



Market share analysis for Postcomm's final price control proposals

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Executive summary

In March 2005, Frontier Economics developed a forecast of market shares for entrants and Royal Mail (RM) that fed into Postcomm's initial proposals of the 2006 price control for RM. The forecasts and the underpinning model were set out in a Frontier report and circulated for wider consultation in June 2005¹. That report indicated that for the final proposals further work would be undertaken to further develop the inputs to the model for the purposes of refining the forecast for the final proposals of the price control.

This report presents the updates to the model, reports on the analysis of entry that we have undertaken on that basis, and sets out the volume forecast chosen by Postcomm for the determination of its Final Proposals.

MODEL OVERVIEW AND UPDATES

The Competitive Postal Market Model (CPMM) is a simulation model of customer choices under competitive conditions. The model embodies a hierarchy of choices available to entrants and customers.

- For each customer type, the customer can choose to source its entire product portfolio from RM or an entrant, or dual source between entrant and RM on either a product-by-product basis or weightstep-by-weightstep within each product. In the analysis in this report we set customer dual sourcing to the finest degree possible, that is by weightstep within each product.
- The entrant makes its offer for each weightstep within each product to each customer type on the basis of the cheapest cost associated with the distance, format mix, and delivery destination of the customer's mail. Consequently, in arriving at its offer, the entrant will have already established whether to deliver the mail itself or to avail itself of RM's access service on a route-by-route basis.
- The customer will choose whether or not to use the entrant, RM or indeed whether to seek access from RM itself on the basis of the relative price of each option, the brand value it attaches to RM, any quality variation, its own VAT status and that of the provider and the (actual or perceived) costs of switching.
- If the entrant is successful in winning the customer's business, the entrant will dual source its operations between bypass (end-to-end) and access to RM's network on the basis of which is cheapest to do on a route-by-route basis.

¹ *Volume modelling for the price control*. A report by Frontier Economics for Postcomm, June 2005.

In summary, whilst the CPMM characterises the competitive process as one for customer's mail, it also encompasses a route-by-route dual-sourcing decision by the entrant². The outcome of modelling this hierarchy of choices is a volume forecast that estimates how much mail the entrant takes from RM, and of that mail how much is delivered to customers by the entrant and how much is put back to RM through access. It also estimates the extent to which customers will choose to seek access directly from RM.

Update of model inputs

At the end of the June report, Frontier indicated that whilst the structure of the model is sound, it would be updating and refining the inputs to the CPMM leading up to Postcomm's final proposals. There are two principal updates that have been made.

Entrant prices

The CPMM has been previously populated with a set of entrant prices that was drawn from information within RM's Entry Pricing Model (EPM), augmented by information from the 2003 access costing exercise, and by the operational views of LECG and Postcomm staff. The version of the model with this set of costs was used to derive the volume forecasts that were used to determine the Initial Price Control Proposals. The updated entrant cost estimates were obtained from an independent study carried out by Frontier with Postal Logistics Consulting Worldwide (PLCWW) in the summer 2005. The output of this work is set out in a separate report³, and section 3 summarises the approach taken to obtain new estimates of entrant costs and scale economies.

As noted in that report, there are two significant changes in the pattern of costs compared to those used to derive the volume projections for the Initial Proposals. First, whilst upstream costs are in general broadly similar to the earlier estimates, they are lower for the PPI products. This is significant because under the earlier version of the model, entrant PPI2 offers were slightly above the RM prices, and those volumes therefore remained with RM. Under the new estimates, the prices fall slightly below the RM price and consequently these volumes may now switch to the entrant. Second, the E2E costs that we have calculated using the bottom-up operational modelling approach are generally higher than the costs that were used previously. This change impacts on the choice of whether the entrant should use access provided by RM, or undertake delivery itself, which is now tilted more strongly towards the access solution.

² Annexe 1 contains Frontier's response to RM's critique of the CPMM. RM claimed in its response that the CPMM does not allow zonal entry under the geographically uniform price constraint of the USO faced by RM. In October 2005, Frontier met RM to discuss its comments. The discussion, which described at length the extensive scope for geographic entry on a route-by-route basis in the CPMM, revealed some misunderstandings on the part of RM, which we expect the meeting and this report have now resolved.

³ *Entrant costs*. A report by Frontier Economics and PLCWW for Postcomm, November 2005.

RM prices

The prices of RM products in the CPMM have been revised to take account of the introduction of Pricing in Proportion (PiP) by RM from August 2006.

The original CPMM was structured to evaluate competition for thirty-one products whose prices only varied by weight step (eight weight steps in our model). The future size-based price structure will be based on both weight bands and three formats (PiP Letter, PiP Large Letter and PiP Packet). We mapped the size based prices onto the CPMM products for both full-tariff products and access products. The full mapping is provided in Annexe 2.

RESULTS OF VOLUME ANALYSIS

The results of our volume analysis are intended to inform Postcomm on the extent to which volume uncertainty may give rise to financeability concerns. The process involved a number of steps.

The volume analysis presented below is based on a “total letters market” forecast, which is founded on projections for addressed, international and RM door-to-door mail produced and submitted by RM for the Initial Proposals. Using this dataset ensures like-for-like comparison of the various scenarios including the volume forecast for the Initial Proposals. The volume forecast used by Postcomm for the Final Proposals, reported in detail in the next section, is based on a more up-to-date “total letters market” forecast and on the volume analysis set out below.

For the purpose of the report, the term “total letters market” as defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. To remind readers of this definition throughout this report, the total letters market is in inverted commas whenever necessary.

Scenario definition

The seven scenarios considered are of four types:

- **base efficiency cases** (3 in total): the model assumes the entrant achieves one of three levels of efficiency (low, medium and high);
- **RM price cases** (2 in total): the model assumes that RM increases both its retail and access products by 8% at the start of the control period while facing either a low or medium efficient entrant;
- **a zonal access price case** (1 in total): the model assumes that RM adopts zonal access prices while facing a low efficient entrant; and
- **a total demand case** (1 in total): the model assumes a reduction in the overall market volume.

These seven cases are evaluated under high, low and central switching cost functions making a total of 21 scenarios altogether.

The range of forecasts based upon those scenarios

Table 12 reports the projected volumes and market shares at the end of the price control period to be handled by RM on both an end-to-end basis and an access basis and the end-to-end volumes to be handled by the entrant under each scenario. There are a number of key points to note.

- Across the base efficiency cases, the results are broadly similar for the low and medium efficiency cases, but under the high efficiency case the entrant is able to undertake downstream delivery at a cost that is significantly lower than the access price in zones 1, 2 and 3. This scale of E2E activity is not one that we understand is being anticipated by either customers or entrants. Recent increases in the take-up of access further supports the view that in the short run, entrants are likely to rely on access and may consider end-to-end competition only to a very limited extent in the short run.
- Increases in the RM retail and access prices lead to a modest increase in both access and entrant E2E.
- Under zonal access prices, access becomes relatively cheaper in the areas where it is less expensive to undertake E2E activities, and so the entrant is projected to win significantly more access mail and to shift some of its own E2E traffic to access.
- Where overall demand is lowered by 1% p.a. this has broadly the same proportionate impact on RM and the entrant when compared to the Base (low) case.
- As expected, a comparison between the forecast produced for the Initial Proposals and the new estimates suggests that access has substituted for entrant E2E and the level of access has increased as new volumes have become cheaper for the entrant to supply. Overall, using Postcomm's rule of thumb indicator of market shares, the effect on market share is broadly comparable to the low and medium efficiency cases.
- Our range of base forecasts for 2009/10 predicts a somewhat higher level of entry in the UK than that observed in other liberalised postal markets. As noted in Postcomm's Competitive Market Review, in countries with largely liberalised addressed mail markets, entrants are currently achieving the following market share: around 7-11% for Spain, 5-7% for Czech Republic, Estonia, the Netherlands, and Sweden, and 3-5% for Denmark and Germany⁴.

⁴ Competitive Market Review, Postcomm, November 2005. Development of competition in the European postal sector, MARKET/2004/03/C, Final study by ECORYS for the European Commission, July 2005.

Cases	Volumes, m			Shares, %			
	Entrant E2E	Access	RM E2E	Entrant E2E	Access	RM E2E	RM*
Base efficiency cases:							
Base (low)	312	4,865	22,636	1%	17%	81%	90%
Base (medium)	695	4,755	22,363	2%	17%	80%	89%
Base (high)	2,896	3,229	21,687	10%	12%	78%	84%
RM prices cases combined with:							
Base (low)	338	5,152	22,323	1%	19%	80%	90%
Base (medium)	990	4,958	21,865	4%	18%	79%	88%
Zonal access case combined with:							
Base (low)	231	6,185	21,397	1%	22%	77%	88%
Total demand case combined with:							
Base (low)	296	4,626	21,527	1%	17%	81%	90%
Initial proposals	1,586	1,413	24,783	6%	5%	89%	92%

Table 1: Volume forecasts for 2009/10 - all cases - central switching cost function

Source: Frontier and Postcomm

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items. The forecast for the total letters market is that used for the Initial Proposals.

The range of market share estimates across the full set of scenarios is set out in the figure below. It suggests that RM can be expected to continue to handle more than 85% of the market, as defined by and using the rule of thumb of Postcomm, throughout the whole price control period.

