FINAL DECISION
Directlink transmission determination
2015–16 to 2019–20

Attachment 11 – Service target performance incentive scheme

April 2015

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's final decision on Directlink's revenue proposal 2015–20. It should be read with other parts of the final decision.

The final decision includes the following documents:

Overview

Attachment 1 – maximum allowed revenue

Attachment 2 – regulatory asset base

Attachment 3 – rate of return

Attachment 4 – value of imputation credits

Attachment 5 – regulatory depreciation

Attachment 6 – capital expenditure

Attachment 7 – operating expenditure

Attachment 8 – corporate income tax

Attachment 9 – efficiency benefit sharing scheme

Attachment 10 – capital expenditure sharing scheme

Attachment 11 – service target performance incentive scheme

Attachment 12 – pricing methodology and negotiated services

Attachment 13 – pass through events

Contents

Shortened forms

Shortened form	Extended form
AARR	aggregate annual revenue requirement
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ASRR	annual service revenue requirement
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
MAR	maximum allowed revenue
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider

Shortened form	Extended form
NTSC	negotiated transmission service criteria
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
TNSP	transmission network service provider
TUoS	transmission use of system
WACC	weighted average cost of capital

11 Service target performance incentive scheme

The service target performance incentive scheme (STPIS) provides a financial incentive to TNSPs to maintain and improve service performance. The STPIS aims to safeguard service quality for customers that may otherwise be affected as TNSPs seek out cost efficiencies at the expense of service quality.

We have developed, administer and maintain the STPIS in accordance with the requirements of the National Electricity Rules (NER). The purpose of the STPIS is to provide incentives to TNSPs to improve or maintain a high level of service for the benefit of participants in the National Electricity Market (NEM) and end users of electricity.

This is the first time Directlink will be assessed under the STPIS.[1] The service component and the market impact component of version 4.1 of the STPIS will apply to Directlink for the 2015–20 regulatory control period. The service component provides a financial incentive for TNSPs to improve and maintain their service performance. This balances the incentive in the regulatory framework for TNSPs to reduce costs at the expense of service performance. A TNSP's performance is compared against the performance target for each parameter under the service component during the regulatory control period. The TNSP may receive a financial bonus for service improvements, or a financial penalty for declines in service performance. The financial bonus (or penalty) is limited to one per cent of the TNSP's MAR for the relevant calendar year.

The market impact component provides financial rewards to TNSPs for improvements in their performance measured against a performance target. A TNSP may earn up to two per cent of its MAR for the relevant calendar year. Unlike the service component, the market impact component has no financial penalty. The market impact component provides an incentive to TNSPs to minimise the impact of transmission outages that can affect the NEM spot price. The market impact parameter measures the number of dispatch intervals when an outage of a TNSP's network results in a network outage constraint with a marginal value greater than $10/MWh.[2]

The market impact parameter performance target is typically an average of the previous three years of performance data. We typically measure performance as a rolling average of the most recent two years of performance data.[3] We publish performance targets annually after we have conducted the annual review of a TNSP's STPIS performance.

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1 It is currently assessed under the ACCC service standards guidelines for the current regulatory period.

2 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, Appendix C.

3 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 4.2(d) and Appendix F.

11.1 Final decision

We will apply the service component and the market impact component of version 4.1 of the STPIS to Directlink for the 2015–20 regulatory control period in the form set out below.

11.1.1 Service component

We do not accept Directlink's proposed performance targets based on the average performance over the 2008–2012 period because we consider adjustment is required to account for the expected reliability improvement from an increase in the volume of capital works planned during the regulatory control period. Adjustment to the proposed performance targets also results in adjustments to the proposed caps and collars.[4] Table 11.1 sets out our final decision on Directlink's service component parameter values.

Table 11.1 AER's final decision on Directlink's parameter values and weightings for the service component of the STPIS

	Collar	Target	Cap	Weighting (% of MAR)
Average circuit outage rate				
Circuit outage – fault	500%	333%	167%	1.0
Circuit outage – forced outage	383.31%	180%	35.19%	0.0
Proper operation of equipment[5]				
Failure of protection system	8	4	1	0.0
Material failure of SCADA	n/a	n/a	n/a	0.0
Incorrect operational isolation of primary or secondary equipment	n/a	n/a	n/a	0.0

Sources: AER analysis.

[4] The cap specifies the level of performance that results in a TNSP receiving the maximum financial reward attributed to a parameter; the collar specifies the level for receiving the maximum financial penalty.

