

## Submission form

Access Schemes are a key part of the NSW Government's work to coordinate and encourage investment in Renewable Energy Zones (REZ) and realise the objectives of the Electricity Infrastructure Roadmap and enabling legislation. The Central-West Orana REZ Access Scheme will be the first of its kind in the National Electricity Market.

The Department has published the Central-West Orana Renewable Energy Zone Issues Paper (the Issues Paper) to facilitate consultation on the access scheme models being considered for the Central-West Orana REZ. This form is for use by stakeholders who wish to make a submission on the Issues Paper to provide feedback to the Department. This form is not required to have your say on the Issues Paper - the Department also welcomes free form submissions.

## Submission response options

We encourage stakeholders to use this form to respond to the specific questions raised in the Issues Paper. This will help us interpret and incorporate your responses into our decision making process.

We also welcome free form submissions and responses instead of, or in addition to, this submission form.

Please email your submission form and/or free form response to: [rez@planning.nsw.gov.au](mailto:rez@planning.nsw.gov.au) with 'CWO REZ Access Scheme Issues Paper' in the subject line. Please identify if you would like your submission to be confidential or anonymous.

## Disclaimer

The Department encourages publication of submissions to build transparency in the decision-making process and ensure that a variety of views are understood by the public and relevant stakeholders.

Providing submissions is voluntary, is not assessable, and will not impact an entity's participation in, or be used in the assessment of, any future procurement or competitive process regarding the Central-West Orana REZ or other NSW Government programs.

All submissions will be made publicly available on the Department's website unless a submission author indicates a preference below for confidential treatment. In the absence of an explicit declaration to the contrary, the Department will assume that all information can be made public.

The Department may disclose appropriate confidential information provided by stakeholders to:

- the NSW Minister for Energy and Environment or Minister's office
- the NSW Ombudsman, Audit Office of NSW or as may be otherwise required for auditing purposes or Parliamentary accountability
- directly relevant Department staff, consultants, professional service providers and advisers
- other parties where authorised or required by law to be disclosed.

Participants should also be aware that provisions of the *Government Information (Public Access) Act 2009 (NSW)* may apply to any documents submitted (and information should be submitted on that basis) and to any summary report compiling key information and feedback.

Submissions may also be shared with the Australian Energy Market Operator, Australian Energy Market Commission, Australian Energy Regulator, the Energy Security Board, TransGrid, the Clean Energy Finance Corporation, Australian Renewable Energy Agency, Essential Energy, Endeavour Energy and AusGrid to better understand and respond to issues raised. Please make

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clear in your form response below or otherwise in your submission if you do not want your submission to be shared with the above parties.

## Submission type and contact details

Submission type	<input type="checkbox"/> Individual <input checked="" type="checkbox"/> Organisation <input type="checkbox"/> Other Click or tap here to enter text.
Approving author name	Patrick Creaghan
Organisation	ATCO Australia
Approving author title	Managing Director and Chief Operating Officer
Phone	Enter phone number
Email	<div></div>
Stakeholder group	<input type="checkbox"/> Energy generation <input checked="" type="checkbox"/> Energy storage <input type="checkbox"/> Ancillary services <input type="checkbox"/> Electricity distribution provider <input type="checkbox"/> Transmission provider <input type="checkbox"/> Energy industry/market body <input type="checkbox"/> Financial institution of financial services <input type="checkbox"/> Consumer advocacy <input type="checkbox"/> Government <input type="checkbox"/> Individual <input type="checkbox"/> Other (please specify) Click or tap here to enter text.

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### Confidentiality and submission publication preferences

Submissions may be published in whole or in part on the Department's website. Authors may elect for some or all of their submission to be confidential.