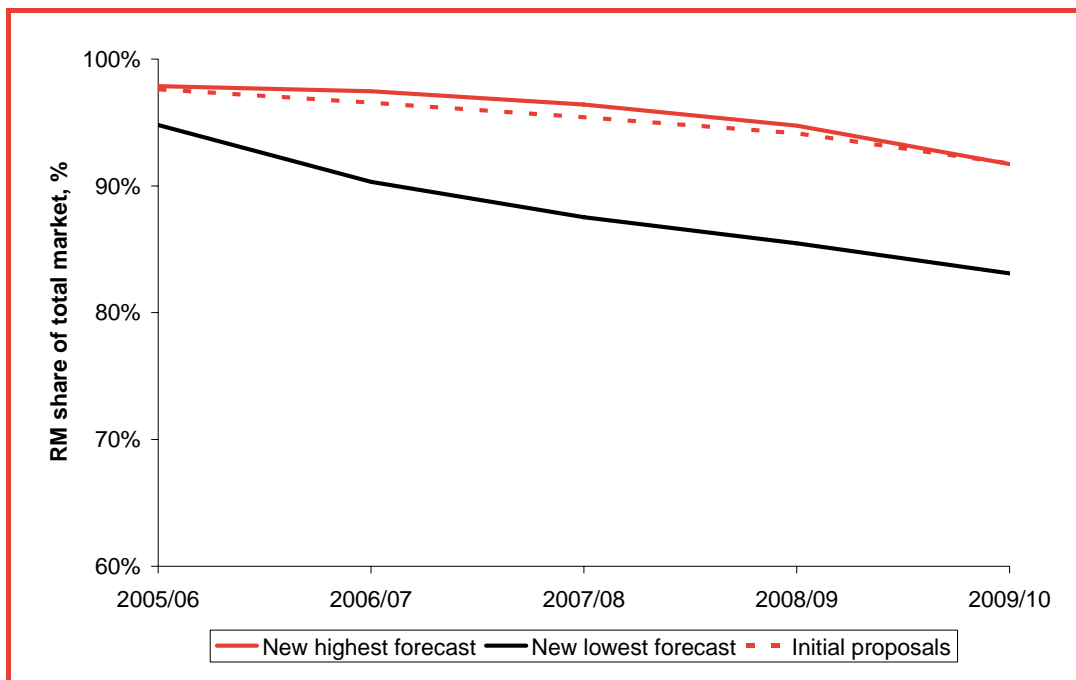


Figure 1: RM volume shares* – highest and lowest forecasts and Initial Proposals

Source: Frontier and Postcomm

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items.

Financial implications for RM

LECG, who performed the efficiency review for Postcomm has part of the price control review, has evaluated the financial implications of these alternative volume forecasts. This has been undertaken on the financial model used to derive the Initial Proposals. Clearly, that financial model has been modified in order to obtain the Final Proposals, but for the purpose of comparative financial analysis it was necessary to enable like-for-like comparisons, which could only be undertaken on a financial model frozen at a point in time. The LECG analysis derived a range of X factors associated with each scenario where possible, and the financial impact associated with each scenario. We discuss each in turn.

Impact on X factors

Table 2 reports the average X factors across the scenarios⁵ relative to that of the Base (low) – central case. A negative difference implies that the associated X factor for that scenario is smaller than the X for the reference case, and vice versa for positive differences. Apart from the Base (high) case, we find that the

⁵ The high-RM price scenarios were not modelled since their purpose was to consider the sensitivity of volumes with respect to higher prices, not to then evaluate the second-order price effect. The zonal access price model could not be modelled within Postcomm's Financial Model since it lacks the facility to evaluate zonal mail flows.

X factor is lower or higher than the reference case by $\frac{3}{4}$ percentage point. The differences are larger in the Base (high) case where the entrant is highly efficient and manages to handle 2.9bn E2E items by 2009/10. In this case, the X factor could be up to 2 percentage points lower than the reference case.

	Low	Central	High
Initial proposals	n.a.	-0.6	n.a.
Base efficiency cases			
Base (low)	-0.4	-	0.1
Base (medium)	-0.8	-0.4	-0.4
Base (high)	-1.4	-2.0	-2.1
Zonal access prices case			
Zonal access with Base (low)	n.a.	n.a.	n.a.
RM prices cases			
RM prices with Base (low)	n.a.	n.a.	n.a.
RM prices with Base (medium)	n.a.	n.a.	n.a.
Total demand case			
Total demand with Base (low)	-1.0	-0.6	-0.5

Table 2: Average X factor relative to Base (low) - central

Source: LECG analysis based on Frontier's volume forecasts

Financial impact

The relative financial impact of different forecasts is reported in the table below. It shows the change in the net annual average cashflow of RM relative to the cashflow obtained in the Base (low)-central case, assuming the P_0 and X factor from the Initial Proposals. The Base (low) case is associated with RM earning £169m annual average cashflow, so quite clearly the high efficiency scenario has the potential to diminish cashflows considerably, relative to the low efficiency scenario. Relative to the medium efficiency case, however, the impact is reduced by around one-third.

	Low	Central	High
Base cases			
Base (low)	28	-	-3
Base (medium)	-11	-40	-59
Base (high)	-25	-121	-150
Zonal access prices case			
Zonal access with Base (low)	n.a.	n.a.	n.a.
RM prices cases			
RM prices with Base (low)	n.a.	n.a.	n.a.
RM prices with Base (medium)	n.a.	n.a.	n.a.
Total demand case			
Total demand with Base (low)	-35	-56	-71

Table 3: Change in annual average net cashflow (£m) relative to Base (low) - central

Source: LECG analysis based on Frontier's volume forecasts

VOLUME FORECAST FOR FINAL PROPOSALS

For its Final Proposals, Postcomm has chosen a market share forecast that takes account of the most reliable and up-to-date information. We review this information in turn, and then present the volume forecast chosen for the Final Proposals.

Volumes in 2005/06

Frontier has hitherto used a “total letters market” forecast which was based on RM projections produced in January this year that informed the Initial Proposals. At that time, “total volumes” for 2005/06 were projected to reach 25.5bn items. Since then RM has revised down its estimates by 400m in September and a further 500m in November. The downward revisions are particularly concentrated on the Mailsort 1400 products.

Postcomm has decided to adopt the RM September forecast for 2005/06 market volumes for the modelling although it took account of the November forecast to inform its overall price control decisions. This selection of the RM September forecast was informed by an assessment of the likelihood of the RM forecast for 2005/06 in reviewing outturns to date (i.e. April to September 2005) and the seasonality of mail.

Revised growth rate applied to market volumes over 2006/7-2009/10

RM has also revised its forecast of “total volumes” between 06/07 and 09/10. Its September growth forecast is not substantially different to the Initial Proposal forecast, but in its November forecast RM now appears to expect that the market will reduce in size by around 2bn items relative to its January view by 2009/10. The November forecast now exhibits barely any growth over the next four years.

Postcomm has chosen to adopt the revised growth rates proposed by RM as at September 2005. During the control period, 2006/09 to 2009/10, the “total letters market” is projected to grow by 7.8% (or equivalently by 2.5% on average per annum).

Choice of base case

For the purposes of making its final price control determination, Postcomm has decided to adopt the forecast based on an entrant operating at a medium efficiency level. This is in line with Frontier’s overall view that a forecast based on either the low or medium entry efficiency case would represent a reasonable view of the development of the market over the course of the price control period.

Volumes for Final Proposals

Table 4 reports the market share forecast based on the inputs and assumptions discussed above. Access volumes are projected to increase from 1.9bn items in 2006/07 to 4.4bn in 2009/10. Entrants are not projected to handle substantial volumes on an E2E basis, with volumes projected to reach 580m by 2009/10.

	Total letters market *	Entrant E2E	Access	RM E2E
2005/06	25,103	177	1,117	23,809
2006/07	25,075	278	1,872	22,925
2007/08	26,295	361	2,556	23,378
2008/09	26,756	475	3,515	22,766
2009/10	27,030	587	4,454	21,989

Table 4: Volume forecasts for Final Proposals, million items

Source: Frontier and Postcomm

* The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

In terms of market share, Table 5 shows that the projected entry level will erode the share of RM. Whilst RM is expected to enjoy an overall share of 95% at the start of the control period, this is projected to decline to 90% by 2009/10.

	Entrant E2E	Access	RM E2E	RM*
2005/06	1%	4%	95%	97%
2006/07	1%	7%	91%	95%
2007/08	1%	10%	89%	94%
2008/09	2%	13%	85%	92%
2009/10	2%	16%	81%	90%

Table 5: Volume share forecasts for Final Proposals, %

Source: Frontier and Postcomm

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items.

Sensitivity analysis

Frontier also evaluated the volume forecast based on the September “total letters market” forecast under a range of scenarios for LECG to assess any financeability concerns associated with the inherent uncertainty associated with forecasting market growth and market shares. We produced a volume forecast for the three following scenarios for a full financeability assessment by Postcomm and LECG.

- The entrant operates at a higher efficiency level than assumed for the Final Proposals. In this highly efficient entrant scenario, the entrant is estimated to incur costs associated with targeting 15% of the market.
- The growth rate of overall market volume is assumed to be one percentage point lower each year (cumulatively) than the forecast used in the Final Proposals. This scenario was run on the basis of a medium efficient entrant.
- The overall market volumes are iterated, in that they are adjusted for the X factors proposed by Postcomm in its Final Proposals⁶. The volume forecast chosen by Postcomm for the Final Proposals (and reported in Table 4) is based on the overall mail market growing at the same rate as if the current price control had continued. However we understand that Postcomm took account of the financial impact of this iteration as part of its own financeability analysis.