[5] Directlink noted the STPIS applies weight to only the "circuit outage fault" parameter, therefore Directlink only proposed values for the "failure of protection system" sub-parameter under the proper operation of equipment section. It did not have historical data for other "proper operation of equipment" sub-parameters and will commence collecting data to report against those sub-parameters in the future. As the scheme requires the provision of values for parameters unless there is no data, we accept the approach proposed by Directlink.

11.1.2 Market impact component

We have validated and confirmed the relevant market impact performance data which was provided by Directlink subsequent to the submission of its 2015–20 revenue proposal.[6] As a result of our audit, we made adjustments to the market impact performance values submitted by Directlink. For the year ending 11 August 2010, we adjusted Directlink's performance from 2949 to 2836 dispatch intervals. For the year ending 11 August 2011, we adjusted Directlink's performance from 1030 to 1017 dispatch intervals. For the year ending 11 August 2012, we adjusted Directlink's performance from 365.5 to 375 dispatch intervals. As a result of these adjustments for previous years, Directlink's market impact performance target for 2015 is 1409 dispatch intervals.[7]

11.2 Directlink's revised proposal

Directlink's revised revenue proposal did not accept the adjustment of its performance targets for the service component of the STPIS within our draft decision.[8] Directlink stated that the adjustment of its performance target in relation to cable related outages significantly understated the scope for such outages over the 2015–20 regulatory period, notwithstanding the allowances for reliability improvement capital expenditure and revised cable replacement strategies. Directlink did not raise any concerns regarding the audit results of its market impact performance data within our draft decision.

11.3 AER's assessment approach

A revenue determination for a TNSP is to specify, amongst other things, the annual building block revenue requirement for each regulatory year of the regulatory control period.[9] In turn, the annual building block revenue requirement must be determined using a building blocks approach, under which one of the building blocks is the revenue increments or decrements (if any) for that year arising from the application of any STPIS (and other schemes).[10] As set out above, we have assessed Directlink's revised revenue proposal against the requirements of the STPIS version 4.1.

We published version 4.1 of the STPIS in September 2014. Version 4.1 amended the scheme to specifically address Directlink's circumstances. This is because under version 4 of the STPIS, the Market Impact Component (MIC) performance targets are set using the rolling average of three previous calendar years of actual performance

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6 AER, Information request Directlink - STPIS 01, 1 August 2014.

7 Regarding the performance measure for the last half of 2015, we calculate the performance using the method set out in Appendix F of the STPIS, with the incentive payment pro-rated in accordance with clause 4.2(i) and Appendix D.

8 Directlink, *Revised revenue proposal 2014/15–2019/20,* 13 January 2015, p.52.

9 NER, cll. 6A.4.2(a)(2).

10 NER, cll. 6A.5.4(a)(5), 6A.5.4(b)(5) and 6A.7.4.

data.[11] Directlink's circumstances were that its recent performance data has been impacted by extended outages associated with fire damage to the Directlink facility. Version 4.1 extended the definition of MIC at section 4.2 of the scheme to exclude Directlink's performance against the market impact parameter for the purpose of setting performance targets for the period starting on 12 August 2012 to the date when Directlink 'returned to normal service'.[12] The network capability component does not apply to Directlink, as per clause 2.2(a) of version 4.1 of the STPIS.

11.3.1 Service component

Consistent with our draft decision, we assessed whether Directlink's proposed performance targets, caps and collars comply with the STPIS requirements for the:[13]

- average circuit outage rate, with two sub parameters,[14] and
- proper operation of equipment, with three sub-parameters.[15]

In accordance with the STPIS, we must accept Directlink's proposed parameter values if they comply with the requirements of the STPIS. We may reject certain values where we form the opinion that they are inconsistent with the objectives of the STPIS.[16] We measure actual performance for the 'average circuit outage rate' parameters on a two year rolling average basis in accordance with appendix E of the STPIS.

We assessed Directlink's service component proposal against the requirements of the STPIS — that is, whether:

- Directlink's data recording systems and processes produce accurate and reliable data and whether the data is recorded consistently based on the parameter definitions under the STPIS[17]
- the proposed performance targets equal to the average of the most recent five years of performance data[18]
- any adjustments to the proposed targets are warranted and reasonable[19]
- Directlink used a sound methodology, with reference to the performance target, to calculate the proposed caps and collars[20]

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13 AER, *Final – Service Target Performance Incentive Scheme, September 2014,* clause 3.2.

14 They are circuit outage rate – fault and circuit outage rate – forced outage.

15 They are failure of protection system, material failure of SCADA system and incorrect operational isolation of primary or secondary equipment.

16 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2.

17 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2(d).

18 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2(g).

19 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2(k).

20 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2(e).

