreements that need updating	Number of agreements that need updating identified 9 months ago	Number of agreements updated within 9 months	Percentage of agreements updated within 9 months	Status
3	0	3	100%	●

Table 4: Connections agreement management performance

Performance benchmarks

2018-19 performance: = 86%.

Exceeds benchmark: >90% of agreements to be updated within nine months of notification.

In line with benchmark: 80-90% of agreements to be updated within nine months of notification.

Below benchmark: < 80% of agreements to be updated within nine months of notification.

Supporting information

The requirement to update connection agreements arises from a situation where new generation connects, and the ESO needs to amend its arrangements with existing generators connected in that region to ensure that it does not incur unnecessary balancing costs for consumers as a result of restricting generation.

We consider that nine months is a reasonable timeframe for updates of this type to be agreed with customers. So far, we have identified three agreements of this type, signed by the customer in April, July and November respectively. All agreements are within the nine-month timeframe.

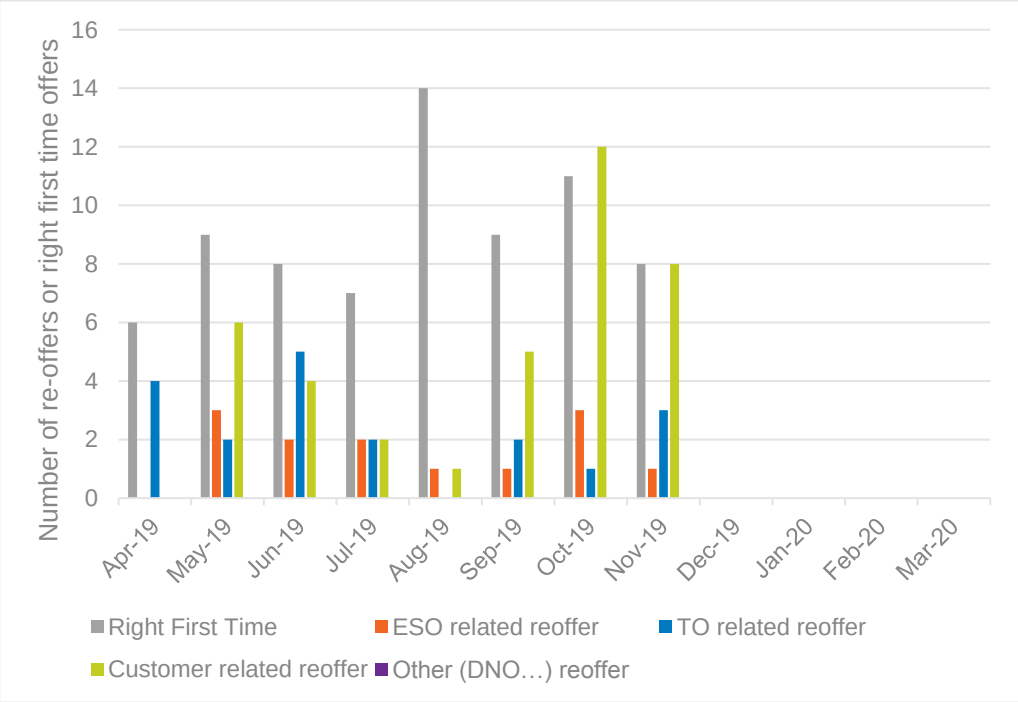
We are working to identify where any further changes to connection agreements of this type are required.

Metric 14 – Right first time connection offers

November 2019 Performance

Connections Offers	Results
Year to date number of connections offers	117
Year to date ESO related reoffers	13
Year to date percentage of Right First Time connections offers determined from ESO related reoffers	89%

Table 5: Connections re-offers data



Supporting information

In November, we processed 15 offers. There was one ESO related re-offer. This was due to the Transmission Owner Reinforcement Instruction (TORI) being missed from a security statement. There was a slight percentage increase in our performance compared to last month. Our year to date performance is now 89%.

Performance benchmarks

2018-19 performance: = 94%.

Exceeds benchmark: >95% of offers right first time.

In line with benchmark: 95% of offers right first time.

Below benchmark: < 95% of offers right first time.

Figure 5: Connections offers monthly performance

Notable events this month

Stability Pathfinder

Following our Stability Request for Information (RFI) feedback and next steps publication in October 2019, in which we explained our approach where we will carry out two phases, we published a tender for phase one on 5 November 2019. In phase one, we are seeking near-term stability solutions to meet our national stability needs. Final contract terms issued on 25 November reflected a number of clarifications and changes made in the interests of prospective participants. The tender is open until 17 January 2020. For phase two which is focusing on long term stability support for Scotland, we will publish an expression of interest early next year.

For more information on pathfinder documents please click here: https://www.nationalgrideso.com/publications/network-options-assessment-noa/network-development-roadmap

For more information on the tender for stability services please click here: https://www.nationalgrideso.com/balancing-services/system-security-services/transmission-constraint-management?market-information

Voltage Pathfinder in the Mersey area

On 25 November 2019, we published a tender for a nine-year reactive power service contract in the Mersey region starting in April 2022. This is the first time we have offered contracts of this length within the pathfinder process to seek alternatives to traditional network asset investment. There is a two-stage tender process: technical submissions were made on 13 December 2019 and commercial offers will be made on 28 February 2020. The final contracts will be awarded on 24 April.

The short-term voltage tender closed on 08 November for the Mersey area and is currently under technical and economic assessment. This was the first time that we have sought the provision of reactive power from embedded assets in this manner. We are working closely with the DNO (SPEN) to understand what they are able to facilitate. Contracts will be awarded in mid-January for the launch in April 2020.

Publication of Electricity Ten Year Statement 2019

Our annual Electricity Ten Year Statement (ETYS) was published on 29 November 2019. In addition to the regular projections of boundary requirements and transmission network data we have included a number of improvements. These include:

- A dedicated chapter to showcase the development of our probabilistic analysis tools and techniques which are enhancing our view of year-round thermal system needs,
- An update on the Pathfinder projects such as those looking at high voltage and stability management. We will be taking learning from these projects to inform how we communicate system needs in future ETYS publications,
- Publication of the System Requirements Forms (SRF) that are used for Network Options Assessment (NOA). This is a step on the path towards competition in transmission,
- Publishing fault level data at minimum demand. We have previously only published fault levels at peak demand, but have extended this to cover the minimum demand period in line with our new Grid Code requirement.

nationalgrideso.com

Faraday House, Warwick Technology Park,
Gallows Hill, Warwick, CV34 6DA

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