⁶ Using the econometric model of RM, the Inland Letter Traffic Model (ILTM).

Some of the financial impacts of these alternative scenarios to the final forecast chosen by Postcomm are presented in Postcomm's Final Proposals document in table 10.3.

Comparison with RM's forecast

Table 6 and Table 7 report the aggregate results put forward by Royal Mail in September 2005 and the forecast chosen by Postcomm for the Final Proposals in level and share terms. The two aggregate forecasts are not strictly comparable as the sum of the components of the RM forecast does not match the "total letters market" used by Frontier⁷. We present the forecasts in share and level terms in Table 6 and Table 7.

Table 6 shows that RM predicts that it will handle a lower level of E2E mail than Frontier throughout the period. The difference amounts to 4% points in share terms. This is mainly because RM expects higher access volumes than the Frontier. The profiles for entrant E2E are similar between the two forecasts.

	RM (September submission)				Frontier			
	Total market	RM E2E	Entrant E2E	Access	Total market	RM E2E	Entrant E2E	Access
2006/07	100%	87%	1%	13%	100%	91%	1%	7%
2007/08	100%	85%	1%	14%	100%	89%	1%	10%
2008/09	100%	81%	2%	17%	100%	85%	2%	13%
2009/10	100%	78%	4%	18%	100%	81%	2%	16%

Table 6: Market share forecast by RM and Frontier, %

Source: Frontier and Table 9.4 of Postcomm's Final Proposals

The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

⁷ The RM forecast is consistent with that reported in table 9.4 of Postcomm's Final Proposals.

In volume terms, RM projects that access will reach around 5bn items in 2009/10, while Frontier predicts a level of around 4.5bn.

	RM (September submission)				Frontier			
	Total market	RM E2E	Entrant E2E	Access	Total market	RM E2E	Entrant E2E	Access
2006/07	25,316	21,907	150	3,259	25,075	22,925	278	1,872
2007/08	26,547	22,566	364	3,617	26,295	23,378	361	2,556
2008/09	27,083	21,901	646	4,536	26,756	22,766	475	3,515
2009/10	27,424	21,377	1087	4,960	27,030	21,989	587	4,454

Table 7: Volume forecast by RM and Frontier, m

Source: Frontier and Table 9.4 of Postcomm's Final Proposals

The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

The RM and Frontier's forecasts are comparable at disaggregated level (i.e. product level). The disaggregated forecast of RM is consistent with a "total letters market" projection that matches the one used in Frontier's forecast. We used the RM's forecast at product level reported in its RPI-X template.

Overall, the mix of access volumes estimated by RM and Frontier is broadly similar – that is mainly arising in the provision of Mailsort products, although over time more PPI volumes are also acquired by the entrant in the Frontier forecasts. The Frontier forecast also exhibits a little more 1st class volume handled by entrants than RM. This may be regarded as a little over-optimistic, but is retained as part of the Frontier forecasts to reflect the possibility that entrants may seek to offer next day services and/or that customers may seek to substitute out of 1st class products for a cheaper 2nd class service through access. The mix of E2E volumes to be handled by RM is also proportionately similar between RM and Frontier's forecasts.

1 Introduction

In March 2005, Frontier Economics developed a forecast of market shares for entrants and Royal Mail (RM) that fed into Postcomm's initial proposals of the 2006 price control for RM. The forecasts and the underpinning model were set out in a Frontier report and circulated for wider consultation in June 2005⁸. That report indicated that for the final proposals further work would be undertaken to further develop the inputs to the model for the purposes of refining the forecast for the final proposals of the price control.

This report presents the updates to the model, reports on the analysis of entry that we have undertaken on that basis, and sets out the volume forecast chosen by Postcomm for the determination of its Final Proposals. The report is structured as follows.

- Section 2 sets out the scope of Frontier's modelling.
- Section 3 provides an overview of the Competitive Postal Market Model (CPMM) that Frontier has developed for Postcomm and a summary of the refinements made to the model inputs since the June 2005 report.
- Section 4 sets out the analysis of volumes that we have undertaken, which is intended to inform Postcomm on the extent to which volume uncertainty may give rise to financeability concerns. To that end, this section contains:
 - a range of forecasts based on different assumptions for the model;
 - the X factors (that feed into the RPI-X formula and) that are associated with those different volume forecasts; and
 - the cash-flow implications of different volume out-turns, using the P_0 and X factor from the Initial Proposals as a base.
- Section 5 sets out the volume forecast chosen by Postcomm for its Final Proposals, which takes account of the analysis undertaken in section 4 and updated information on total market volumes. It also reviews the differences between Frontier and RM forecasts.

The report also includes six annexes. Annexe 1 provides Frontier's response to RM's response to our June 2005 report. Annexe 2 covers in detail the changes made to our modelling following the future introduction of size based pricing by RM (also termed Pricing in Proportion (PIP)). Annexe 3 reports examples of the entrant costs used in the modelling. Annexe 4 summarises the parameter values of the CPMM used for the base scenario. Annexe 5 provides the full results of our sensitivity analysis of our simulation model. Annexe 6 contains further information on the comparison of the Frontier analysis and the RM forecasts reported in Section 5.

⁸ *Volume modelling for the price control*. A report by Frontier Economics for Postcomm, June 2005.

2 Scope of Frontier's modelling

Frontier's modelling work focuses on the estimation of the mail volumes that could be won by RM and entrants in the liberalised market. In order to undertake such an analysis, it is necessary to populate the model with a set of total volumes for the market as a whole. The total letters market from which we derive market shares for our volume analysis in this report includes the following postal services:

- total domestic addressed letters;
- other RM inland traffic (primarily RM Door-to-Door leaflet service);
- RM international letters; and
- other RM traffic (primarily unofficial redirections).

The term "total letters market" as defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service as listed above. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. To remind readers of this definition, the total letters market is in inverted commas whenever necessary.

Table 8 reports the projected volumes for these four product groups and in total over the period 2005/06 - 2010/11. These forecasts of letter demand were produced by RM in the early part of 2005 and were used in Postcomm's Initial Proposals. They are also used for the analysis of entry that is presented in this

	Domestic Addressed	Other Inland	International	Other	Total letters market *
2005/06	20,993	3,272	1,199	59	25,523
2006/07	21,397	3,263	1,175	56	25,891
2007/08	22,057	3,713	1,155	55	26,980
2008/09	22,153	4,123	1,138	54	27,468
2009/10	22,237	4,399	1,124	53	27,813
2010/11	22,381	4,594	1,111	53	28,139

Table 8: Components of total letters market, 2005/06-2-10/11, million items

Source: Royal Mail, January 2005 projections

* The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

report to ensure a like-for-like comparison of the various scenarios. For the purposes of determining the Final Proposals, Postcomm has updated this total market forecast to take account of more recent information - this is discussed in detail in section 5.

Frontier's entry modelling focuses on domestic addressed mail, which accounts for some 80% of the "total letters market"⁹. Frontier has not been asked by Postcomm to model the extent of entry in the three other product groups, (nor does RM in its own model of entry – the Entry Pricing Model (EPM)). For the purposes of calculating overall market shares (and indeed for the purposes of the regulatory financial modelling undertaken by Postcomm) these volumes are presumed to remain with RM.

⁹ The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

3 Overview of the CPMM

This section presents a brief overview of the Competitive Postal Market Model (the CPMM)¹⁰, and then describes the changes made to the model inputs as part of the work programmes undertaken since the June report was published.

3.1 MODEL OVERVIEW

The CPMM is a simulation model of customer choices under competitive conditions. The model embodies a hierarchy of choices available to entrants and customers.

- For each customer type, the customer can choose to source its entire product portfolio from RM or an entrant, or dual source between entrant and RM on either a product-by-product basis or weightstep-by-weightstep within each product. In the analysis in this report we set customer dual sourcing to the finest degree possible, that is by weightstep within each product.
- The entrant makes its offer for each weightstep within each product to each customer type on the basis of the cheapest cost associated with the distance, format mix, and delivery destination of the customer's mail. Consequently, in arriving at its offer, the entrant will have already established whether to deliver the mail itself or to avail itself of RM's access service on a route-by-route basis.
- The customer will choose whether or not to use the entrant, RM or indeed whether to seek access from RM itself on the basis of the relative price of each option, the brand value it attaches to RM, any quality variation, its own VAT status and that of the provider and the (actual or perceived) costs of switching.
- If the entrant is successful in winning the customer's business, the entrant will dual source its operations between bypass (end-to-end) and access to RM's network on the basis of which is cheapest to do on a route-by-route basis over the entire set of 29,760 routes.

In summary, whilst the CPMM characterises the competitive process as one for customer's mail, it also encompasses a route-by-route dual-sourcing decision by the entrant¹¹.

The outcome of this process is a volume forecast that estimates how much mail the entrant takes from RM, and of that mail how much is delivered to customers by the entrant and how much is put back to RM through access. It also estimates the extent to which customers will choose to seek access directly from RM. We describe each of the steps set out above in turn.

¹⁰ The model was described in more detail in our June 2005 report, and we therefore summarise the main features of the model here.

