AEMO PMU Notice

Cost pass though application

Thursday, 20 March 2025

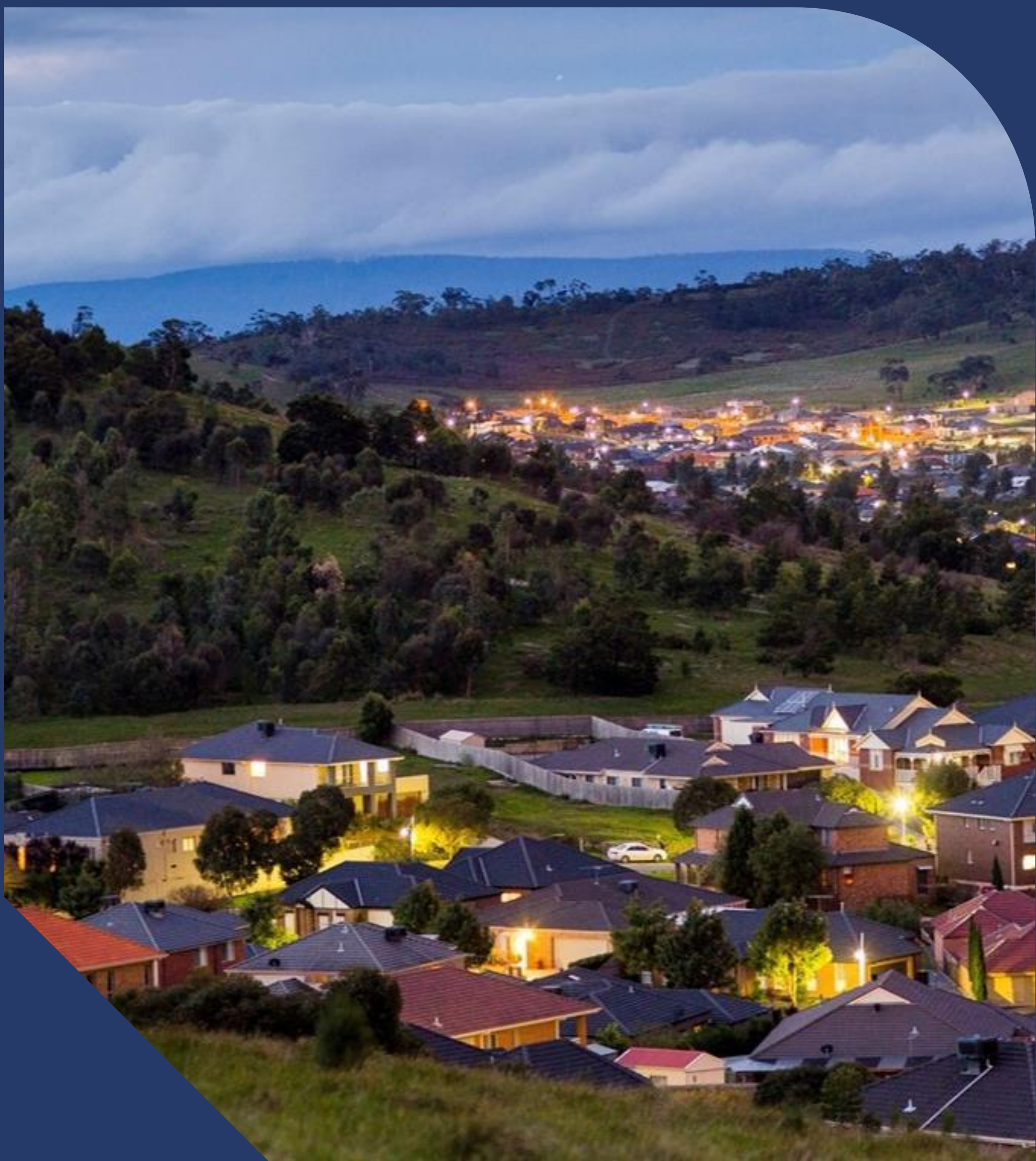

Table of contents

1. Executive Summary

AEMO has issued AusNet Services with a notice under clause 4.11.1(d) of the National Electricity Rules to replace the Victorian High-Speed Monitor (HSM) network with Phaser Monitoring Units (PMUs). Data from PMUs is used by AEMO and AusNet to detect and rectify emergent power system security issues in the Victorian transmission system.

