

Australian Energy Market Commission

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Inter-regional Transmission Charging - ERC0106

The generators listed in the sidebar appreciate the opportunity that this additional step in the consultation process has afforded us. We have taken this opportunity to consider the issue from a fresh perspective.

Our consideration of the issues raised in the discussion paper has resulted in the development of a proposal which differs substantially from any of the alternatives outlined in that paper.

Our position is briefly summarised as follows -

- We support the development of Inter-regional Transmission Charging (ITC) in the expectation that transmission investment will be constructed in coming years for the purpose of supporting persistent energy flows from a region or through a region,
- We do not support any ITC based on the cost of existing transmission assets,
- We propose that any ITC should be based on the true causation of cost in the transmission network, namely the decision to invest in new transmission assets, and should apply where the justification of new investment is based, in part or entirely, on the expectation of persistent energy flows from or through the constructing region,
- Any decision to make a network investment that will lead to ITCs should be either conducted or reviewed in detail by an independent authority such as the AER,
- Any ITC should be on-going and stable unless and until a network planning decision within the region re-allocates part or all of the relevant network capability to another purpose i.e. under-utilisation, of itself, should not lead to re-allocation of costs,
- While we contend that ex ante assessment is the only efficient basis for allocation of costs to an ITC, we accept the necessity for ex post cost allocation within regions and do not propose any change to this process. We propose that

AGL Energy

Alinta Energy

International Power
GDF-Suez

LYMMCo

an ITC, having been determined by the ex-ante process, would then be recovered by the paying TNSP as part of its non-locational charges

- The short-run marginal costs of transmission are not directly met by TNSPs, are uncertain and often perverse in their impact on a TNSP and we therefore contend that no attempt should be made to include them in an ITC

These issues are discussed in greater detail in the following sections.

1. Support for future Inter-regional Transmission Charges

In our view the existing interconnections between regions have been based on either resource sharing (such as the sharing of Hume Power Station or the Snowy Mountains Scheme), or else in the expectation of occasional power flows in either direction depending on current circumstances, giving benefits in reserve sharing and production economics.

There has not been a perceived need for interregional (or inter-state) charges in either of these cases.

But we anticipate the likelihood that some future transmission investments will have a primary or sole purpose of supporting significant and persistent power flows either from or through a region. This expectation derives mainly from the distribution of some renewable energy resources relative to the distribution of electricity demand.

We accept that there is a case for the cost of such facilities being charged to the customers in a region or regions where the benefits of the power flows occur, rather than to customers in the region where the investment is made, since that latter group do not benefit from the investment.

But our support for this concept is conditional on the charge being based on the purpose of the investment, and not on the essentially cost-free opportunistic use of transmission assets once they exist.

2. Existing assets should not be a basis for ITCs

The transmission assets that form the current interconnectors were built for a variety of purposes, but share a common characteristic in that they were justified, at the time of construction, on the basis of benefits within the state justifying the cost of assets within the state.

We submit that there is no justification in terms of the National Electricity Objective in now undoing these past decisions, by re-allocating these historical and sunk costs.

In some cases the justification was based on reserve sharing, with benefits to customers in both the connected states, and in such cases there was a determination at the time that the benefits to customers in each state were sufficient to justify the investment in that state.

In other cases interconnection was developed in order to share generation resources near a state border, as in the cases of Hume Power Station and the Snowy Mountains Scheme. In these cases the

opportunity for power flow between states (or now between regions) was a by-product of costs incurred for another reason, and the subsequent use of this opportunity has not altered these costs.

Where assets were built as Scheduled Network Services, and subsequently converted to regulated interconnectors, the AER has had the opportunity to divide the costs appropriately between market regions. Likewise, if an unregulated network asset is converted to a regulated asset, then the AER can determine the allocation of costs.

As we will discuss later, all the available means to re-allocate these costs on an ex-post basis are highly problematic, and we contend that overturning these considered judgements made at the time on such an uncertain basis is unlikely to serve the National Electricity Objective.

3. Charges should be based on actual costs

In order to consider the most efficient way to allocate transmission costs in the case of an ITC, the way in which the costs arise should be considered.

For the moment we will leave aside the short-term costs of transmission losses and network congestion, which we will discuss later.