¹¹ Annexe 1 contains Frontier's response to RM's critique of the CPMM. RM claimed in its response that the CPMM does not allow zonal entry under the geographically uniform price constraint of the USO faced by RM. In October 2005, Frontier met RM to discuss its comments. The discussion, which described at length the extensive scope for geographic entry on a route-by-route basis in the CPMM, revealed some misunderstandings on the part of RM, which we expect the meeting and this report have now resolved.

3.1.1 Customer types

A distinction is made in the model between 103 customer types:

- each of the top 100 customers;
- a local-to-local composite business customer¹²;
- an ‘other’ composite business customer; and
- a composite residential customer.

The proportions of volumes that are competed for by customer type in the model are shown in Table 9. These proportions are based on assumptions about customer openness to competition.

Customer type	Proportion of customer volume competed for	
	2004/05 (%)	2010/11 (%)
Top 100	100	100
Local-to-local business	1	100
Other business	1	100
Residential	0	15
Total (by volume)	45	92

Table 9: Volumes by customer type

Source: Frontier Economics

The mailing profile of each customer varies by type in the model.

- **Top 100 customers** - each of the top 100 customers has a unique mail profile reflecting that customer’s proportions of each type of product mailed. The profiles are based on actual customer data (for 2001/02) on mail usage by product and weight step, taken from the RM Customer Headroom Model (CHM) and mapped to the CPMM¹³. The 2001/02 profiles are applied to future years, reflecting an assumption that the proportions do not change significantly over time. Each customer therefore has a specific product mix and given that, a particular mix of routes (taken from EPM) associated with each product. We assume that for any given product mix the distribution of routes is the same for each mailer.

¹² Local-to-local mailings are those that originate and are delivered within the same catchment area of one of RM’s Mail Centres. Local-to-local mailings are relatively cheap to fulfil as they do not require the same level of sortation and do not require any long distance trunking across RM’s delivery network.

¹³ The analysis of the Top 100 customers is based on actual data but it should be recognised that the model is not predicting behaviour of individual customers in RM’s Top 100 customer list. Actual behaviour by companies in the Top 100 list may be different, because of variations in preferences, but overall the approach is intended to provide a reasonable view of the behaviour of a representative large customer.

- **Residential customers** - the composite residential customer is assumed to mail 100% of Stamped 1st class and 2nd class consumer mail, 100% of Standard parcels, 25% of Response services and 20% of Special Delivery. All remaining mail is treated as business mail. The proportions broadly reflect actual consumption patterns in the residential market. The resulting product mix has an associated route mix that is taken from the EPM.
- **Other and local-to-local business** – the remainder of mail volumes (i.e. the residual volumes for each product) are attributed to the composite ‘other’ and composite local-to-local business customer in the ratio 75% to 25%. The route mix for the local-to-local business customer is assumed to be 70% of mail to local network destinations, 20% to neighbourhood network destinations and 10% of mail to distant destinations¹⁴. The residual volumes for each of the routes identified in the EPM are then associated with the other business customer category.

3.1.2 Entrants’ offers

Entrants’ costs vary on a route-by-route basis. In making its best offer to customers the entrant is presumed to calculate the cheapest way of handling the mail given the spatial, product and format characteristics of the customer’s mail. The entrant’s offer is therefore customer specific, and consequently the entrant is not confined to national uniform price offers.

3.1.3 Customer choices

For each of the customer types we have identified, the customer chooses – for each product and weight step – the best offer between:

- RM (retail products);
- the entrant best offer; and
- customer direct access.

Customers make choices between these different offerings on the basis of four key factors:

- price differences;
- quality differences;
- relative RM brand value¹⁵; and
- the VAT status of the product provider and customer.

¹⁴ While this gives the local-to-local customer the option of a cheaper local service than the RM postal tariff, entrants tailor their offer to account for the local-to-local effect on the cost of service. As a result, the choice between customer direct access and direct access (with an entrant) is then driven by VAT.

¹⁵ If RM has a brand value relative to entrants it will be able to retain more customers than would be the case if they had equal brand values. It is treated as a non-price effect since Postcomm has chosen not to reflect brand values in regulated prices.

Each of these factors is included as parameters in the model, along with an assumption about the probability of switching for given product offerings from the entrant. This probability is assumed to change over time to reflect the presumption that customers will become more price sensitive as competition develops.

The model also allows for different assumptions to be made about the extent to which customers may dual source their mailing requirements. The model is able to consider three cases of dual sourcing.

- *Entire portfolio of products* - the customer either stays with RM or goes to an entrant, there is no dual sourcing (total customer volume switching).
- *Product-by-product basis* - the customer chooses individual suppliers for all the volumes for each type of mailing it has (customer-product switching).
- *By weight-step for each product* - the customer dual sources individual types of mailing according to their weight (customer-product-weight step switching).

The volume forecasts presented in this report are based on the case where the customer dual sources individual types of mailing according to their weight (i.e. by weight-step for each product).

3.1.4 Entrants' dual sourcing choices

If the entrant wins the mail from RM, the CPMM presumes that it will dual source its operations efficiently between bypass (end-to-end) and access to RM's network on a route-by-route basis.

3.2 UPDATE OF MODEL INPUTS

At the end of the June report, Frontier indicated that whilst the structure of the model is sound, it would be updating and refining the inputs to the CPMM leading up to Postcomm's Final Proposals. This section sets out the refinements to the inputs that have been made since June. These relate to the entrant prices, RM prices and parameterisation of the switching function. A summary of all other inputs and assumptions used for the volume analysis is provided in Annex 4.

3.2.1 Entrant prices

The CPMM has been previously populated with a set of entrant prices that was drawn from information within RM's Entry Pricing Model (EPM), augmented by information from the 2003 access costing exercise, and by the operational views of LECG and Postcomm staff. The version of the model with this set of costs was used to derive the volume forecasts that were used to determine the Initial Proposals. In summer 2005, Frontier with Postal Logistics Consulting Worldwide (PLCWW) carried out an independent study to estimate entrant costs. The output of this work is set out in a separate report¹⁶, and this section summarises the approach taken to obtain new estimates of entrant costs and scale economies.

¹⁶ *Entrant costs*. A report by Frontier Economics and PLCWW for Postcomm, November 2005.

Frontier and PLCWW developed a set of financial and operational models to estimate the costs at each stage of the entrants' pipeline, taking account of synergies through combining different activities. The cost modelling was undertaken in three distinct steps.

- **Activity costing of a range of entrant strategies**, yielding a set of upstream and downstream costs calculated on the basis of 1 day per week, 2 days per week and 5 days per week delivery models, and - reflecting the scale effects associated with downstream activities in particular - on the basis of any individual entrant handling 5%, 10% and 15% of market volumes. In obtaining these estimates we have taken an operational view on the extent of synergies available to a full end-to-end operator, and the cost savings that could be obtained by a local-to-local mailer. Whilst it is difficult to second-guess every type of potential entrant, these estimates distinguish between different types of entry into the market.
- **Calculation of average cost per unit** for each route on each entrant strategy from the total costs obtained from the activity costing exercise. This enables evaluation of the likely effects of scale on unit costs, since the average cost estimates we have derived also vary by volume. Generally, it is the case that upstream scale effects flatten out after an entrant has captured 5% of market volumes, whilst downstream costs continue to exhibit a strong scale effect. The implication of these results is that it is important, when undertaking the volume forecasts, to check the sensitivity of results to the different cost estimates. We report this analysis in section 4.
- **Calculation of optimal average costs per unit** involves assessing the optimal, or efficient, set of unit costs that can be inputted into the CPMM from the complete set of cost information obtained in the previous two steps. The structure of the CPMM allows the entrant to choose whether to use access or deliver the mail itself on a route-by-route basis, and consequently the model chooses between the E2E and consolidator models. In addition, the lower costs of handling local-to-local mail can be accommodated within the architecture of the CPMM. However, for the purposes of inputting the generality of costs into the CPMM, it is necessary to decide on the appropriate business model. This was undertaken by comparing different models on both a stand-alone basis and in combination with other business models to derive both the efficient entrant strategy and the efficient cost allocation across jointly produced products. At all the scales of operation we considered, the twice-weekly model delivering 2nd and 3rd class mail had lower average costs than the costs of a 5-day delivery model that catered for all three classes of mail (i.e. including 1st class). However, the combined total costs of running a 5-day model for all classes of mail is lower than the sum of the stand-alone costs of a twice-weekly model and 5-day model delivering only 1st class mail. This is suggestive of synergistic benefits associated with combining those operations, but equally, it suggests that the allocation of costs across the three classes needs to be undertaken with care to avoid distorting the entrant prices. Consequently, the 2nd and 3rd class mail is allocated the cost of a 2-day model (since these are the lowest obtainable for those classes of mail) whilst the 1st class mail is allocated the incremental costs

of shifting to the 5-day delivery model. This approach ensures that each product attracts an efficient cost allocation, and in particular, that 2nd and 3rd mail is not over-priced in the CPMM as a consequence of an inappropriate cost allocation rule. Consequently, the prices of 2nd and 3rd class mail are the same irrespective of which business model is adopted, but the prices of 1st class mail benefit from the effects of economies of scale and scope. As it happens, these benefits have little impact on the results, since 1st class prices offered by the entrant are still, to a large extent, out of the money.