In 2023 the HSM network failed, and it has not been viable to recover. AEMO undertook an assessment of the performance of the HSM network, AEMO has concluded that this network is no longer fit for its intended purpose for the following reasons:

- The network is based on 2008 technology which is becoming unreliable and difficult to keep operational.
- The technology is not compatible with modern cyber-resilient architecture and cannot be uplifted.

While it was operational, the Victorian HSM network provided highly valuable insights into key areas of the Victorian power system including on several large synchronous generators, key transmission nodes, and important supply points used by AEMO for load and distributed photovoltaic modelling. Without the visibility the HSM network provided, there is an increased risk of AEMO not being able to discharge its market and power system security functions.

AEMO issued the notice under Clause 4.11.1 (d) of the NER. It is a requirement of the Rules that AusNet Services comply with this notice which constitutes a "regulatory obligation or requirement" for the purposes of the National Electricity Law. Non-compliance is subject to a civil penalty under the National Electricity Regulations.

Table 1: Proposed pass through revenue ($M Mar 2022, unsmoothed)

	2024-25	2025-26	2026-27	Total
Building block revenue	0.00	0.03	0.06	**0.062**

Note: total does not add due to rounding

The application also addresses the matters listed in clause 6A.7.3(j) that the AER must take into account in determining the approved pass through amounts. We consider that this will enable the AER to determine that the amounts proposed by AusNet Services should be approved for pass through.

AusNet Services considers that approving this pass through application is consistent with the revenue and pricing principles in the National Electricity Law, as such approval provides AusNet Services with a reasonable opportunity of recovering at least the efficient costs of providing prescribed transmission services.

2. Cost pass through framework

2.1. Requirements under the framework

The cost pass through provisions, contained in Chapter 6A of the NER, allow TNSPs to seek approval from the AER to recover (or pass through) the increase in costs of providing prescribed transmission services if those increases meet the requirements specified in clause 6A.7.3.

To seek approval from the AER to pass through the increase in costs, the NER require a TNSP to submit a written statement to the AER within 90 business days of the relevant positive change event occurring. This statement must address the matters outlined in clause 6A.7.3(c), namely:

- The details of the positive change event.
- The date on which the positive change event occurred.
- The eligible pass through amount in respect of the positive change event.
- The positive pass through amount we are proposing in relation to the positive change event.
- The amount of the positive pass through amount that AusNet Services proposes should be passed through to Transmission Network Users in the regulatory year in which, and each regulatory year after that in which, the positive change event occurred
- Evidence:
  - of the actual and likely increase in costs referred to in clause 6A.7.3(c)(6) of the Rules; and
  - that such costs occur solely as a consequence of the positive change event.
- Such other information as may be required under any relevant regulatory information instrument.

2.2. Framework for AER assessment

If the AER determines that a positive change event has occurred, it must determine:

- the approved pass through amount; and
- the amount of the approved pass through amount that should be passed through in the regulatory year in which, and each regulatory year after that in which, the positive change event occurred.

In making this decision, the AER must take into account the factors listed in clause 6A.7.3(j) of the NER.

In addition, the NEL requires the AER, in exercising its economic regulatory function and powers, to exercise its powers in a manner that will or is likely to contribute to the achievement of the National Electricity Objective (NEO).

The NEL also specifies revenue and pricing principles. Of relevance to this application is the principle that a regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs it incurs in providing prescribed transmission services and complying with a regulatory obligation or requirement or making a regulatory payment.

2.3. AusNet written statement

This application, comprising this document and its attachments[1], is our written statement to the AER to recover a positive pass through amount of $7.36 million ($2022, smoothed).

The written statement complies with clause 6A.7.3(c) of the NER as it provides the details necessary to enable the AER to determine that a positive change event occurred as well as information about the eligible pass through amount, positive pass through amount and evidence of the increase in AusNet Services' costs. This statement also

[1] NER, clause 6A.7.3(c)

addresses the matters that the AER must take into account in deciding the approved pass through amount, being the matters listed in clause 6A.7.3(j) of the NER.

