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# QUEENSLAND COMPETITION AUTHORITY

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## THIRD PARTY ACCESS: ISSUES FOR PRICE SETTING FOR URBAN WATER BUSINESSES

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## 1. INTRODUCTION & SUMMARY

Marsden Jacob Associates (MJA) was asked by the Queensland Competition Authority (QCA) to provide advice on pricing for third party access purposes for urban water businesses. A particular focus of the paper is to consider the extent to which the pricing principles which apply for third party access purposes should be similar to those applied for monopoly prices oversight.

The key principles and concepts for monopoly price setting and efficient pricing arrangements are:

- the bypass or standalone price; and
- the incremental cost of service provision.

The setting of arbitrated access prices involves the same concepts. Thus, both monopoly prices oversight and arbitrated access prices must consider:

- the standalone or by-pass price of replicating the services now provided by the infrastructure. To charge above this level would result in monopoly exploitation, too high a price and, therefore, inefficient use of the infrastructure services;
- the minimum price/revenue level necessary to ensure that the business is commercially sustainable while meeting ongoing obligations including expansion and dividends. To charge below this level would result in the ultimate failure of the business and therefore supply – violating the supply efficiency objective.

Note that pricing below the bypass price need not be inconsistent with the requirement that new investment and expansion meet commercial hurdle rates;

- the minimum price of providing (access to) the service without cross-subsidy from existing customers; and
- whether the new customer seeking access to the services is charged prices which leave existing customers no worse off or whether costs are (in part) equalised across all customers.

Application of these concepts varies depending primarily upon the commercial objectives of the infrastructure access provider, specifically, whether the objective is to maximise commercial profits or to provide services to users at minimum sustainable cost:

- prices oversight regimes, like the access pricing rules, have been developed almost entirely for situations where the infrastructure provider seeks (or is presumed to seek) to obtain maximum commercial profit.

This presumption underpins the entire logic of prices oversight in the US and UK electricity, gas and telecommunications industries. It also underpins the price regulatory approach for the privatised water businesses in the UK – and the Total

Service Long Run Incremental Cost (TSLRIC) access pricing rule adopted, for example, in telecommunications; and

- peculiar to the Australian water situation where there is the explicit regulatory recognition that the objective is not always to maximise commercial profit and that there is a need to ensure that the entities price at or above minimum levels consistent with commercial viability and sustainability.

A specific issue which will need to be assessed in the Queensland environment is how access prices should be set in a context where prices to customers in general are set to achieve commercial viability. How does the TSLRIC approach apply in this situation?

One perspective is that the access seeker should be able to benefit from the same lower price structure that existing customers enjoy.

The alternative and preferred approach is to recognise that price discrimination may be economically efficient and is explicitly permitted under the Trade Practices Act. As a result, if the access provider seeks to price discriminate, then prices up to the by-pass price (as approximated by TSLRIC) may be charged.

However, where the regulator has approved/endorsed a price/revenue level which does not give full recognition to sunk costs, setting access prices on the basis of the bypass price (as approximated by TSLRIC) will lead to an access price substantially above the price to existing incumbents.

The apparent inconsistency is presentational but will need to be carefully addressed and explained.

The key issues and conclusions are that:

- depending on the objectives of the regulatory regime and the commercial objectives of the access provider, there is no single correct formula for calculating access prices;
- the objective of access pricing is to meet the conflicting objectives of demand and supply efficiency, that is, to provide the access provider with an adequate return to encourage efficient investment and at the same time to set a price which encourages efficient use of that infrastructure by third parties;
- it is helpful to distinguish between a full competitive model (where the access provider is also a competitor in dependent markets) and monopoly services where the infrastructure is run as a standalone business function;
- prices are likely to be located between an upper bound set by TSLRIC and a lower bound determined by the long run marginal cost (LRMC) or incremental cost. In this regard, principles for access pricing are similar to monopoly price setting

where prices are located between an upper bound set by the by-pass price and a lower bound set by LRMC; and

- the application of pricing rules is highly dependent on the assumptions employed.