Results

After applying this approach, there are two significant changes in the pattern of costs compared to those used to derive the volume projections for the Initial Proposals. First, whilst upstream costs are in general broadly similar to the earlier estimates, they are lower for the PPI products. This is significant because under the earlier version of the model, entrant PPI2 offers were slightly above the RM prices, and those volumes therefore remained with RM. Under the new estimates, the prices fall slightly below the RM price and consequently these volumes may now switch to the entrant. Second, the E2E costs that we have calculated using the bottom-up operational modelling approach are generally higher than the costs that were used previously, apart from 2nd and 3rd class letters in Zones 1 and 2. This change impacts on the choice of whether the entrant should use access provided by RM, or undertake delivery itself, which is now tilted more strongly towards the access solution.

The full dataset of entrant costs inputted is provided in the Frontier/PLCWW report, and Annexe 3 provides an indication of those costs at a particular level of entrant scale efficiency.

3.2.2 RM prices

The prices of RM products in the CPMM have been revised to take account of the introduction of Pricing in Proportion (PiP) by RM from August 2006.

The original CPMM was structured to evaluate competition for thirty-one products whose RM prices only varied by weight step (eight weight steps in our model). The size-based price structure will be based on both weight bands and three formats (PiP Letter, PiP Large Letter and PiP Packet).

We mapped the size based prices onto the CPMM products for both full-tariff products and access products of RM. The full mapping is provided in Annexe 2.

3.2.3 Updated calibration of switching cost function

The purpose of the switching function is to convert the potential market share that could be won by entrants (on the basis of the relative price, quality and brand offering) into an actual market share by taking account of the actual and perceived costs of switching. The parameterisation and shape of the switching function is described in greater detail in Frontier's June 2005 report.

The parameterisation of the switching function is based on a reasonably high degree of customer inertia in the early part of the price control period, falling continuously over the period so that by 2009/10, customers are fairly sensitive to the relative price offers they receive.

The parameters of the switching function for 2005/6 can be set so as to correspond to the actual volumes expected to be handled by entrants in that year. In the initial volume forecast, this was of the order of 800m items. On the basis of more up-to-date information in October 2005, it appeared that that the entrant volumes could lie between 900m items and 1.3bn items. Consequently, for the purposes of scenario analysis, we constructed 3 switching cases that would imply volume switching that falls within this range in 2005/06. From those three starting points, we constructed three transition paths to the same end-point in 2010/11. Technically, this entails assuming three different mean values of the switching cost function over time. Table 10 reports the changes in the mean values for the three cases, and includes for comparison the figure used for the Initial Proposals. As can be seen, the changes are minimal.

	2005/06	2010/11
Initial Proposals	35%	2%
Low	32%	2%
Central	30%	2%
High	27%	2%

Table 10: Mean parameter of the switching cost function for the low, central and high cases

In section 5 for the purposes of arriving at the final volume forecast used for the Final Proposals, the mean parameter of the switching function for 2005/06 has been set at 27% in order that the model is calibrated to the best estimate of the volumes captured by entrants in that year.

4 Volume analysis

This section sets out the analysis of volumes that we have undertaken, which is intended to inform Postcomm on the extent to which volume uncertainty may give rise to financeability concerns. To that end, this section is made up of three parts.

- A description of the scenarios we analyse.
- A range of forecasts based upon those scenarios.
- The financial impact of alternative volume forecasts, in two senses:
 - the X factors that are associated with those different volume forecasts; and
 - the cash-flow implications of different volume out-turns, using the P_0 and X factor from the Initial Proposals as a base.

As indicated in section 2 the volume analysis presented in this section is based on a “total letters market” forecast, which is founded on projections for addressed, international and RM door-to-door mail produced and submitted by RM for the Initial Proposals. Using this dataset ensures like-for-like comparison of the various scenarios including the volume forecast for the Initial Proposals. The volume forecast used by Postcomm for the Final Proposals, reported in detail in the next section, is based on a more up-to-date “total letters market” forecast and on the volume analysis set out below.

Postcomm’s definition of the “total letters market” refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service as listed above. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

4.1 SCENARIO DEFINITION

We evaluate the volume forecasts under a range of scenarios in order to ultimately assess any financeability concerns associated with the inherent uncertainty associated with forecasting market growth and market shares¹⁷.

The seven scenarios considered are of four types:

- **base efficiency cases** (3 in total) : the model assumes the entrant achieves one of three levels of cost efficiency (low, medium and high);
- **RM price cases** (2 in total): the model assumes that RM increases both its retail and access products by 8% while facing either a low or medium efficient entrant;

¹⁷ Frontier also ran a similar sensitivity analysis on the final volume forecast chosen by Postcomm for the Final Proposals. The financial implications of these scenarios were analysed by LECC. These scenarios are discussed in Section 5.

- **a zonal access price case** (1 in total): the model assumes that RM adopts zonal access prices while facing a low efficient entrant; and
- **a total demand case** (1 in total): the model assumes a reduction in the overall market volume.

These seven cases are evaluated under the high, low and central switching cost functions making a total of 21 scenarios altogether.

Base efficiency cases

The level of assumed efficiency of an E2E entrant is a key determinant of the prices it can offer to its customers. As discussed at some length in the Frontier/PLCWW report on entrant costs, which was briefly summarised in section 3 earlier, entrants can expect to face strong scale effects in the downstream activity. Consequently, the level of entrant prices is conditional on volumes it expects to win over a lengthy period of time, and scenario analysis is required to evaluate the effects of these choices. Consequently, our Base (low) case is predicated on the unit costs an entrant is estimated to incur in trying to obtain 5% of the market. In the Base (medium) case, its prices reflect the costs of targeting 10% of volumes, and in the Base (high) case prices reflect the costs of targeting 15% of the market. In all base cases, the upstream entrant faces costs associated with handling 5% of the market, since upstream scale economies are estimated to flatten out after reaching these volume levels.

Alternatively, these cases could be viewed as simply reflecting the range of cost estimates given the inherent uncertainty associated with estimating entrant downstream costs. Whether the different level of cost in each case is due to scale efficiency or productive efficiency is largely beside the point. The point is that these different levels of presumed efficiency do need to be investigated in terms of their impact on the market share won by entrants.

An indication of the variation of E2E costs for different letter products across different zones is summarised in Table 11. The table shows that (after deducting upstream cost estimates which vary between around 5 pence for PPI, 1 pence for local Mailsort and around 2 pence for non-local Mailsort), it is usually efficient for the entrant to deliver its own volumes in zone 1 in all base cases since the downstream cost that the entrant would incur would fall below the access price¹⁸. In the medium case, the cost of delivering mail in zone 2 falls below the access price for local Mailsort in particular, and in the high efficiency case, the entrant would choose to deliver volumes of all types in zones 1, 2 and 3.

¹⁸ For example, a Base (low) entrant is estimated to face lower downstream costs than the access price in relation to zone 1 PPI letters. Based on the figures reported in the table and an upstream cost of 5pence, we find that downstream cost amounts to 7.4p (12.4p minus 5p), which is lower than the cheapest access price posted by RM at 11.82p.

Product groups	Base (Low)	Base (Medium)	Base (High)
Meter/ PPI letters			
<i>Zone 1</i>	12.4	10.2	9.4
<i>Zone 2</i>	25.3	18.6	16.0
<i>Zone 3</i>	27.6	20.1	17.2
<i>Zone 4</i>	45.0	34.4	30.2
Local Mailsort letters			
<i>Zone 1</i>	6.4	5.3	4.9
<i>Zone 2</i>	19.3	13.7	11.4
<i>Zone 3</i>	21.6	15.2	12.7
<i>Zone 4</i>	39.0	29.5	25.6
Non-local Mailsort letters			
<i>Zone 1</i>	9.3	7.3	6.6
<i>Zone 2</i>	22.2	15.7	13.1
<i>Zone 3</i>	24.5	17.2	14.4
<i>Zone 4</i>	41.9	31.4	27.3

Table 11: Modelled entrant E2E costs (pence) for different letter products¹⁹

Source: Frontier Economics

RM price cases

These cases refer to the impact on volumes if retail and wholesale prices were increased by 8% (as requested by Postcomm as part of this sensitivity analysis). These illustrative cases can be viewed as policy cases, since they would entail a decision from Postcomm for their realisation. These scenarios are conducted on the Base (low) and Base (medium) cases.

¹⁹ The CPMM also considers the cost of a fifth zone that covers deep rural areas. Zone 5 E2E costs were not modelled explicitly since they fall so far out of the money compared to the costs of a consolidator plus access business model. For modelling purposes, the entrant best E2E offer was set at twice the comparable RM retail price. This essentially forces the model to choose an access solution for an entrant seeking to send mail to a recipient in zone 5.

Zonal access price case

In this case, we model the impact of RM's application for adopting zonal access prices²⁰. This scenario is conducted on the Base (low) case.

The total demand case

In this case, the total market growth rate in each year is assumed to be one percentage point lower than the forecast used in the Initial Proposals. This scenario is conducted on the Base (low) case.

Switching scenarios

All these base cases and scenarios are run using the three switching functions discussed in section 3.

4.2 VOLUME AND MARKET SHARE ANALYSIS

Table 12 reports the projected volumes and market shares at the end of the price control period to be handled by RM on both an end-to-end basis and an access basis and the end-to-end volumes to be handled by the entrant under each scenario together with the volumes projected for the Initial Proposals. The market shares are calculated on the basis of the "total market" volumes set out in Table 8 in section 2²¹. Annexe 5 reports the full set of results across all 21 scenarios.