For the purposes of the pass through determination process, the date on which the positive change occurred is 12 November 2024. On this day we received the written directions from AEMO as contained in Appendix A.

This application was submitted to the AER on or before 21 March 2025, being within 90 business days of the relevant positive change event occurring on 12 November 2024, in accordance with NER clause 6.6.1(c). This requirement to submit the written statement by the required date is therefore satisfied.

AusNet Services' written statement comprises this document and the accompanying attachments. This document addresses the requisite matters in the following sections:

- **Section 3: Positive change event**
- **Section 4: Cost build up**
- **Section 5: Pass through amount -** specifies the eligible pass through amounts and positive pass through amounts in relation to the pass through event

As part of our application we have also provided as attachments:

- written directions from AEMO
- evidence of costs
- Post-tax Revenue Model (PTRM) update to incorporate the pass through amount. This update was based on the approved version of our PTRM model "AER - AusNet Services transmission PTRM - 2025-26 Return on debt update", which incorporates the 2025-26 return on debt update.

We confirm that no aspects of this passthrough application are confidential and so have not attached a confidentiality template.

3. Positive change pass through event

3.1. Event summary

AusNet received a notice under clause 4.11.1(d) of the National Electricity Rules **(AEMO notice)** to allow AEMO to discharge its *market* and *power system security* functions.

AEMO requires AusNet Services to replace the remote monitoring equipment comprising the HSM network at the following locations (outlined below) with phasor measurement units complying with the specifications set out in AEMO notice, to remotely monitor the performance of AusNet Services' transmission system.

The scope of work advised by the AEMO Notice involve the replacement of HSM with PMUs at Altona, Bendigo, Brooklyn, Cranbourne, Fisherman's Bend, Geelong, Hazelwood, Loy Yang, Mt Beauty, Newport, Rowville, Templestowe and Yallourn by 15th February 2027.

Installation of new PMUs at Loy Yang have previously been completed and as such, the costs of compliance at Loy Yang are not included in this passthrough application.

3.1.1. Background

AEMO expressed a need in late 2020 to install phasor measurement units (PMUs) to provide data to enable AEMO to effectively detect and respond to rapidly developing power system issues, and more accurately model the power system. They enlisted the support of the AER to issue formal Notices under clauses 4.11.1(d) and (e) of the National Electricity Rules in Jan 2022 for AusNet to install PMUs across 20 sites. These PMUs are now in service.

AEMO has now issued a second notice which is requiring the replacement of the existing HSM network equipment at the locations specified in section 3.1 above.

AEMO's written directions state the equipment is no longer fit for the intended purpose for the following reasons:

(1) In 2023 the HSM network failed and has not been viable to recover. In subsequently assessing the performance of the HSM network, AEMO concluded that the HSM network is based on 2008 technology which is becoming unreliable and difficult to keep operational. The HSM technology is not compatible with modern cyber resilient architecture and cannot be uplifted.

(2) Increasingly fewer AEMO personnel will be available to continue with the system's development and support. The Victorian HSM network gave highly valuable insight into key areas of the Victorian power system including on several large synchronous generators, key transmission nodes and important supply points used by AEMO for load and distributed PV modelling. Without the visibility the HSM network provided, there is an increased risk of AEMO not being able to discharge its market and power system security functions, unless effective remote monitoring equipment is installed.

3.1.2. Implementation timeframe

Under clause 4.11.1(e) of the Rules Ausnet Services is required to comply with this notice by 15 February 2027. This is the period specified by AEMO in its Notice under clause 4.11.1(d).

3.2. Event under passthrough criteria

To be eligible for a pass through application we must establish that a positive change event has occurred. A positive change event is:

> … a pass through event which entails the Transmission Network Service Provider incurring materially higher costs in providing prescribed transmission services than it would have incurred but for that event, but does not include a contingent project or an associated trigger event.[2]

[2] This definition is taken from the NER, Chapter 10.

A ‘pass through event’ means, for a transmission determination, an event specified in clause 6A.7.3(a1). The clause specifies that each of the following are a pass through event:

1) a regulatory change event;
2) a service standard event;
3) a tax change event;
4) an insurance event;
5) any other event specified in a transmission determination as a pass through event for the determination;
6) an inertia shortfall event[3]; and
7) a fault level shortfall event.