Would you like your submission to be confidential?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Some confidential submissions may be shared with the Australian Energy Market Operator, Australian Energy Market Commission, Australian Energy Regulator, the Energy Security Board, TransGrid, the Clean Energy Finance Corporation, Australian Renewable Energy Agency, Essential Energy, Endeavour Energy and/or AusGrid to better understand and respond to issues raised. Would you like your submission to be kept confidential from these parties?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If published, would you like your submission to be anonymous and personal details redacted?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

**If you do not want your personal details or any part of your submission published, please state this clearly in your submission. We may be required to release the information in your submission in some circumstances, such as under the *Government Information (Public Access) Act 2009*.**

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### Questions

The fillable fields for answers to these questions will expand to accommodate the length of your response.

#### 1. Objectives and evaluation

<b>Question 1:</b> If the CWO REZ Access Scheme delivers on the proposed objectives and benefits, how would connecting projects value connecting under this Scheme rather than elsewhere under current NEM network access arrangements? Should proposed benefits be given weightings, and if so, what should these be?	Click or tap here to enter your answer to question 1.
<b>Question 2:</b> What, if any, additional benefits should the CWO REZ Access Scheme deliver to provide value to connecting generation and storage projects?	<p>The CWO REZ Access Scheme should provide a clear pathway to progress transmission connections and coordinate access to transmission within the REZ Access Scheme from competing market participants. If this is introduced, then generation and storage development projects in the REZ will benefit additionally from the certainty provided by a clear and coordinated connection process through reduced project delays and schedule risk.</p> <p>A wider system view would ensure that the flows to Sydney are maximised at least cost. Projects outside the REZ boundary/route should be part of the broader framework from a REZ planning perspective. The Access Scheme should consider benefits to generation and storage projects within the REZ that arise due to projects locating near the CWO REZ. For example, ATCO's Central West Pumped Storage Hydro Project has important regional benefits to the CWO REZ and the potential to unlock transmission constraints at Mount Piper. The CWO REZ Access Scheme should expand any storage incentives available in the CWO REZ to also be available to projects which can enhance the export capability of that REZ such as the Central West Pumped Storage Hydro Project.</p>
<b>Question 3:</b> Do you agree with the proposed evaluation criteria? What, if any, additional criteria should be considered?	Click or tap here to enter your answer to question 3.

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### 2. Access scheme models

<p><b>Question 4:</b> Which of the shortlisted models presented is preferred? Which best balances the need to deliver value to investors with the need to maximise utilisation of the REZ, and together achieve the access scheme's objectives?</p> <p>In particular, does the 'non-firm' connection right, under Option 1 provide sufficient certainty to investors to be of value? If it does not, is this outweighed by the increased utilisation of the REZ that would result under such non-firm connection rights?</p>	<p>ATCO's preference for the options under consideration is Option 1 (Limited physical connection model). While Option 1 does not provide firm access or incentivise the shape of utilisation of the REZ Shared network, the level of certainty and its simplicity supports investor confidence. The level of certainty Option 1 provides to the market for transmission access and in combination with electricity price signals, will help determine the most efficient investment in generation and storage.</p> <p>Option 1 (Limited physical connection model) has the potential to be implemented in a timely manner by not requiring the development of a complex administration system for financial transfers between projects and could be achieved in the near term.</p> <p>Whilst we accept that the other options may ultimately provide the most efficient economic outcomes, the need to design and execute the REZ in a timely manner requires investors to have confidence that the framework can be implemented in a timely and cost effective manner. The benefits that may result from the other options do not, in our view, justify the complexity and implementation risk that will be passed onto investors. Simplicity and timeliness of implementation are key to obtaining investor confidence in the adoption of any REZ Access Scheme.</p>
<p><b>Question 5:</b> Are there other access models that you consider would be superior to the shortlisted models in this paper? If so, what are these models, and what are their strengths in comparison to the shortlisted models?</p>	<p>Click or tap here to enter your answer to question 5.</p>
<p><b>Question 6:</b> How could the characteristics of either Option 1, 2A or 2B be adjusted to improve them in a manner that achieves the access scheme's objectives?</p>	<p>Storage incentives should be available to projects outside of the REZ. In order to deliver maximum benefit to consumers a wider system view would ensure that the flows to Sydney are maximised at least cost. This requires the NSW Government to lift its perspective from a REZ by REZ focus to a system wide view. In doing so, storage obtained from locations outside of the</p>