Across the base efficiency cases, the results are broadly similar for the low and medium efficiency cases, but under the high efficiency case the entrant is able to undertake downstream delivery at a cost that is lower than the access price in zones 1, 2 and in zone 3. Consequently, access volumes fall by over 1.5bn items, but E2E volumes increase by around 2bn items. This scale of E2E activity is not one that we understand is being anticipated by either customers or entrants. Recent increases in the take-up of access arrangement of RM further supports the view that in the short run, entrants are likely to rely on access and may consider end-to-end competition only to a very limited extent in the short run.

Our range of base forecasts for 2009/10 predicts a somewhat larger level of entry in the UK than that observed in other liberalised postal markets. In its latest Competitive Market Review, Postcomm summarised some of the European

²⁰ RM offers access at zonal access prices. Condition 9 Access Agreement sets out the zonal access prices for the first weight band, and derives average zonal access prices for higher weight items that are customer specific based on the distribution of mail items to zones. In the CPMM we use the zonal basic weight step access prices of RM (reported in Schedule 5 of Condition 9 Access Agreement). For the higher weight steps, we derive the access prices for each zone in applying the proportion of access price of each zone for the first weight step relative to the (average) uniform access price for this first weight step. For example, if the access price for the first weight step of zone1 is 80% of the uniform access price (all zones combined) for that first weight step, we apply this relativity to the uniform access price of the second weight step to derive its zone 1 access price.

²¹ Postcomm's definition of the "total letters market" refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service as listed above. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

Commission's findings on the development of competition in posts. In countries with largely liberalised addressed mail markets, entrants are currently achieving the following market shares: around 7-11% for Spain, 5-7% for Czech Republic, Estonia, the Netherlands, and Sweden, and 3-5% for Denmark and Germany²².

Cases	Volumes, m			Shares, %			
	Entrant E2E	Access	RM E2E	Entrant E2E	Access	RM E2E	RM*
Base efficiency cases:							
Base (low)	312	4,865	22,636	1%	17%	81%	90%
Base (medium)	695	4,755	22,363	2%	17%	80%	89%
Base (high)	2,896	3,229	21,687	10%	12%	78%	84%
RM prices cases combined with:							
Base (low)	338	5,152	22,323	1%	19%	80%	90%
Base (medium)	990	4,958	21,865	4%	18%	79%	88%
Zonal access case combined with:							
Base (low)	231	6,185	21,397	1%	22%	77%	88%
Total demand case combined with:							
Base (low)	296	4,626	21,527	1%	17%	81%	90%
Initial Proposals	1,586	1,413	24,783	6%	5%	89%	92%

Table 12: Volume forecasts for 2009/10 - all cases - central transition path

Source: Frontier and Postcomm

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items. The forecast for the total letters market is that used for the Initial Proposals.

As far as the RM price increase scenarios are concerned, as might be expected, they lead to a modest increase in both access and entrant E2E.

²² Competitive Market Review, Postcomm, November 2005. Development of competition in the European postal sector, MARKET/2004/03/C, Final study by ECORYS for the European Commission, July 2005.

Under zonal access prices, access becomes relatively cheaper in the areas where it is less expensive to undertake E2E activities, and so the entrant is projected to win more access mail and to shift some of its E2E traffic to access.

The total demand case, whereby overall demand is lowered by 1% p.a. has broadly the same proportional impact on RM and the entrant when compared to the Base (low) case. It follows that its shares of the “total letters market” as defined by Postcomm are unaffected at around 81% for RM E2E and 90% overall (i.e. where an access item is treated as half of an E2E item).

The comparison between the forecasts produced for the Initial Proposals and those estimated here is also instructive. As expected, the entrant cost work that has been undertaken since the Initial Proposals, has had two main effects on the model based forecast. The first is that the cost of obtaining access relative to the costs of delivering on an E2E basis has now been tilted more strongly toward favouring access. Consequently, E2E volumes have fallen and access volumes have risen. The other effect is that entrants are assumed to be able to charge lower PPI2 prices than RM, and so some of this volume switches to entrants. Consequently, there is an overall increase in entrant activity, but this is now focused more on access than E2E. Overall, using Postcomm’s rule of thumb indicator of market shares, the effect on market share is broadly comparable to the low and medium efficiency cases.

We extend our scenario analysis by considering two additional transitional paths for customer switching behaviour (low and high customer transition paths). Table 13 reports the base cases results for 2009/10 under the three transition paths. The RM overall share is predicted to be in the range of 83% (Base (high efficiency/ high transition path) and 92% (Base low/low)), with a clustering of outcomes between 88% and 92%.

Cases	Volumes, m			Shares, %			
	Entrant E2E	Access	RM E2E	Entrant E2E	Access	RM E2E	RM*
Initial proposals	1,586	1,413	24,783	6%	5%	89%	92%
Base efficiency cases with central transition path:							
Base (low)	312	4,865	22,636	1%	17%	81%	90%
Base (medium)	695	4,755	22,363	2%	17%	80%	89%
Base (high)	2,896	3,229	21,687	10%	12%	78%	84%
Base efficiency cases with low transition path:							
Base (low)	287	4,031	23,495	1%	14%	84%	92%
Base (medium)	627	3,939	23,248	2%	14%	84%	91%
Base (high)	2,509	2,691	22,613	9%	10%	81%	86%
Base efficiency cases with high transition path:							
Base (low)	321	5,123	22,369	1%	18%	80%	90%
Base (medium)	716	5,008	22,089	3%	18%	79%	88%
Base (high)	2,982	3,444	21,386	11%	12%	77%	83%

Table 13: Volume forecasts for 2009/10 - base cases - all transition paths

Source: Frontier and Postcomm

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items. The forecast for the total letters market is that used for the Initial Proposals.

Figure 2 shows the volume to be handled by RM as either access or E2E during the control period under the highest and lowest case scenario among the twenty one scenarios evaluated.

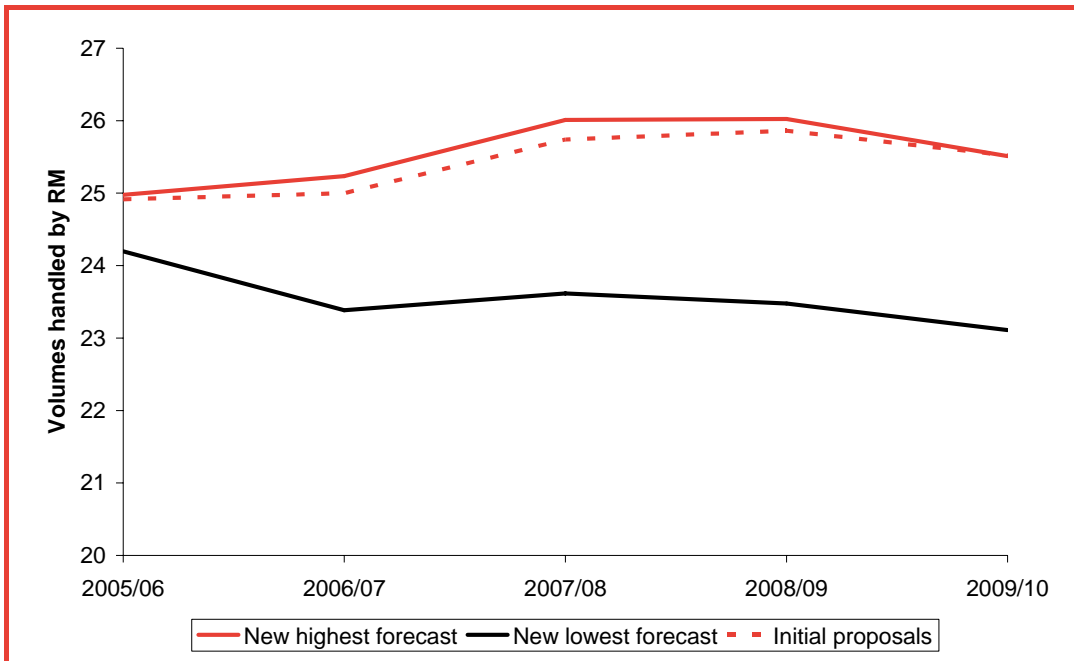


Figure 2: Range of RM volumes over the control period

* RM overall levels are based on Postcomm's rule whereby access volumes are assumed to be half mail items
 Source: Frontier Economics

The range of market share estimates is somewhat narrower, and the analysis shows that RM can be expected to continue to handle more than 85% of the market, as defined by Postcomm, throughout the whole control period as shown in Figure 3.