3.3. Regulatory Change Event

This application is in respect of a regulatory change event under 6A.7.3 (a1)(1). A regulatory change event is defined as a change in a regulatory obligation or requirement that:

(a) falls within no other category of pass through event; and

(b) occurs during the course of a regulatory control period; and

(c) substantially affects the manner in which the Transmission Network Service Provider provides prescribed transmission services or the Distribution Network Service Provider provides direct control services (as the case requires); and

(d) materially increases or materially decreases the costs of providing those services.

In AEMOs notice, they explicitly state that:

> ***Compliance with this notice is a “regulatory obligation or requirement” for the purposes of the National Electricity (Victoria) Law*** *and failure to comply is a Tier 3 civil penalty under the National Electricity (Victoria) Regulations.*

Accordingly, we consider the receipt of this notice clearly satisfies the definition of a regulatory change event.

3.3.1. Date on which the event occurred

The date on which the event occurred is 12 November 2024. This is the date contained in the written directions to AusNet from AEMO and occurs during the 2023-27 regulatory control period.

3.3.2. Materiality

The introduction of the written directions requires AusNet to replace end-of-life HSM with PMUs at Altona, Bendigo, Brooklyn, Cranbourne, Fisherman’s Bend, Geelong, Hazelwood, Loy Yang[4], Mt Beauty, Newport, Rowville, Templestowe and Yallourn by 15th February 2027.

Materiality of costs associated with the AEMO notice is outlined in tables 2 and 3 below.

[3] This does not apply in Victoria (see NER clause 5.20B.4(a)).
[4] Note that works at Loy Yang were completed previously and the cost involved is not included in this passthrough application.

Table 2: Materiality 'as incurred' capex ($'000 March 2022)

	2024-25	2025-26	2026-27
2022-2027 ARR smoothed	557,069	546,573	538,998
2022-2027 Costs associated with compliance	51.3	1,087.2	6,217.4
Materiality of the pass through	0.01%	0.20%	1.15%

The infrastructure will be in service as of the required compliance date which is in the 2026-27 regulatory year which corresponds to the 'as commissioned' date.

Table 3: Materiality 'as commissioned' capex ($'000 March 2022)

	2024-25	2025-26	2026-27
2022-2027 ARR smoothed	557,069	546,573	538,998
2022-2027 Costs associated with compliance	-	-	7,355.9
Materiality of the pass through	0.0	0.0	1.36%

An increase in costs is material if the change in costs (as opposed to the revenue impact) that a TNSP has incurred, and is likely to incur, in any year of a regulatory period, as a result of the event, exceeds 1% of the annual revenue requirement for the TNSP for that regulatory year[5].

The additional capex incurred in response to the pass through event is material in both 2026-27, as it exceeds an amount equal to 1% of the annual revenue requirement (ARR) established in the PTRM from the AER's revenue determination. Therefore, we have shown that we have incurred a material change in costs due to the introduction of the PMU compliance notice.

The material costs associated with the AEMO notice is discussed further in Section 4

[5] Definition of "materially", chapter 10 of the National Electricity Rules

4. Cost build up

4.1. Scope of AEMO notice

AEMO requires AusNet Services to replace the remote monitoring equipment comprising the High-Speed Monitor (HSM) network at the following locations with phasor measurement units complying with the specifications in order to remotely monitor the performance of AusNet Services' transmission system.

AEMO is requiring the replacement of the existing HSM network because it found the equipment is no longer fit for the intended purpose. In particular, AEMO found that in 2023 the HSM network failed and no viable path to recovery has been found.

The scope of this project is to comply with AEMO's Notice to replace the Victorian HSM network with PMUs at the following locations:

- Altona Terminal Station (ATS)
- Bendigo Terminal Station (BETS)
- Brooklyn Terminal Station (BLTS)
- Cranbourne Terminal Station (CBTS)
- Fisherman's Bend Terminal Station (FBTS)
- Geelong Terminal Station (GTS)
- Hazelwood Terminal Station (HWTS)
- Loy Yang Power Station (LYPS)[6]
- Mount Beauty Terminal Station (MBTS)
- Newport Power Station (NPSD)
- Rowville Terminal Station (ROTS)
- Templestowe Terminal Station (TSTS)
- Yallourn Power Station (YPS)

AEMO defined the scope (specification of equipment and where to install and by when) of the project. Hence, only one option (compliance with AEMO's specification) has been considered in developing this passthrough application.