The cost of a transmission network is dominated by charges related to their capital cost. The remaining minority of costs comprise mainly maintenance and operation costs. We note that the choice to construct a network asset also commits the subsequent maintenance and operations costs to a large degree (except in the rare case where an asset is removed from service).

The critical point here is that actual network flows have only a negligible effect on network costs (again leaving aside for now losses and congestion).

The only time when a network flow can lead to a material cost is when it impacts on a subsequent network planning decision. This will occur if a network planner works with assumptions that imply that the flow will continue, and determines that network investment is needed to support the continuation of such flows in the future.

Since the actual costs of the transmission network are determined on an ex-ante basis, we contend that in all those cases where cost can be allocated on the same ex-ante basis, it should be.

However, we recognise that an ex-ante basis cannot be used for most of the network costs, because of the many difficulties that have been mentioned in the discussion paper (such as economies of scale, leading to investment for the sake of prospective new customers, who may never appear).

We accept that ex-post cost allocation (such as CRNP) is unavoidable for many transmission costs within a region. This situation is one where charges based on causation are beyond practical reach and a plausible locational cost signal is the best that can be achieved. However, such cost allocation is not strongly related to the actual cause of costs, and should be avoided wherever possible.

The cases where ex-post cost allocation can be avoided include investment for new generator access, new large customer supplies, and interconnectors. In each of these cases, the cause of the cost will be clear at the time that the investment decision is made. Where an investment serves multiple purposes, the individual significance of these can be assessed by re-running the analysis of

benefits excluding each purpose in turn. This analysis of benefits relevant to each purpose could be derived from the analysis under the RIT-T process, or from any alternative analysis of benefits that might be applied.

The difficulties of ex-post cost allocation can be easily seen by a simple thought experiment. Consider the application of ex-post cost allocation where an unnecessary transmission line has been built. Once connected, such a line would carry power flows and these power flows would be associated (ex post) with particular customers. These customers would be charged in relation to the cost of the line despite the fact that they are gaining no material benefit from it.

The fundamental point is that ex-ante studies identify the purpose of an investment, while ex-post analysis can only address the less relevant question of the use to which it is put. This use is almost entirely beyond control as power flows are determined by physics, not by intentions. Hence ex ante cost allocation should be applied wherever this is possible, while recognising that for many investments it will not be achievable, and ex-post allocation, while unsatisfactory, will be the best that can be done.

The continuation of charges based on the original purpose may be questioned, but we contend that if transmission investment takes place in region A, for the purpose of allowing increased flows into region B, then region B should continue to pay for that investment whether or not the expected flows occur. The only alternative is that this cost is inappropriately visited on region A.

This cost allocation is consistent with the simple fact that the cause of the cost was the expected flow, and this remains true whether or not that expectation is realised.

We note that the situation of a network incurring cost on the basis of uncertain expectations is not unique to investments for inter-regional flows, but applies to almost all transmission investments. Customers incur costs on the basis of these expectations within regions now. Hence our proposal for inter-regional charging is consistent, in this important sense, with the existing arrangements for charging within regions.

4. Independent verification should be required for ITCs

The proposal that transmission assets be constructed by one TNSP with part of the cost met by another TNSP clearly creates an opportunity for cost shifting by either party.

Hence there is a risk that desirable projects may be delayed by a stalemate over cost allocation.

In view of this, we propose that in all such cases the justification of the project and the allocation of costs should be verified by an independent authority. This could alternatively be the AER, or the AEMO in its role as National Transmission Planner.

5. Charges should be stable

Any ITC will need to be taken into account by both of the TNSPs involved, in one case to exclude that amount from its local cost recovery, and in the other to include it.

In order to facilitate this, the charge should be stable.

Fortunately, the underlying cost structure is consistent with stable charges, and a cost allocation based on purpose (as we propose) is inherently stable.

As we have noted earlier, such ITCs should be independent of the actual power flows on the network.

However, there is one circumstance in which we propose that an ITC might change. If there were persistent under-utilisation of an asset that is the basis of an ITC, then the host TNSP might, in its transmission planning, re-allocate some (or all) of that network capability to another purpose within the region.