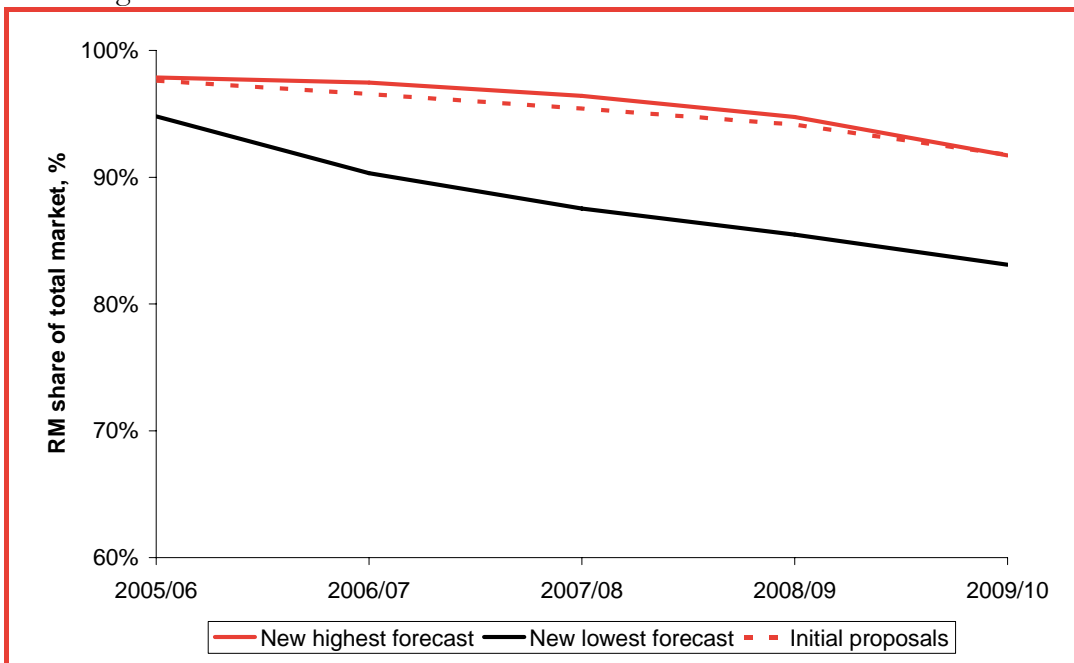


Figure 3: RM volume shares* – highest and lowest forecasts and Initial Proposals

* RM overall shares are percentages of the total letters market defined by Postcomm as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items. The forecast for the total letters market is that used for the Initial Proposals.

4.3 FINANCIAL IMPLICATIONS FOR RM

LECG, who performed the efficiency review of Postcomm as part of the price control review, has evaluated the financial implications of the alternative volume forecasts. This has been undertaken on the financial model used to derive the Initial Proposals. Clearly, that financial model will have been modified in order to obtain the Final Proposals, but for the purpose of financial analysis it was necessary to enable like-for-like comparisons, which could only be undertaken on a financial model frozen at a point in time. This is sufficient for the purpose of making comparisons. The LECG analysis derived a range of X factors associated with each scenario, and the financial impact associated with each scenario. We discuss each in turn.

4.3.1 Impact on X factors

Table 14 reports the relative X factors for most scenarios when compared to that of the Base (low) – central case. The X factors used to calculate the relative effects are overall Xs associated with a weighted average price across all regulated products²³. A negative difference implies that the associated X factor for that scenario is smaller than the X for the reference case, and vice versa for positive differences. Apart from the Base (high) case, we find that the X factor is lower or higher than the reference case by $\frac{3}{4}$ percentage point. The differences are

	Low	Central	High
Initial proposals	n/a	-0.6	n/a
Base efficiency cases			
Base (low)	-0.4	-	0.1
Base (medium)	-0.8	-0.4	-0.4
Base (high)	-1.4	-2.0	-2.1
Zonal access prices case			
Zonal access with Base (low)	n.a.	n.a.	n.a.
RM prices cases			
RM prices with Base (low)	n.a.	n.a.	n.a.
RM prices with Base (medium)	n.a.	n.a.	n.a.
Total demand case			
Total demand with Base (low)	-1.0	-0.6	-0.5

Table 14: Average X factor relative to Base (low) - central

Source: LECG analysis based on Frontier's volume forecasts

²³ These X values are derived for this volume analysis only, they do not take account of the basket structure of the price control for the Initial Proposals.

larger in the Base (high) case where the entrant is highly efficient and manages to handle 2.9bn E2E items by 2009/10. In this case, the X factor could be up to 2 percentage points lower than the reference case.

4.3.2 Financial impact

The relative financial impact of different forecasts is reported in Table 15. It shows the change in the net annual average cashflow of RM relative to the cashflow obtained in the Base (low)-central case, assuming the P_0 and X factor from the Initial Proposals. The Base (low) case is associated with RM earning £169m annual average cashflow, so quite clearly the high efficiency scenario has the potential to diminish cashflows considerably, relative to the low efficiency scenario. Relative to the medium efficiency case, however, the impact is reduced by around one-third.

The X factor and the financial impact under the zonal access prices case cannot be computed as the configuration of the LECG financial model does not allow zonal mail flows. However one can conceptually evaluate the directional impact. Under the Base (low) case, zonal access pricing may be detrimental to RM compared to a uniform access price as it may encourage more entry in cheap areas to serve, for which RM receives lower unit revenue. Under the Base (high) scenario, the effect of zonal access prices may be less unfavourable to RM since volumes that previously been handled by an entrant on an E2E basis may now be handled via access.

	Low	Central	High
Base cases			
Base (low)	28	-	-3
Base (medium)	-11	-40	-59
Base (high)	-25	-121	-150
Zonal access prices case			
Zonal access with Base (low)	n.a.	n.a.	n.a.
RM prices cases			
RM prices with Base (low)	n.a.	n.a.	n.a.
RM prices with Base (medium)	n.a.	n.a.	n.a.
Total demand case			
Total demand with Base (low)	-35	-56	-71

Table 15: Change in annual average net cashflow (£m) relative to Base (low) - central

Source: LECG analysis based on Frontier's volume forecasts

The high RM prices cases were not modelled since their purpose was to consider the sensitivity of volumes with respect to higher prices, not to then evaluate the second-order price effect.

4.4 CONCLUSIONS

The market share forecast that most closely corresponds to our view can be characterised as either Base (low/central) or Base (medium/central). This yields between 4.75bn and 4.85bn access items and between 300 and 700m entrant E2E items by 2009/10. In market share terms, Frontier forecasts that RM retains 89-90% of the market on a Postcomm rule of thumb basis under the Base (low) and Base (medium) efficiency scenarios. The “total letters market” as defined by Postcomm, refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

We observe that the impact on the X factor of either of our base cases is broadly similar. The financial risks associated with actual volumes departing from either of these forecasts are relatively low, except in the case where RM loses large volumes of mail (around 3bn) to E2E operators. We regard this outcome as unlikely but in the event it did occur it would have significant cashflow implications for RM. We understand that Postcomm plans to introduce a form of re-opening mechanism around volume uncertainty which should have the effect of dealing with the impact of such severe volume losses, should they arise.

We now review these conclusions in the light of more recent information as we discuss the final volume forecast chosen by Postcomm for its Final Proposals.

5 Volumes for Final Proposals

This section presents the volume forecast used by Postcomm for the Final Proposals. The derivation of the forecast is described in four parts:

- the update to the 2005/06 market volume;
- the update to the market volume growth rate from 2005/06 to 2009/10;
- the choice of efficiency level for the entrant; and
- the volume forecast for the final price control proposals, which also includes a comparison with RM's forecast.

5.1 UPDATE OF 2005/6 MARKET VOLUMES

As indicated in our June report, it is clearly important that the market volume forecast for 2005/6 is based on the most up-to-date information that exists in order that the starting point for the control is sound. Table 16 shows that between the Initial Proposals and September, RM reduced its forecast of overall market volumes by around 400m items, and then further downgraded its forecast by 500m items in its November submission. The table shows that the downward revisions are particularly concentrated on the Mailsort 1400 products.

Postcomm has decided to adopt the RM September forecast for the 2005/6 market volumes, as defined by Postcomm²⁴, for the modelling although it took account of the November forecast to inform its overall price control decisions. The selection of the RM September forecast was informed by an assessment of the likelihood of the RM forecast for 2005/06 in reviewing outturns to date (i.e. April to September 2005) and the seasonality of mail.

Table 16 reports RM's three submissions to Postcomm and its estimate of actual volumes in the year to date. Frontier then applied the seasonal profile of mail that applied in 2003/4 and 2004/5 to obtain estimates of 2005/6 volumes that range between 24,866 and 25,384m items. The RM September forecast lies in that range, while the forecast in the other two submissions do not. In our view, this latest evidence supports the adoption of the revised forecasts for 2005/06 as submitted in September by RM.