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	<p>REZ transmission infrastructure may maximise cost effective energy flows into greater Sydney thus maximising the consumer benefit. For example, the Central West Pumped Storage Hydro project plays a role in unlocking constraints at Mount Piper which has wider benefits to the REZ. Therefore, any storage incentives available in the REZ should also be available to such projects outside the REZ that can provide this benefit.</p>
<p><b>Question 7:</b> Characteristics such as more granular access rights (for example, rights defined in five-minute intervals) and tradeable rights can provide flexibility to access right holders, but also make the access scheme more complex. How should the trade-off between flexibility for access right holders and simplicity of the access scheme be assessed? Which better achieves the access scheme's objectives?</p>	<p><a href="#">Click or tap here to enter your answer to question 7.</a></p>
<p><b>Question 8:</b> If not nameplate capacity, what is the appropriate level of capacity that should be used to determine requirements for access rights coverage that would better achieve the scheme's objectives? If a Probability of Exceedance (POE) value is used, what process should be used to verify this?</p>	<p><a href="#">Click or tap here to enter your answer to question 8.</a></p>
<p><b>Question 9:</b> How should the allocation of access rights to hybrid (storage plus generation) assets be approached? What 'shape' of access rights would suit a hybrid asset? How could projects which use some of their maximum capacity 'behind the meter' be accounted for in determining the appropriate level of capacity for access rights coverage?</p>	<p><a href="#">Click or tap here to enter your answer to question 9.</a></p>
<p><b>Question 10:</b> Is there a minimum term (in years) for which access rights would need to apply to benefit project finance?</p>	<p>ATCO considers the time to develop different technologies and the asset life of each project to be factors worth taking into account in determining the duration of access rights, with a specified term of access provided to underpin the initial development of the project. These factors will be unique to each project under development within the CWO REZ. For example, pumped hydro requires long term certainty due to its long development timeframe and long technology life. These unique project parameters should be taken into account when determining a minimum term for access rights.</p> <p>The ability for projects to enter contracts that</p>

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	provide secure stable longer tenor project finance will benefit from a longer minimum term of access rights, that will effectively lower overall project costs. The minimum period for access rights should be long enough to enable refinancing over a number of periods and match the operational life of the asset, optimising the prospects for refinancing and the payback period.
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## Option 1: Limited physical connection model

<b>Question 11:</b> Under Option 1, connected generation capacity could be capped above the capacity of the REZ Shared Network. How should generation and storage capacity be set or capped to optimise REZ Shared Network utilisation without introducing too much constraint risk?	Click or tap here to enter your answer to question 11.
<b>Question 12:</b> How could network capacity be allocated between different generation types? Should it, for example, be based on a particular, pre-defined generation profile ("shape") for different types of generation technologies?	Click or tap here to enter your answer to question 12.

## Option 2A and 2B: Financial compensation models

<b>Question 13:</b> How would 24-hour access rights impact the value and efficiency of a financial compensation model? If access rights were defined as flat, 24-hour, access rights, would access right holders be incentivised to firm up their generation to make efficient use of the access rights (either technically, or commercially with sharing arrangements)? If not, what adjustments would need to be made to the access scheme design to incentivise this?	Click or tap here to enter your answer to question 13.
<b>Question 14:</b> Would currently available information, including solar and wind forecasts for corresponding Tier 1 generators, be sufficient for Tier 2 access right holders to make a reasonable assessment of the risk of being constrained off? Or would additional data need to be available to achieve this?	Click or tap here to enter your answer to question 14.
<b>Question 15:</b> With reference to Appendix B, to what extent should curtailment (and therefore the compensation mechanism) take bid price or market settlement price into account? In particular, what would be the downside to limiting compensation to only the bids from Tier 1 access	Click or tap here to enter your answer to question 15.