- any adjustment to the performance target was applied to the cap and collar of that parameter.[21]

11.3.2 Market impact component

We have audited Directlink's market impact performance data for the period 12 August 2009 to 11 August 2012 using the following approach:

- independently calculating (using AEMO data) the number of dispatch intervals related to binding outage constraints and validating that the outages were attributable to the TNSP
- searching AEMO Market Notices to confirm the validity of the TNSP's classification of constraints as outage related, and
- cross-checking network outage request information provided by AEMO to confirm the classification of constraints as outage related.

11.3.3 Interrelationships

We have taken the following interrelationships into account in this final decision. The NER requires the STPIS to take into account any other incentives provided for in the NER that TNSPs have to minimise capital or operating expenditure.[22] One of the objectives of the STPIS is to assist in the setting of efficient capital and operating expenditure allowances by balancing the incentive to reduce actual expenditure with the need to maintain and improve reliability for customers and reduce the market impact of transmission congestion.[23]

The STPIS allows us to adjust the performance targets of the service component for the expected effects on the TNSP's performance from any increases or decreases in the volume of capital works planned during the regulatory control period.[24] We consider planned reliability improvement works in setting the performance targets of the service component. This interrelationship is also evident in the opex factors that we must take into account when making a decision which include ensuring that the opex forecast is consistent with any incentive schemes that apply to Directlink.[25]

11.4 Reasons for final decision

The following section sets out our considerations of the application of the STPIS to Directlink for the 2015–20 regulatory control period.

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21 AER, *Final – Service Target Performance Incentive Scheme, September 2014, clause 3.2(e).*

22 NER, cl. 6A.7.4(b)(5).

23 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 1.4.

24 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 3.2(k).

25 See Attachment 7, section 7.3 of this final decision.

11.4.1 Service component

Directlink is subject to version 4.1 of the STPIS for the 2015–20 regulatory control period. The new version includes a parameter called 'average circuit outage rate' introduced in version 4 of the STPIS. This parameter replaced the 'transmission circuit availability' parameter under previous versions of the STPIS.

Performance targets

Directlink must propose a performance target, a collar and a cap for the parameters applicable to it under the service component in accordance with clause 3.2 of the STPIS. The cable replacement program proposed by Directlink in its original revenue proposal was based on reactive replacement of failed cables.[26] This strategy involves replacing longer segments of cable during cable repair operations which requires additional operating and capital expenditure. Our draft decision explained that we observed a clear reducing trend in cable faults since 2010, which is likely to be the result of Directlink's new cable repair strategy. Our expectation was that cable faults would decrease further as a result of Directlink's improved cable repair strategy and increased capex allowance.[27]

In its revised revenue proposal, Directlink submitted that its proposal was not correctly described in its original revenue proposal and the cable replacement program consists of two parts:

- reactive replacement of cable failures once they occur; and
- proactive replacement of cable sections that have known or suspected issues.[28]

We do not consider it is normal industry practice to proactively replace cable in order to pre-emptively avoid its failure except in the case of known cable 'type' faults or where there are known cable condition issues. In such circumstances, we consider that a prudent business would develop a business case to demonstrate the need and efficiency of proactive cable replacement.

Directlink submitted a business case for its cable replacement program and a report by PSC on Directlink's DC Cable Replacement Strategy (PSC report),[29] which evaluated its program within its revised revenue proposal. The PSC report included the following conclusion:

> '… a strategy of careful analysis of past cable faults to identify areas that have and are likely to experience clusters of failures, and the replacement of these

[26] Directlink, *Revenue proposal 2014/15–2019/20*, May 2014, pp. 50-51.

[27] AER, *Draft Decision: Directlink revenue determination,* November 2014, pp. 11-14 to 11-16.

[28] Directlink, *Revised revenue proposal 2014/15–2019/20,* 13 January 2015, pp. 19-20.

[29] Directlink, *Revised revenue proposal 2014/15–2019/20,* 13 January 2015, Attachment 5.2, 'Updated capex business cases' and Attachment 5.3, PSC: 'Directlink DC Cable Replacement Strategy', January 2015.

cables, is a cost effective and prudent approach to improve the reliability of the DC cables.'[30]

However, while suggesting the recommended proactive strategy is cost effective, the report provided no analysis to demonstrate the value of this strategy other than in engineering terms as an improvement of cable reliability. While such a strategy may improve the reliability of the cable, the impact of this and its corresponding value was not assessed. While the reliability of the cable is of concern, we consider that improving this performance by replacing cable before it fails requires justification by reference to a cost-benefit analysis. In addition, given that Directlink's current strategy of reactively replacing larger sections of cable either side of faults has significantly improved cable reliability, any proactive strategy would need to provide commensurately greater benefits over the brought-forward costs of proactive cable replacement. The PSC report does not make this case.[31]

Directlink also responded to our enquiries by providing information regarding cable condition, water ingress and strategies to address historical failure rates to support its proactive cable replacement strategy.[32] We do not question the cable condition or the potential reliability concerns raised by the water ingress analysis. However, we consider that while a longer term repair strategy that involves replacing any remaining cable sections where water is suspected to have migrated into the cable may be of value, Directlink has not demonstrated the value of the proposed proactive cable replacement expenditure in remediating such failure events.