There are two conditions that define this opportunity –

- The TNSP, absent the relevant asset, would have needed to make a network investment for a purpose other than supporting the relevant inter-regional flows,
- In avoiding that investment, the network capability available to support those inter-regional flows is reduced

The share of the asset cost previously supported by the ITC would then be allocated in accordance with the new use of the capacity, for example to a generator if it now supports a new generator access.

6. No need to change cost allocation process within regions

In noting the inherent limitations of ex post cost allocations in relation to transmission networks, we have been careful to observe that the superior methodology of allocating cost, ex ante, on the basis of causation, is not available for most transmission investments within a region.

Consequently, we are not advocating any change to these processes for intra-regional cost allocation.

Instead we propose that the ITCs (having been defined on a causation basis), should be simply added or subtracted, as appropriate, to the costs being recovered within a region.

We note that these costs have no locational significance in either the sending or receiving region, and therefore expect that they would apply to costs recovered on a “postage stamp” basis on both regions.

7. Short-run marginal costs should not be included in ITCs

In our earlier discussion of network costs we explicitly excluded the short-run marginal costs of the network. This was done for two reasons –

- The short-run marginal costs of the networks are not, in the first instance, imposed on TNSPs, but are rather imposed on other market participants, and
- To the extent that TNSPs do see these costs, they generally see them in a perverse form that would be inappropriate for cost signalling between regions

These short-run marginal costs come from two sources, network energy losses and congestion costs.

We will first consider energy losses. Energy losses within a region are dealt with through fixed annual loss factors. These are, by design, marginal loss factors, and because of the non-linear characteristic of network losses, they over-estimate the actual losses. Hence in market settlement there is commonly a residue related to these losses.

This residue is paid to TNSPs and hence they see network losses commonly as a source of income (and hence would be incentivised, if they chose to act on this, to maximise losses).

We note in passing that this over-recovery of losses is not reliable. This is because in specific cases the fixed annual loss factors are a poor representation of the true losses and the usual over-recovery of losses therefore does not apply in every case.

In relation to losses due to inter-regional flows there is a broadly similar over-recovery of losses, but with three major differences. Firstly the losses are modelled more exactly, so that the expected over-recovery is more reliable. Secondly, the residues from inter-regional flows are auctioned by AEMO, and hence the volatile settlement amounts are, to some extent, converted to more stable auction fees. Thirdly, residues from over-recovery of losses are mixed with residues from congestion when it impacts on an inter-connector, and are not easily separable.

As with intra-regional losses, the financial effects of inter-regional losses for a TNSP are in the form of a source of revenue and this perverse signal is considered unsuitable for re-allocation between TNSPs.

We now move to congestion costs. If congestion occurs entirely within a region, then the cost impact is partially on customers, through energy prices higher than they would be otherwise and partially on affected generators through restriction of their production and hence reduced revenue. In this case there is no impact on the TNSP except that energy, including transmission losses, is traded at higher prices.

On the other hand, if congestion impacts on flows between regions there is a direct financial consequence for TNSPs.

If the direction of the interconnector flow is consistent with the price difference between the regions, then the flow will result in a larger settlement residue than that due to transmission losses alone (because of the additional price difference due to the congestion). In this case a TNSP will see the congestion not as a cost but as a source of revenue (either directly or in the form of SRA proceeds).

In some events of network congestion, an inter-connector flow contrary to the direction expected from the price difference may be dispatched. This results in a deficit (or “negative residue”) in settlement and this will be charged to a TNSP. Thus the TNSP will, in this case, see a cost of network operation, although not one that can be said to reflect the real costs of congestion.

However, this outcome also has significant uncertainty, because it is AEMO’s practice to intervene in the market to prevent such flows when the deficit has reached a defined value for an “event”.

We conclude that the reflection of network operation cost to TNSPs is complex and uncertain, and most commonly takes the form of revenue rather than cost. Consequently, we cannot see any satisfactory basis for an attempt to include short-run marginal costs in any ITC regime, and recommend against any such attempt.

8. Assessment of the above proposal against the criteria suggested by the discussion paper

The discussion paper, in section 3.1, suggests a number of criteria for assessment of alternative charging arrangements. The following sections comment both on the proposed criteria and on how well this proposal satisfies the proposed criteria.