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right holders that are below the market settlement price?	
<b>Question 16:</b> In what ways could the proposed models and compensation mechanism design result in changes to the bidding strategies of Tier 1 and Tier 2 access right holders? Would this be expected to have a material impact on the NSW market?	Click or tap here to enter your answer to question 16.
<b>Question 17:</b> There could be circumstances in which the revenue earned by Tier 2 access right holders will not equal the revenue lost by the Tier 1 access right holders through subsequent curtailment. This includes instances of intra-REZ constraints, and when MLFs for Tier 2 generators are systematically lower than for Tier 1 generators. What are the other circumstances, if any, in which potential 'compensation inadequacy' may occur? How material is this risk for Tier 1 access right holders in comparison to the open-access regime?	Click or tap here to enter your answer to question 17.
<b>Question 18:</b> Does this Issues Paper identify the key risks associated with the Financial Compensation Models? Can the risks be sufficiently managed through the design features of the models and the proposed compensation mechanism referred to in this Issues Paper?	Click or tap here to enter your answer to question 18.
<b>Question 19:</b> How would the implementation of the financial compensation models impact existing contracts, such as PPAs? Could the compensation mechanism be appropriately accounted for in the design of new contract structures?	Click or tap here to enter your answer to question 19.

## Other models considered but not progressed

<b>Question 20:</b> The NSW Government is not proposing to progress the Limited NEM Bidding and REZ Locational Marginal Pricing models further at this time. Are there elements unique to these two models which should be considered for integration into the models that have been shortlisted?	Click or tap here to enter your answer to question 20.
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## 3. Access scheme design issues

<b>Question 21:</b> How valuable is the ability to trade access rights, and in what circumstances would this be useful?	Competition between market participants for access and selling electricity should not be impacted by the ability to trade access rights. For example, a market participant should not be able to hold access rights in order to curtail a
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	<p>competing market participant to develop a project within the REZ. The practice would obviously adversely impact the efficiency of the CWO REZ resulting in higher prices for consumers. ATCO supports the introduction of “use it or lose it” conditions considered in Question 34. ATCO considers that access rights should only be provided to registered energy market participants and trading potentially allowed between generators to improve efficiency in utilisation of the REZ transmission network.</p>
<p><b>Question 22:</b> To what extent would flexibility to trade access rights increase the value of access rights for their holders? How flexible and unrestricted would access rights trading need to be to provide value?</p>	<p><a href="#">Click or tap here to enter your answer to question 22.</a></p>
<p><b>Question 23:</b> Would the introduction of a central access rights trading platform be of benefit to access right holders? If so, why? If beneficial, then which party would be best placed to design, maintain and operate this trading platform?</p>	<p><a href="#">Click or tap here to enter your answer to question 23.</a></p>
<p><b>Question 24:</b> For generation projects connecting to the REZ, how important is it that storage is required to purchase access rights (i.e. that total connecting storage capacity is limited)? If storage was not to be required to purchase access rights, how high is the risk of storage competing with (i.e. curtailing) generation dispatch?</p>	<p>It is not essential at this stage for storage to purchase access rights, as storage should be allowed to compete across the wider energy market, and the REZ access regime should be wary of the risks associated with predicting and controlling the physical and financial nature of storage into the future.</p> <p>Equally, there may be economic value in the CWO REZ Access Scheme maximising the output of variable renewables, but firmed with storage closer to the load such as provided by the ATCO Central West Pumped Storage Hydro project.</p>
<p><b>Question 25:</b> Would proponents of storage projects value firm access rights? In the financial compensation models, how would storage operations differ under Tier 1 versus Tier 2 access rights? How could an access scheme provide sufficiently flexibility for storage to connect in future as technology costs come down and the market evolves?</p>	<p><a href="#">Click or tap here to enter your answer to question 25.</a></p>
<p><b>Question 26:</b> Would prevailing market signals provide sufficient and appropriate incentive for storage to operate in a manner that is aligned with the needs of the REZ? If not, then what</p>	<p>Storage incentives should also be available to projects outside of the REZ. In order to deliver maximum benefit to consumers, a wider system view would ensure that the flows to Sydney are</p>