Further to evidence provided in its original revenue proposal,[33] Directlink stated within its revised revenue proposal that an average cable failure rate of three per annum is not supported by recent analysis of rainfall evidence.[34] Directlink focused on the lower than average rainfall in 2014 and noted that cable faults still exceeded three per annum. However, we consider the reduction in cable faults after the introduction of Directlink's cable replacement strategy to be more persuasive, notwithstanding the average to higher than average rainfall through the 2011–12 to 2012–13 period.

Therefore, for the reasons above and the reasons set out in our draft decision, we remain of the view that an average cable failure rate of three per annum is a reasonable estimate of expected cable faults as the full impact of Directlink's new cable repair strategy is realised.[35] Consequently, our final decision is to maintain the service component parameter values set in our draft decision as set out in Table 11.1.

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30 Directlink, *Revised revenue proposal 2014/15–2019/20,* 13 January 2015, Attachment 5.3, PSC: 'Directlink DC Cable Replacement Strategy', January 2015, p. 10.

31 Our analysis of the PSC report is also relevant to Attachment 7, section 7.4.2 of this decision.

32 AER, Directlink capex R2 information request - revised proposal capex, 12 February 2015.
Directlink, Response to Directlink capex R2 information request - revised proposal capex, 20 February 2015,

33 Directlink, *Revenue proposal 2014/15–2019/20*, May 2014, pp.30-31 & 45-46.

34 Directlink, *Revised revenue proposal 2014/15–2019/20,* 13 January 2015, p 20.

35 AER, *Draft Decision: Directlink revenue determination,* November 2014, pp. 11-14 to 11-16.

Caps and collars

Proposed caps and collars must be calculated with reference to the proposed performance targets using a sound methodology.[36] In the past, we have generally accepted approaches that use five years of performance data to derive a statistical distribution, with the caps and collars set at two standard deviations either side of the mean (if using a normal distribution), or at the 5th and 95th percentiles (if using a distribution other than the normal distribution).

The distribution selected to calculate the caps and collars for a particular parameter must be conceptually sound. The following principles should be applied when selecting a distribution to calculate caps and collars:

- the chosen distribution should reflect any inherent skewness of the performance data.
- the distribution should not imply that impossible values are reasonably likely. For example, the distribution for an average circuit outage rate sub-parameter should not imply that values below zero per cent are reasonably likely.
- discrete distributions should be used to represent discrete data. For example, a discrete distribution such as the Poisson distribution should be used when calculating caps and collars for loss of supply sub-parameters. Continuous distributions should not be used.

In the draft decision, we noted that:[37]

- Directlink had not attempted to fit a statistical distribution to five years of performance data. It calculated standard deviation from the five data points and derived caps and collars using one standard deviation. We do not consider this is a sound approach for calculating the caps and collars. We calculated the caps and collars derived from our principle based approach as discussed above for the "circuit outage rate – forced outages" and "failure of protection system" sub-parameters
- As we adjusted the proposed performance target for the "circuit outage rate - fault" sub-parameter, we could not apply our principle based approach to calculate the cap and collar for that sub-parameter. We adjusted the target for this sub-parameter to 10 faults per annum and we considered it is reasonable to apply a symmetrical incentive of five faults per annum above and below the target. This leads to a cap of 166.67 per cent and a collar of 500.00 per cent.

For the reasons provided above, as we do not accept the submission in Directlink's revised revenue proposal that the performance targets set in the draft decision understate the scope for cable related outages, our decision is to maintain the caps and collars set in our draft decision.

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[36] AER, *Final – Service Target Performance Incentive Scheme,* September 2014, cl. 3.2(e).

[37] AER, *Draft Decision: Directlink revenue determination,* November 2014, p. 11-17

Table 11.2 sets out our final decision on the caps and collars for Directlink's service component under the scheme.

Table 11.2 Caps and collars for service component

	Target	Cap	Collar
Average circuit outage rate			
Circuit outage – fault	333%	167%	500%
Circuit outage – forced outage	180%	35.19%	383.31%
Proper operation of equipment[38]			
Failure of protection system	4	1	8

Source: AER analysis.