In comparing the approach for the third party access with that for a monopoly service a number of key issues become apparent:

- the focus on total service costs, as implied in TSLRIC, provides a more certain return on a wider range of costs than would be guaranteed under the economic principles and objectives underlying pricing for monopoly supply, which, in the water industry, are more likely to lie towards the lower bound set by commercial viability;
- access arrangements for full competitive models will need to protect third party entrants against risks of predatory pricing in retail markets, or access pricing designed to discourage entry. These risks will affect the design of access pricing checks and enforcement more than the underlying pricing methodology. These risks will not apply in a monopoly service environment;
- the provisions of Part XIC of the Trade Practice's Act (which sets out the framework for a telecommunications access regime) start with the standard NCP presumption that the terms for access can best be agreed through commercial negotiation. This approach is likely to involve a richer mix of business imperatives such as risk-sharing and revenue certainty than would be considered in standard prices oversight; and
- introduction of third party access to the water industry would raise a range of practical issues relating to eg. leakage and water quality where explicit allocation of costs and risks will be necessary.

## **2. THIRD PARTY ACCESS PRICING**

### **2.1. ACCESS REGIMES**

At its simplest level, access to the network infrastructure and facilities of one business by another can be negotiated on mutually acceptable terms by the two parties, without the need for recourse to regulation or arbitration. However, where the infrastructure is a mutual or legislated monopoly and both businesses compete in the retail market, then negotiation alone may not result in access under any terms. These different outcomes illustrate the critical role of the commercial objectives of the owner/operator of the infrastructure.

Where the public interest would be served by ensuring access, for instance for assets of national or state importance, formal access regimes can be established to provide access to third parties.

Third party access regimes involve requiring the owner of a monopoly network to allow a third party's product or service to be carried by that network. The approach does not seek to subject the infrastructure itself to competition, rather it seeks to increase competition in contestable markets, either up-stream or down-stream of that monopoly service, that are otherwise inaccessible to the new entrant. Access regimes only apply where it would be uneconomic to duplicate the relevant infrastructure and where that capability can be used to give third parties access to other markets.

The nature and extent of regulation required will vary from industry to industry and from case-to-case, depending on the degree of formality involved. At one end of the spectrum, access regimes can constitute formal binding arrangements under the Trade Practices Act 1974 (TPA). This approach implements the provisions in Part IIIA of the Act and in the Competition Policy Reform Act whereby access regimes can be 'declared'. Three alternative options are envisaged:

- an access regime can be developed by an individual jurisdiction, which can then seek certification of the regime by the National Competition Council (NCC);
- alternatively the owner of the infrastructure can propose an undertaking to the ACCC, on the terms and conditions for access; and
- finally a new entrant can formally petition the NCC to determine the terms of a declaration.

### **2.2. ACCESS PRICING**

Where access is not granted willingly, and regulators are required to intervene to arbitrate access terms and conditions, the regulators will need to consider explicitly the access price. As noted below, this requires the regulator to consider the requirements of both demand and supply efficiency.

### 2.2.1. OBJECTIVES OF ACCESS PRICING

The objective of access pricing is to “*encourage economically efficient use of, and investment in,... infrastructure.*”<sup>1</sup> This phrasing taken from the telecommunications access pricing principles encapsulates both the objective of demand efficiency, ie. ensuring economically efficient use of the available resource or infrastructure and the need for supply efficiency, ie. to ensure adequate incentives for investment.

The general presumption in telecommunications access regimes (where the infrastructure provider typically seeks to maximise commercial returns) is that adequate incentives for future investment depend on not only the promise of adequate returns on that future investment, but also to a large extent the fulfillment of expectations on existing investment.

In arbitrated negotiations, it is also necessary to strike a balance between the competing objectives of the two main players:

- the interests of the access provider, which are to maximise the return on its investment. In the absence of an adequate return there will be disincentives to invest in future infrastructure. This will drive pricing towards full cost recovery, based on total system costs; and
- the interests of the access seeker, which are to minimise the costs it faces in gaining access to that infrastructure. In particular, it seeks to minimise the risk of monopoly rents. This will drive pricing towards marginal costing.