The design and relevant studies for the project are being carried out in 2025-26 followed by with order and installation of the materials taking place in 2026-27.

[6] Note that works at Loy Yang were completed previously and the cost involved is not included in this passthrough application.

4.2. Costs associated with compliance

Table 4 summarises the total costs of meeting the AEMO notice requirements.

Table 4 Direct costs plus overheads ($'000 real March 2022)

RAB categories	2024-25	2025-26	2026-27	Total
Secondary	38.9	824.9	4,717.4	**5,581.2**
Communications	12.4	262.3	1,500.0	**1,774.7**
Total	**51.3**	**1,087.2**	**6,217.4**	**7,355.9**

The table breaks down the costs of meeting the installation requirements by the required compliance date. A model demonstrating the cost breakdown is also attached to this submission.

Table 5 Cost build up ($'000 real March 2022)

Project expenditure forecast	2024-25	2025-26	2026-27	Total
Design	40.7	759.2	111.1	**911.0**
Internal labour	8.3	165.0	548.1	**721.4**
Materials	-	23.6	929.7	**953.3**
Plant and equipment	-	0.2	7.7	**7.9**
Contracts	-	85.3	4,225.6	**4,310.9**
Direct costs (excluding overheads)	**49.0**	**1,033.2**	**5,822.3**	**6,904.6**
Overheads	2.3	54.0	395.1	**451.3**
Total direct costs plus overheads	**51.3**	**1,087.2**	**6,217.4**	**7,355.9**

5. Eligible and proposed pass through amount

5.1. Eligible pass through amount

Clause 6A.7.3(c)(3) of the NER requires AusNet Services to specify the eligible pass through amount. The 'eligible pass through amount' is relevantly defined in Chapter 10 as:

> *...the increase in costs in the provision of prescribed transmission services that, as a result of that positive change event, the Transmission Network Service Provider has incurred and is likely to incur (as opposed to the revenue impact of that event) until:*
>
> *(a) unless paragraph (b) applies – the end of the regulatory control period in which the positive change event occurred; or*
>
> *(b) if the transmission determination for the regulatory control period following that in which the positive change event occurred does not make any allowance for the recovery of that increase in costs (whether or not in the forecast operating expenditure or forecast capital expenditure accepted or substituted by the AER for that regulatory control period) – the end of the regulatory control period following that in which the positive change event occurred.*

Applying this definition, the eligible pass through amount constitutes the increase in actual and future costs that AusNet Services incurs in providing prescribed transmission services as a result of the pass through event. The eligible pass through amount is $7.36 million.

5.2. Evidence of costs

Clause 6A.7.3(c)(6)(i) of the NER requires AusNet Services to provide evidence of the actual and likely costs that comprise the eligible pass through amount. Table 6 provides a breakdown of the capex making up the eligible pass through amount. The total cost has been built up from vendor quotes and internal estimates. For on-going or future work, we prepared forecasts using the same principles that apply to the development of our regulatory proposals.

5.3. Costs directly related to positive change event

Clause 6.7.3(c)(6)(ii) of the NER requires AusNet Services to provide evidence that the actual and likely increase in costs included in the eligible pass through amount occurred solely as a consequence of the positive change event. Similarly, clause 6.7.3(j)(5) requires the AER, in determining the approved pass through amount and the amount to be passed through to users in each regulatory year, to ensure the TNSP recovers only the actual or likely increase in costs that is solely attributable to the positive change event.

In calculating the eligible pass through amount, AusNet Services included only the costs for those activities it incurred as a result of the positive change event. The scope of works include the costs of installing PMUs and GPS clocks at 12 sites to provide synchrophasor measurements for the voltage and current quantities in addition to the provision of duplicate PDCs (one in service and one on hot standby) at each of Richmond and Rowville Terminal Station as a dual-redundant pair to as required under the AEMO notice.