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<p>REZ-specific types of incentive mechanisms should be considered to incentivise load and storage to consume electricity when the REZ Shared Network is congested?</p>	<p>maximised at least cost. This requires the NSW Government to lift its perspective from a REZ by REZ focus to a system wide view. In doing so, storage obtained from locations outside of the REZ upgrade may maximise cost effective energy flows into greater Sydney thus maximising the consumer benefit. For example, the Central West Pumped Storage Hydro project plays a role in unlocking constraints at Mount Piper which has wider benefits to the REZ. Therefore, any storage incentives available in the REZ should also be available to such projects outside the REZ that can provide this benefit.</p>
<p><b>Question 27:</b> If an incentive mechanism for storage is implemented how should the costs of this arrangement be recovered?</p>	<p>Click or tap here to enter your answer to question 27.</p>
<p><b>Question 28:</b> How should the treatment of storage under the CWO REZ Access Scheme account for differences between long-duration storage and fast-firming technologies?</p>	<p>The market will require both long-duration storage and fast-firming technologies. However, the characteristics of these differ and require different economic signals and treatment. Pumped hydro provides a unique role in offering system security services:</p> <ul style="list-style-type: none"> <li>• Improves power system reliability by providing dispatchable generation capability to assist in meeting peak power demands including when no Variable Renewable Energy (VRE) generation is available.</li> <li>• Provides dispatchable energy storage, synchronous inertia and fast frequency response over a significant lifetime (&gt;50 years), responding to variations in supply and demand within minutes, with no degradation in storage capacity or efficiency over the service life to support the intermittent and variable dispatch of VRE generation</li> <li>• Storage capability complements the intermittent nature of wind and solar generation by shifting energy from periods of high VRE to periods of low VRE when additional supply may be required.</li> </ul> <p>Additional benefits of the Central West Pumped Storage Hydro project include:</p> <ul style="list-style-type: none"> <li>• Spinning Reserve (Synchronous Condenser Operation)</li> <li>• Black Start Generation</li> <li>• Automatic Generation Control (AGC)</li> </ul>

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	<ul style="list-style-type: none"> <li>• Voltage and Power Factor Correction</li> <li>• Frequency regulation and load following</li> <li>• Bulk Energy Storage on daily cycles</li> <li>• Intermittent operation</li> <li>• Immediate pumping response</li> <li>• Immediate generation response</li> </ul> <p>These benefits could be realised by exempting large scale pumped hydro from access charges and offering an incentive to charge at times of high congestion on the network between the CWO REZ and greater Sydney, in the region of Mount Piper. This includes the ATCO Central West Pumped Storage Hydro Project. This wider system view would ensure that the flows to Sydney are maximised at least cost, which would deliver maximum benefit to consumers. Storage obtained from locations outside of the REZ upgrade may maximise cost effective energy flows into greater Sydney thus maximising the consumer benefit.</p>
<b>Question 29:</b> How should load be integrated into REZs and what types of incentives (if any) would be needed to attract load to connect to the REZ Shared Network?	Click or tap here to enter your answer to question 29.
<b>Question 30:</b> Would additional incentives be necessary, beyond market-based commercial incentives, to encourage storage/load to increase their electricity use during periods of REZ network congestion?	Click or tap here to enter your answer to question 30.
<b>Question 31:</b> If an incentive mechanism for load is implemented how should the costs of this arrangement be recovered?	Click or tap here to enter your answer to question 31.
<b>Question 32:</b> How should the potential impact of changes in distribution load and embedded generation on the CWO REZ hosting/export capacity be incorporated into the REZ Access Scheme design and implementation?	Click or tap here to enter your answer to question 32.
<b>Question 33:</b> Should non-scheduled generation and exempt generators be required to hold access rights under the CWO REZ Access Scheme, and/or should the total capacity of non-scheduled generation or generation from exempt generators permitted to connect be capped? Is there an alternative approach to the treatment of non-scheduled generation or generation from exempt generators which should be considered?	Click or tap here to enter your answer to question 33.