In economic terms, it is necessary to resolve conflicting objectives of demand efficiency and supply efficiency. The importance of the commercial objectives of the infrastructure provider can be illustrated by considering the different outcomes for different market structures:

- if the access seeker and access provider were part of a single entity, then pricing of that access would be based primarily on marginal costs. In the presence of surplus capacity, this would rely on short run marginal costs (SRMC), which for most pipeline business are likely to be very low. In the face of capacity constraints, pricing would be based on long-run marginal costs which incorporates both SRMC and long-run capacity costs. It is important to note that both of these approaches are forward looking, assessing the marginal costs of providing additional service capacity. Neither seeks to base prices on the costs of sunk assets; however
- in a disaggregated model, where both entities are profit maximising, the maximum price which the infrastructure provider can charge is the revenue required by a

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<sup>1</sup> ACCC (1997), “Access Pricing Principles – Telecommunications”, 22 August, chapter 4, page 2. Available at [www.acc.gov.au/telco/pricing/telcop43.htm](http://www.acc.gov.au/telco/pricing/telcop43.htm).

competitive new entrant replicating the services provided by the existing infrastructure. This principle is translated in practice as the price/revenue level required to allow the access provider with an appropriate return on its existing (sometimes optimised) investment.

The divergence between these two approaches is a central issue in the debate on access pricing.

### 2.2.2. ACCESS REGIME MODELS

In analysing access regimes, and the pricing principles which should apply to them, it is useful to distinguish between:

- **full competitive third party access.** This is where a new entrant seeks access to infrastructure, owned and run by a access provider, in order to gain access to an end market where the access provider is also a competitor. Typically the access provider seeks to maximise commercial returns.

The classic example of this model is in telecoms, where eg. new entrants seek the right to use part of Telstra's local telephone network in order to access potential customers. This is the model around which the initial regulatory structures for third party access were designed.

There are a number of aspects of this access model which drive particular outcomes for pricing:

- the access provider has created an infrastructure primarily for its own use and commercial objectives. Any pricing rules have to provide an adequate return on that investment to avoid disincentives for future investment;
  - the infrastructure, to which access is sought, comprises only part of the business activities of the access provider, eg. there will also be downstream retail functions. Pricing rules, therefore, have to include explicit arrangements for the allocation of common or joint costs;
  - the access provider faces potential loss of retail market share in dependent markets and will seek to recover a contribution to this loss through the access charge;
  - the access provider generally has incentives to discourage access by new entrants, as they will challenge its market position in dependent markets. Rules for access pricing therefore have to take account of the risks of predatory pricing (designed to discourage entry into the market) or inflated access pricing (designed to reduce competition in dependent markets); and
- **monopoly service.** The term 'third party access' is now also used, more loosely, to refer to access to a monopoly service run as a standalone business function. In these cases, the access provider may or may not seek to maximise commercial returns.



A clear example of a monopoly access provider in Queensland, is Powerlink, which runs the high voltage transmission grid used by retail electricity companies to transmit power from generators to the local distribution network. Providers of monopoly services create a different set of risks and challenges for pricing purposes. These are much closer to the regulatory and business scenario which relate to standard prices oversight:

- the infrastructure exists primarily to service external parties. The risks around investment decisions are, therefore, substantially different from those relevant to the earlier category. These risks are likely to include those of gold-plating (due to over-design and risk averse decision-making) and inadequate investment to meet a changing business environment (due to the absence of commercial incentives);
- the infrastructure is often a free-standing function with fewer challenges regarding cost allocation; and
- the access provider is rarely a competitor in dependent markets.

### 2.2.3. FULL COMPETITIVE MODEL & TSLRIC

The general rule, in the full competitive model, is that access pricing should be cost based. The ACCC's guidelines state that:

*“The price of a service should not exceed the minimum costs an efficient firm will incur in the long run in providing the service. The relevant costs are the economic costs of providing the service. These are the on-going (or forward looking) costs of providing the service, including a normal commercial return on efficient investment.”<sup>2</sup>*

This approach is commonly known as TSLRIC, ie. the total long-run incremental cost of providing the service in question. The ACCC defines TSLRIC as:

*“the incremental or additional costs the firm incurs in the long term in providing the service, assuming all of its other production activities remain unchanged. It is the cost the firm would avoid in the long term if it ceased to provide the service. As such, TSLRIC represents the costs the firm necessarily incurs in providing the service and captures the value of society's resources used in its production.*

*TSLRIC consists of the operating and maintenance costs the firm incurs in providing the service, as well as a normal commercial return on capital. TSLRIC also includes common costs that are causally related to the access service.<sup>3</sup>*

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<sup>2</sup> *ibid.* Chapter 4, page 1.