Table 6: Total expenditure to comply with AEMO PMU notice

	2024-25	2025-26	2026-27	Total
Total capex	51.3	1,087.2	6,217.4	7,355.9

5.4. Prudency and efficiency

Clause 6A.7.3(j)(3) of the NER requires the AER, in determining the approved pass through amount and the amount to be passed through to users in each regulatory year, to take into account the efficiency of AusNet Services' decisions and actions in relation to the risk of the positive change event.

The cost incurrent for meeting compliance obligations under the AEMO notice are prudent and efficient, and meet the National Electricity Objective (NEO). The costs are prudent as noting the majority of the estimate is based on competitive rates by market service providers that were obtained through a tender process. Where the costs were not based on competitive market provider rates, we have used Hays Salary Guide to estimate benchmark labour rates.

5.5. Proposed pass through amount

Clause 6A.7.3(c)(4) of the NER requires AusNet Services to specify the positive pass through amount that it proposes in relation to the positive change event. The positive pass through amount is defined as an amount not exceeding the eligible pass through amount.[7] AusNet proposes a positive pass through amount of $7.36 million.

5.6. Pass through amount in each regulatory year

Clause 6A.7.3(c)(5) of the NER requires AusNet to specify the amount that it proposes to pass through to customers in the year, and each regulatory year after that, in which the positive change event occurred. Given our proposal is capex and will be recovered over the long asset lives, there is not significant impact on revenue in the current period. Over the remaining regulatory years we propose to recover an additional $0.2m in regulatory year 2025-26 and $0.62m in 2026-27.

Table 7: Proposed pass through revenue ($M Mar 2022, unsmoothed)

	2024-25	2025-26	2026-27	Total
Building block revenue	0.00	0.03	0.06	**0.062**

Note: total does not add due to rounding

[7] National Electricity Rules, Chapter 10.

6. Attachments

ATTACHMENT	
Attachment A	AEMO direction: • Cover Letter - Public • Notice under clause 4.11.1(d) of the National Electricity Rules - Public • PMU Specification - Public
Attachment B	Build-up of costs model – Public
Attachment C	PTRM update – Public

7. Compliance checklist

This attachment provides information on the compliance of AusNet's pass through application with the NER pass through provisions (as set out in Cl 6A.7.3), and to the location of the relevant information in our application.

NER Clause	Requirement	Information provided	Section of application
6A.7.3(a1) I	Identification as a pass through event An event allowing for pass through of costs may be specified in the transmission determination (sub 5)	The application confirms that the AEMO PMU notification meets the 'regulatory change event' specified in clause 6A.7.3(a1).	3.2
6.7.3 (a)	A TNSP may seek AER approval for the pass through for a positive change event To qualify as a positive change event the TNSP must have incurrent materially higher costs (NER defined) in providing prescribed transmission services	The application confirms that AusNet Services incurred materially higher costs in providing direct control services, and accordingly the event qualifies as a positive pass through event	3.4
6A.7.3 (c)	A TNSP must submit a statement (interchangeable term being application) within 90 business days of the relevant positive change event occurring	This application was submitted on or before 21 March 2025, being within 90 business days of the event occurring	2.3
(c)(1)	The statement must specify: • The details of the positive change event	The details of the positive change event, being the receipt of the AEMO PMU notification is set out in the application	3.1
(c)(2)	• The date on which the positive change event occurred	We have specified the event occurred on 12 November 2025.	2.2, 3.3
(c)(3)	• The eligible pass through amount, being the increase costs in the provision of direct control services as a result of the positive change event	The application provides detail on the sources of cost increases and the cost attributed for each, which constitutes the eligible pass through amount	5.3
(c)(4)	• The positive pass-through amount proposed	The application proposes a positive pass through amount	5.5
(c)(5)	• The amount proposed to be passed through in the regulatory year in which the event occurred in subsequent regulatory years	The application proposes amounts to be passed through in the final year of the current regulatory control period	5.6
(c)(6)(i)	Evidence of: • the actual and likely increases	The basis of the forecast capital cost is advised.	5.2
(c)(6)(ii)	• that the costs occur solely as a consequence of the positive change event	The application describes the cost capture process which ensures that costs included occur solely as a consequence of the positive change event.	5.3

(c)(7)	• other information as required under any relevant regulatory instrument	Not required in this case

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