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<p><b>Question 34:</b> If 'use it or lose it' provisions were introduced, how should the utilisation requirements be set/measured? What exemptions or concessions should be considered?</p>	<p>ATCO supports the 'use it or lose it' provisions but consideration should be given to the time requirements of different technologies in the case where underutilisation occurs. For example, the construction of a pumped hydro project could take five years with significant development risks, whilst battery construction could take six months.</p> <p>Each generation and storage project will have a risk profile relative to the development of each investment. Provisions of this nature need to consider the relative risks of each project profile in setting utilisation requirements.</p> <p>A sunset period would require that access rights be returned (for compensation) or sold if a connecting project does not reach a particular milestone (e.g. date of financial close or commissioning) by a particular date; and minimum utilisation requirements which could require access rights be returned (for compensation) or sold if determined to be underutilised after the access right is acquired. For example, this may include a generator closure or mothballing, or a generator developed to a lower capacity than initially planned.</p>
<p><b>Question 35:</b> If an access right holder was required to return some or all of its access rights under the 'use it or lose it' provisions, how should these provisions be structured?</p>	<p><a href="#">Click or tap here to enter your answer to question 35.</a></p>
<p><b>Question 36:</b> What impact do you consider capping of connection in a REZ, and the proposed access scheme models, will have on reducing the risk of volatile MLFs? Are additional measures warranted? If so, what measures?</p>	<p><a href="#">Click or tap here to enter your answer to question 36.</a></p>
<p><b>Question 37:</b> What are your views on the appropriateness of the principles for managing the interface between the CWO REZ Access Scheme and common DCAs/DNAs? How could consistency between the CWO REZ Access Scheme and access policies on DCAs and DNAs best be achieved?</p>	<p>The CWO REZ Access Scheme should provide a clear pathway to progress transmission connections and coordinate access to transmission within the REZ Access Scheme from competing market participants. If this is introduced, then generation and storage development projects in the REZ will benefit additionally from the certainty provided by a clear and coordinated connection process by reduced project delays and schedule risk. Having different access policies on DCAs and</p>

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	DNAs creates complexity that will erode investor confidence in the CWO REZ Access Scheme. Any obligations placed on the owners or operators of DCAs/DNA should not encroach on their ability to effectively manage their asset.
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## 4. Other coordination initiatives

<b>Question 38:</b> Would a process to coordinate connection assets for multiple projects be of interest? If so, what coordination initiatives would be of interest?	Click or tap here to enter your answer to question 38.
<b>Question 39:</b> Given the unique nature of connecting to coordinated REZs, such as the CWO REZ, the barriers to coordination of connection assets may be reduced. What further barriers to coordination will still need to be overcome, and how could this be achieved?	Click or tap here to enter your answer to question 39.
<b>Question 40:</b> What opportunities exist for the NSW Government to improve connection processes in the CWO REZ? What improvements would deliver greatest value?	ATCO agrees that improving connection processes in the CWO REZ presents a significant opportunity that would have far reaching benefits across NSW. Improvements to timeliness, shared use of a single consultant/expert and shared access to the Power System Computer Aided Design (PSCAD) network models would provide the greatest value. Where a project shows significant benefits to the REZ and the wider REZ region, it should also obtain access to a prioritised connection process.
<b>Question 41:</b> What, if any, additional connection challenges could be created under the CWO REZ Access Scheme? How could these be mitigated?	Click or tap here to enter your answer to question 41.
<b>Question 42:</b> What value could be delivered to generation and storage projects through centralised approaches to connection and system services, and what are the trade-offs? For example, would projects be willing to forego optionality around aspects of their project through requirements like minimum equipment standards, to reduce costs and the risk of potential delays to commissioning?	Click or tap here to enter your answer to question 42.

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### 5. Open comment

<b>Question 43:</b> Are there any other matters you wish to raise relevant to this issues paper?	Click or tap here to enter your answer to question 43.
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