<sup>3</sup> *ibid.* Chapter 6, page 1.

This definition of TSLRIC is, therefore, very similar to the upper bound for full cost recovery in the water industry, as endorsed by SCARM/ARMCANZ:

*“To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or TERS, provision for the cost of asset consumption and cost of capital, the latter being calculated using a WACC.”<sup>4</sup>*

In particular TSLRIC relies on an economic cost methodology for asset valuation, including optimisation, which is very similar to the deprival value methodology which underpins the SCARM/ARMCANZ approach.

The approach provides the access provider with a commercial return on the full costs which it incurs in providing the service, subject to meeting efficiency criteria. In the absence of this certainty the access provider will face disincentives for future investment in infrastructure.

*TSLRIC, by allowing efficient access providers to fully recover the costs of providing the service, promotes the legitimate business interests of the carrier or carriage service provider providing access.<sup>5</sup>*

Experience in applying TSLRIC in practice has highlighted that judgment and subjectivity are inevitable involved in the detail of the calculation - ie. what is the extent of the optimisation in asset valuation, greenfield or brownfield? What is the time horizon for ‘long-run’? What are the boundaries to the ‘service’ and what is an appropriate approach to the allocation of common costs? Different approaches and assumptions will generate widely differing values for TSLRIC.

#### **2.2.4. RECOVERY OF OPPORTUNITY COSTS?**

The access provider, in a competitive model, will incur direct costs from allowing use of its infrastructure, but may also face reductions in profit in dependent markets if the new entrant wins market share previously held by the access provider. One of the major issues for access pricing is, therefore, whether the access provider should be allowed to recover a contribution towards these potential losses.

The Efficient Component Pricing Rule (ECPR) postulates that efficiency is only promoted if the new entrant is required to reimburse not only direct costs but also the opportunity cost which that access imposes on the access provider, ie. the loss of contribution towards fixed costs which the access provider previously obtained through its profit in the dependent market.<sup>6</sup> Under this approach the access provider is

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<sup>4</sup> NCC (1998), “Compendium of NCP Agreements” – Second Edition, June 1998, page 112.

<sup>5</sup> ACCC, *ibid.* Chapter 6, page 2.

<sup>6</sup> see Baumol, WJ and Sidak, JG (1994), “Towards Competition in Local Telephony”, MIT Press and American Enterprise Institute for Public Policy Research.

ultimately 'indifferent' as to whether it or the new entrant services the dependent market.

This approach provides a classic example of the tension inherent in access arrangements between the competing interests of the access provider and the access seeker. ECPR leaves the access provider in a revenue neutral position. However, it provides a high hurdle for any new entrant to clear and limits incentives for innovation by the access provider.

The alternative position, endorsed in principle by the ACCC in telecoms access, has been to deny the incumbent the right to recover lost profits which may result from the access arrangement:

*an access price should not be inflated to recover any profits the access provider ... may lose in a dependent market as a result of the provision of access.*<sup>7</sup>

This approach should facilitate entry and stimulate innovation in the dependent market. The risk is that too low an entry barrier will act as a disincentive for the access provider to provide or enhance that service. It may also undermine wider competitive opportunities which might have developed if the access cost had been closer to the by-pass cost.

In practice, the ACCC has adopted a range of positions, depending on the circumstances of the case in question. For example in the recent access declaration for local telecoms services,<sup>8</sup> it has supported the use of TSLRIC, with no allowance for opportunity costs, for access charges to the unbundled local loop and for local PSTN services. However, in the case of local carriage services (ie. local call resale), it has endorsed an avoidable cost methodology to derive the wholesale access charge from the retail price. This top-down approach tends, in practice, to allow the access provider to retain some element of the retail margin in the wholesale price and will approximate to ECPR. The difference in approach is argued on the basis of the differential incentives required for the players in the different access circumstances.