11.4.2 Market impact component

Our amendments to the STPIS in September 2014, as foreshadowed in our Framework and Approach Paper, acknowledge that Directlink's performance during the period of the Mullumbimby fire may not allow an appropriate benchmark for setting its performance targets.[39]

We reviewed the applicability of Version 4 to Directlink, in light of exceptional outages of its equipment in 2012. Consequently we recognised that an amendment to the scheme was warranted to specifically address the Directlink situation. This was because a 2012 fire at the Mullumbimby end of Directlink caused extensive equipment damage resulting in a material long term reduction in its operational capability. The service component of the scheme includes clauses that enable us to adjust both the period over which performance is calculated and make adjustments for statistical outliers that may occur as a result of circumstances such as these when setting performance targets. Under the previous version of the STPIS, the market impact component included no equivalent provisions. To promote consistency and avoid potential unintended consequences, we amended the STPIS. Ordinarily, the rolling target ensures the benchmark for setting performance targets is relevant to the TNSP's current maintenance and construction activities. The amendment realigns the period over which Directlink's targets and measures are calculated to avoid distortions from

[38] Directlink noted the STPIS applies weight to only the "circuit outage fault" parameter, therefore Directlink only proposed values for the "failure of protection system" sub-parameter under the proper operation of equipment section. It did not have historical data for other "proper operation of equipment" sub-parameters and will commence collecting data to report against those sub-parameters in the future. As the scheme requires the provision of values for parameters unless there is no data, we accept the approach proposed by Directlink.

[39] AER, *Final framework and approach paper for Directlink,* January 2014, p. 13.

Directlink's recent historical performance which may distort the quality and reliability incentives for Directlink for the next regulatory control period.

To minimise the distortion of the quality and reliability incentives for Directlink during the 2015–20 regulatory control period, version 4.1 of the STPIS excludes Directlink's performance against the market impact parameter for the period beginning the day of the Mullumbimby fire on 12 August 2012 to the date when Directlink returns to normal service (referred to as the "Directlink fire excluded period").[40] We set the date that Directlink returns to normal service as the date when we consider Directlink is reasonably capable of sustaining reliability performance similar or better than the reliability performance exhibited prior to the fire. This will be no later than 31 December 2015.[41]

Typically, for the purposes of setting a market impact parameter performance target for 2015, we would validate performance data for the preceding three years and average that performance to calculate the 2015 performance target. However, given that the Directlink fire-excluded period interrupts the three years preceding 2015, version 4.1 of the STPIS provides that the period immediately prior to the Directlink fire excluded period is included for the purposes of calculating the performance target.[42] Therefore, in order to calculate Directlink's 2015 market impact parameter performance target, we validated and confirmed market impact performance data for the period 12 August 2009 to 11 August 2012.

Similarly, for the purposes of calculating Directlink's market impact parameter performance targets for 2016, 2017 and 2018 and its calendar year performance for 2015 and 2016, if the Directlink fire-excluded period interrupts the relevant measurement period for either the performance target or calendar year performance, the period immediately prior to the Directlink fire-excluded period is included to make up the balance.[43] Accordingly, no financial incentive will apply to Directlink during the Directlink fire-excluded period.[44] We will publish annually Directlink's market impact parameter performance targets that will apply within the remainder of the 2015–20 regulatory control period as part of our service standards compliance reporting process.[45]

Our audit of Directlink's market impact performance data for the period 12 August 2009 to 11 August 2012 resulted in a number of adjustments which were set out in Table 11.5 of our draft decision.[46] As a result of our adjustments, we revised Directlink's performance for the year ending 11 August 2010 from 2949 to 2836 dispatch intervals, its performance for the year ending 11 August 2011 from 1030 to 1017 dispatch

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40 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 4.2(e).

41 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 4.2(f).

42 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 4.2(g) and Appendix F.

43 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clauses 4.2(g) and (h) and Appendix F.

44 AER, *Final – Service Target Performance Incentive Scheme,* September 2014, clause 4.2(i).

45 Our annual service standards compliance reports are available at http://www.aer.gov.au/node/484.

46 AER, *Draft Decision: Directlink revenue determination,* November 2014, pp. 11-17 to 11-18.

intervals and its performance for the year ending 11 August 2012 from 365.5 to 375 dispatch intervals.

Consequently, we revised downwards Directlink's market impact parameter performance target for 2015 from 1448 dispatch intervals (proposed) to 1409 dispatch intervals. When determining Directlink's performance measure for the last half of 2015, we will calculate its performance using the method set out in Appendix F of the STPIS, with the incentive payment pro-rated in accordance with clause 4.2(i) and Appendix D.