8.1 Recovery of costs of the existing network

The costs of the existing network are already being recovered. The allocation of costs between the regions is generally based on the original purposes for the investment.

As discussed above, we believe that there would be no benefit in relation to the National Electricity Objective in reallocating these sunk costs.

We note that opportunistic usage of the network for purposes other than those originally envisaged has no material impact on capital charges, operational costs or maintenance costs. As described in section 7 above the short-run marginal costs of network operation have uncertain and generally perverse effects on Network Service Provider costs, and hence we contend that they do not provide a suitable basis for efficient inter-regional charges.

In short, to the extent that this criterion has relevance, our proposal fully satisfies it.

8.2 Providing a signal for future investment

Under our proposal, the signal for future investment is the independent confirmation that there is a justifiable case for network investment in one region to be charged to another region (or regions).

We submit that this is the best signal for future investment that is practically achievable, as a proper evaluation of the investment will consider all the relevant circumstances.

In our view the major efficiency benefits of this rule proposal are the dynamic efficiency benefits which will be obtained from constructing efficiently sized inter-connector assets (justified through the RIT-T or otherwise) that would currently not be built because of deficiencies in the current cost recovery arrangements. Benefits may be obtained by appropriate cost recovery arrangements providing price signals; however, in our view these benefits are secondary and consequently the assessment criteria of “provides a signal for future investment” should be secondary to “administrative efficiency”, “transparency” and “stability and regulatory certainty, including cost impacts”.

We are proposing that only new inter-connector assets are included in the ITC, and have excluded sunk charges because in addition to the reasons given above;

- this has the benefit of reducing the price impact of the ITC, and

- such charges would be unlikely to provide a good proxy for transmission LRMC and would therefore be unlikely to promote dynamic efficiency.

This is consistent with the approach described in the NTP review and to the extent that this criterion has relevance, our proposal fully satisfies it.

8.3 Reflects a “causer or beneficiary pays” approach

Our proposal directly addresses the causation of cost, by relying on the investment decision process, which is in the direct path that results in almost all network costs to Network Service Providers.

Further, we propose independent verification to ensure that the attribution of cost is as well-based as possible within the limits of information available.

We regard the notion of beneficiaries in relation to transmission networks as fundamentally flawed. This is because any injection into or withdrawal from the network results in changed flows on every available path, regardless of whether these are necessary. Flows cannot be confined to a defined path. Hence, in our view the fundamental technology of a transmission network makes the attribution of benefits highly problematic, and certainly not a suitable basis for decisions where relevant information on causation is available, as in the cases of interest here.

8.4 Administrative efficiency

Our proposal would require, in many cases, only a single determination of cost sharing during the life of an asset.

This determination would be based largely on information from a planning study that would be required for other purposes, with only small additional work required to determine the costs shares where multiple purposes exist.

While we propose an independent verification where inter-regional charges are contemplated, and some additional administrative effort would be required on this account, we also note that there would be further benefits that would flow from such reviews, in terms of increased transparency and confidence in the transmission planning processes.

Even if changes in cost allocation were required –

- The change would relate to a recognisable event,
- The change would always be in the direction of lower inter-regional charge, and
- Changes would be infrequent.

In summary, we contend that the proposal would give a high level of administrative efficiency.

8.5 Transparency

Our proposal provides a high level of transparency. We note that –

- It is based on the transmission planning process which is already significantly transparent,

- It adds a further level of transparency in requiring an independent review,
- It involves a small number of individually significant decisions, and is thus inherently more open to scrutiny than multiple small decisions, especially if these frequent decisions were to involve complex calculations as the other options proposed would require

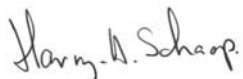
8.6 Stability and regulatory certainty, including cost impacts

Our proposal gains its stability from the inherent stability of the cost of transmission investments. The high capital intensity and the virtual absence of any costs that are both relevant and uncertain deliver stability and regulatory certainty. The cost impact of inter-regional charges, under our proposal, would be known with great precision well in advance, subject only to the possibility of cost reductions in the event of re-allocation of relevant assets to other purposes.

If you have any question in relation to this submission, please call Ken Secomb on 03 9617 8321.

Yours etc

Yours sincerely



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For the businesses listed on the side panel

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