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<sup>7</sup> ACCC, *ibid.* page 8.

<sup>8</sup> ACCC (1999), "Declaration of local telecommunications services, a report on the declaration of an unconditioned local loop service, local PSTN originating and terminating services, and a local carriage service under Part XIC of the *Trade Practices Act 1974*", July 1999, pages 103-105.

### 2.2.5. OFWAT'S PROPOSALS FOR COMMON CARRIAGE

Ofwat has recently published proposals for the introduction of what it terms 'common carriage' - which in practice is equivalent to third party access.<sup>9</sup> These will require all companies to develop coherent arrangements to allow them to respond positively to any future request for third party access. Ofwat encourages commercial negotiation over access terms. The proposals specify that any access charges should be 'cost reflective' and 'non-discriminatory'.

**Accounting Separation:** Ofwat expects water companies to develop and publish disaggregated costings for the provision of different network services. New entrants should then be charged on the same basis as the company's own retail business. This will, in effect, require full accounting separation of the retail and network businesses.

**Cost Recovery:** Ofwat indicates that charges should allow the network business to recover reasonable costs, on the basis of average or long-run marginal costs. This approach would provide a lower return than would result from the application of the TSLRIC methodology and contains no provision for recovery of opportunity costs.

### 2.2.6. MONOPOLY SERVICE & COMMERCIAL VIABILITY

The risks and drivers for a monopoly service differ from the full competitive model. In these circumstances full cost recovery can be met adequately through compliance with the lower bound endorsed by SCARM/ARMCANZ. This concentrates on the future cashflow adequacy and commercial viability of the business, rather than a primary focus on the asset value of the business:

*"To be viable, a water business should recover, at least, the operational, maintenance and administrative costs, externalities, taxes or TERs, not including income tax, the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement ... Dividends should be set at a level that reflects commercial realities and simulates a competitive market outcome".<sup>10</sup>*

Judgment is then required as to appropriate overall revenue requirement of the business, taking account of cashflow forecasts and the implications of this for financial indicators and the return to the shareholder.

This approach is also seen in the pricing principles adopted for the NSW Rail Access Regime. This follows the SCARM/ARMCANZ approach, that is prices should be negotiated between:

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<sup>9</sup> Ofwat (1999), "Development of Common Carriage", MD 154, 12 November 1999.

<sup>10</sup> SCARM (1998), "Asset valuation guidelines", Task Force Report, reproduced in NCC (1998) "Compendium of NCP Agreements – second edition", June, page 112, clause 5.

- a lower bound, represented by incremental cost of supply; and
- an upper bound, equivalent to the stand-alone or bypass cost.

The objective is to deter inefficient outcomes involving economic cross subsidy. However, it leaves it up to commercial negotiation to determine the exact position adopted within those bounds.

### **System Augmentation**

A major uncertainty facing any pricing regime for third party access is how to take account of the expenditure required for system augmentation. There are two basic models, which differ mainly in their treatment of sunk assets. These differences can be seen in examples from the water industry involving the allocation of costs of system augmentation between existing and new customers, where the same basic principles apply as are relevant to pricing for third party access:

- **Goldfields - Marginal Costing:** The Water Corporation, Western Australia, identified the need to augment the capability of its 560 kilometre water supply to the Goldfields at Kalgoorlie-Boulder. This was to ensure the ability to supply additional demand anticipated from growth in the local mining industry. The Water Corporation decided to price this augmentation as an increment.

As a result any new customer (or any significant increase in demand from the existing customer base) will be charged a tariff calculated from the incremental cost of augmenting the system. Costs were estimated for the expenditure needed to deliver the next additional quantum of demand (eg. 10 ML per day) and tariffs were calculated from this on a volumetric basis. The resultant prices are significantly higher than for the existing customer base, who carry none of the costs of that augmentation. However, on the other hand, the new customers (or new demand) make no contribution to the costs of the existing asset base.

- **Cost Sharing:** A more common approach, where water businesses face the need to augment supply to meet additional demand, is for a uniform tariff to be applied to all customers which covers both past and future expenditure. This shares the costs and risks of the existing asset base and new asset creation between the current customer base and new customers.

These scenarios both demonstrate compliance with sound economic principles. However, they produce widely differing outcomes which are driven by the differing commercial and business risks of the two organisations. Reliance on commercial negotiation for the development of access pricing will see those prices based on a range of approaches including:

- short-run marginal costs. This will be particularly likely where the demand is off-peak and small in relation to normal flows;

- long-run marginal costs. This will be critical where the access provider faces capacity constraints; and
- TSLRIC with a focus on existing assets. This will obtain a return on all costs related to the relevant service.

### **2.3. ISSUES IN THE APPLICATION OF THIRD PARTY ACCESS TO WATER**

The application of a third party regime to water will raise a number of issues not raised in price regulation of a monopoly provider. The Ofwat proposals for common carriage assume that these issues can be dealt with adequately through contractual arrangements.

**Leakage:** Where the water belongs to a third party the access regime will need to specify whether:

- the charge is for transmission of a stated volume to a defined point. Under this approach the access provider carries the risk of leakage; or
- the charge is for transmission of a stated volume at the point of receipt with an explicit recognition of the losses which will be incurred in transit.

The key issue relating to leakages is that the access provider is simply providing a transport service for a commodity which is owned by somebody else, that is, the access regime is directly linked to the system of property rights for the commodity. As an illustration, the bulk entitlement orders for Victorian water businesses specify that the leakages and transmission losses of bulk water are owned by the authority responsible for the transport of that water. On the other hand, the NSW licences specify that leakages and transmission losses are the property of the licensee.

The method of handling the leakage issue therefore varies from situation to situation but the dominant principle is that leakages should be assigned in a way which maximises the incentive to reduce those leakages and losses. In other words, assign ownership of the leakages and losses to those most able to reduce them. Commercial negotiation, possibly involving governments, is an obvious method of changing this ownership and amending the incentives. However, assessing the reasonableness of the charge will need to take account of what is considered a reasonable level of leakage.

**Water Quality:** Any common-carriage arrangement for water will need to specify the relative accountability held by each of the parties for water quality. Any access seeker will require guarantees as to the quality of the water which will be delivered. Equally access providers will seek to control the quality of water which is input to its system, as it is not possible to segregate the water which belongs to the third party player from

the standard product. In this regard access regimes will be more complex than for other products, such as gas or electricity, where variations in the product are less significant. In access regimes for water, liability for water quality must be clearly specified.

In South Australia, where the Barossa Growers are using SA Water's bulk transfer pipelines to transport water from the Murray down to their vineyards, the product is raw water, so the issue will not arise. By comparison, the Virginia pipeline agreement, where treated wastewater is provided to horticultural growers north of Adelaide, has specific quality parameters written into the agreement.

**Principles for Disaggregation and Cost Allocation:** In all cases there are significant issues relating to the allocation of costs to a third party user which requires access to only a discrete part of the business infrastructure. This is particularly problematic where system augmentation is required. For example, how much of the costs of a new headworks should an access user contribute to, who seeks access to use only a section of the transfer main from the previous headworks?

Monopoly prices oversight in the water industry is concerned with assessing the overall revenue requirement of the business, as prices are normally based on uniform tariffs. This means that it is not necessary to assess which costs should be attributed to which customers, other than at the broad level to demonstrate compliance with cross-subsidy guidelines.

By contrast, third party access may involve the right to use only a limited section of the wider infrastructure of an entity. In developing charges for that access it is important that a robust analysis is undertaken to allocate charges for the relevant infrastructure used. This raises a number of challenges:

- to identify which assets and costs should be included. This is problematic where reticulated assets are concerned. Normally it will be valid to include costs of the entire or major parts of the reticulated system as it operates as a single integrated system;
- most water businesses would find it extremely problematic to disaggregate their costs to relate to discrete elements of their infrastructure. This requires a major exercise to value assets by area and to allocate common or joint costs with different cost drivers; and
- to identify the cost drivers for those assets. This is particularly critical in the water industry where asset size is driven by peak consumption. For example, the charge for third party access to off-peak supply should reflect a different set of cost drivers to another third party seeking identical access at peak times.

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