²⁴ The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services provided by other operators, for which no projections are readily available,

	RM submission for Initial Proposals	RM Sep forecast	RM Nov forecast	RM estimate of actual to date (H1)	Frontier H1 actuals + 03/04 seasonality for H2	Frontier H1 actuals + 04/05 seasonality for H2
FS/PkS/PP1	241	186	182	106	221	217
FS/PkS/PP2	205	234	246	98	204	199
Large MO Returns	20	20	20	9	18	17
Meter / Prepaid 1	1,653	1,583	1,555	767	1597	1564
Meter / Prepaid 2	1,442	1,430	1,401	707	1473	1443
MS/FS3 1400 Dir	2,129	2,013	2,077	836	1742	1706
MS/FS3 1400 Ord	1,095	740	763	427	890	872
MS1 120 Dir	1	23	17	10	20	19
MS1 120 Ord	44	62	53	54	113	111
MS1 1400 Dir	203	134	135	61	127	124
MS1 1400 Ord	145	95	100	40	84	83
MS1 700 Dir	11	20	17	10	20	19
MS1 700 Ord	30	57	52	7	15	15
MS2 120 Dir	27	115	87	84	176	172
MS2 120 Ord	236	409	391	260	542	531
MS2 1400 Dir	1,228	970	954	396	824	808
MS2 1400 Ord	924	702	726	244	509	498
MS2 700 Dir	186	329	234	109	227	223
MS2 700 Ord	924	1,011	854	266	553	542
MS3 120 Dir	36	80	96	49	102	100
MS3 120 Ord	23	33	40	32	67	65
MS3 700 Dir	932	1,232	1,181	484	1008	987
MS3 700 Ord	746	602	589	426	887	869
PPI1	1,386	1,345	1,252	624	1301	1274
PPI2	2,166	2,299	2,201	1022	2128	2085
PS1	201	253	199	97	202	198
PS2	498	461	547	262	545	534
RS1	181	210	235	113	236	231
RS2	203	208	215	108	224	220
SD	70	70	70	35	74	72
Stamp 1	1,691	1,645	1,648	771	1606	1573
Stamp 2	1,331	1,376	1,348	545	1136	1113
USO Parcels	10	10	10	4	8	8
WS1 Dir	15	8	7	12	24	24
WS1 Ord	9	7	7	3	6	5
WS2 Dir	380	330	309	134	279	273
WS2 Ord	367	380	356	149	310	303
Inland	3,272	3,348	3,348	1859	3874	3795
International	1,199	1,077	1,077	584	1217	1192
Other (see Inland)	59	0	0	n/a		
Access				382	796	780
Total	25,523	25,103	24,600	12,184	25,384	24,866

Table 16: RM forecasts of market volumes, m items, 2005-06

Volumes for Final Proposals

5.2 UPDATE OF GROWTH RATE FOR MARKET VOLUMES BETWEEN 2006/7 AND 2009/10

Postcomm has chosen to adopt the revised growth rates proposed by RM in September for the years 2006/7 to 2009/10. The “total market” volumes in each year are set out in Table 17. The growth for the control period assumed in the September forecast is similar to that of the Initial Proposals (the difference is of 0.4%). Postcomm has thus chosen to adopt the full revised dataset behind the “total market” forecast of September 2005 (i.e. base year and control period).

The November submission of RM was not adopted for two reasons. First RM presented this submission as “draft”, after the end of the consultation period. RM acknowledged in its correspondence with Postcomm that “at this late stage overall projections could not be substituted”. The aim of the November submission appeared to be mainly to underline the volume risk that RM believed Postcomm ought to take into consideration for its Final Proposals. Second, RM stated that “projected growth rates for years after 2006/07 are as provided to Postcomm in September so that lower level of volumes flows through into later years”. Yet as the table below shows, this forecast projects an overall growth of 6.3% over 2006-2009 against 7.4% and 7.8% in the Initial Proposals and the September submissions. This discrepancy between the text and the volumes submitted raised doubts about the robustness of the forecast at aggregate and product levels that could not be removed with RM in the time available.

	2005-06	2006-07	2007-08	2008-09	2009-10	09/10 vs. 06- 07
Final Proposals	25,103	25,075	26,295	26,756	27,030	
Vintage of RM Submissions:						
Initial Proposals	25,523	25,891	26,980	27,468	27,813	7.4%
September 05	25,103	25,075	26,295	26,756	27,030	7.8%
November 05	24,600	24,198	25,202	25,552	25,728	6.3%

Table 17: RM Projections of total letters market as defined by Postcomm, m

Source: Frontier Economics calculations based on Royal Mail’s submissions in its RPI-X templates

The total letters market as defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

Postcomm has chosen to rely on RM’s projections although it continues to have some doubts relating to RM’s methodological approach to forecasting “total market volumes”²⁵.

²⁵ Frontier has not reviewed the model used for the September submission. We indicate a way forward for Postcomm in future price controls in Annexe 1 of this report.

5.3 CHOICE OF ENTRANT EFFICIENCY

In section 4 we reported the analysis of volume forecasts under different assumptions for the entrant's efficiency. We also indicated Frontier's overall view that a forecast based on either the low or medium entry efficiency case would represent a reasonable view of the development of the market over the course of the price control period. For the purposes of making its final price control determination, Postcomm has decided to adopt the forecast based on an entrant operating at a medium efficiency level.

5.4 VOLUME FORECAST FOR FINAL PROPOSALS

Table 18 reports the market share forecast based on the inputs and assumptions discussed in this section. Access volumes are projected to increase from 1,9bn items in 2006/07 to 4.4bn in 2009/10. Entrants are not projected to handle substantial volumes on an E2E basis, with volumes projected to reach 580m by 2009/10.

	Total letters market *	Entrant E2E	Access	RM E2E
2005/06	25,103	177	1,117	23,809
2006/07	25,075	278	1,872	22,925
2007/08	26,295	361	2,556	23,378
2008/09	26,756	475	3,515	22,766
2009/10	27,030	587	4,454	21,989

Table 18: Volume forecasts for Final Proposals, million items

Source: Frontier and Postcomm

* The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

In terms of market share, Table 19 shows that the projected entry level will erode the share of RM. Whilst RM is expected to enjoy an overall share of 95% at the start of the control period, this is projected to decline to 90% by 2009/10.

	Entrant E2E	Access	RM E2E	RM*
2005/06	1%	4%	95%	97%
2006/07	1%	7%	91%	95%
2007/08	1%	10%	89%	94%
2008/09	2%	13%	85%	92%
2009/10	2%	16%	81%	90%

Table 19: Volume share forecast for Final Proposals, %

Source: Frontier and Postcomm

* The RM overall shares are percentages of the total letters market defined by Postcomm, as the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available. The share is based on Postcomm's rule of thumb whereby access volumes are assumed to be counted as half mail items.

Sensitivity analysis

Frontier evaluated the volume forecast based on the September “total letters market” forecast, as defined by Postcomm, under a range of scenarios for LECG to assess any financeability concerns associated with the inherent uncertainty associated with forecasting market growth and market shares (as undertaken in section 4). We produced a volume forecast for the three following scenarios for a full financeability assessment by Postcomm and LECG.

- The entrant operates at a higher efficiency level than assumed for the Final Proposals. In this highly efficient entrant scenario, the entrant is estimated to incur costs associated with targeting 15% of the market.
- The growth rate of overall market volume is assumed to be one percentage point lower each year (cumulatively) than the forecast used in the Final Proposals. This scenario was run on the basis of a medium efficient entrant.
- The overall market volumes are iterated in that they are adjusted for the X factors proposed by Postcomm in its Final Proposals²⁶. The volume forecast chosen by Postcomm for the Final Proposals (and reported in Table 18) is based on the overall mail market growing at the same rate as if the current price control had continued. However we understand that Postcomm took account of the financial impact of this iteration as part of its own financeability analysis.

Some of the financial impacts of these alternative scenarios to the final forecast chosen by Postcomm are presented in Postcomm's Final Proposals document in table 10.3.

²⁶ Using the econometric model of RM, the Inland Letter Traffic Model (ILTM).

5.4.1 Comparison with Royal Mail's market share forecast

We now review the main differences between the forecast presented in Table 18 and the revised forecast submitted by RM in September at both aggregate and product levels.

Aggregate results

Table 20 and Table 21 report the aggregate results put forward by Royal Mail in September 2005 and the forecast chosen by Postcomm for the Final Proposals in level and share terms.

The two aggregate forecasts are not strictly comparable as the sum of the components of the RM forecast does not match, as expected, the "total letters market" used by Frontier²⁷. We present the forecasts in share and level terms in Table 21 and Table 20.

Table 20 shows that RM predicts that it will handle a lower level of E2E mail than Frontier throughout the period. The difference amounts to 4% points in share terms. This is mainly because RM expects higher access volumes than the Frontier. The profiles for entrant E2E are similar between the two forecasts.

	RM (September submission)				Frontier			
	Total market	RM E2E	Entrant E2E	Access	Total market	RM E2E	Entrant E2E	Access
2006/07	100%	87%	1%	13%	100%	91%	1%	7%
2007/08	100%	85%	1%	14%	100%	89%	1%	10%
2008/09	100%	81%	2%	17%	100%	85%	2%	13%
2009/10	100%	78%	4%	18%	100%	81%	2%	16%

Table 20: Market share forecast by RM and Frontier, %

Source: Frontier and Table 9.4 of Postcomm's Final Proposals

The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

In volume terms, RM projects that access will reach around 5bn items in 2009/10, while Frontier predicts a level of around 4.5bn.

²⁷ The RM forecast is consistent with that reported in table 9.4 of Postcomm's Final Proposals.

	RM (September submission)				Frontier			
	Total market	RM E2E	Entrant E2E	Access	Total market	RM E2E	Entrant E2E	Access
2006/07	25,316	21,907	150	3,259	25,075	22,925	278	1,872
2007/08	26,547	22,566	364	3,617	26,295	23,378	361	2,556
2008/09	27,083	21,901	646	4,536	26,756	22,766	475	3,515
2009/10	27,424	21,377	1087	4,960	27,030	21,989	587	4,454

Table 21: Volume forecast by RM and Frontier, m

Source: Frontier and Table 9.4 of Postcomm's Final Proposals

The total letters market defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

Disaggregated analysis of mail handled by Royal Mail

The RM and Frontier's forecasts are comparable at disaggregated level (i.e. product level). The disaggregated forecast of RM is consistent with a "total letters market" projection that matches the one used in Frontier's forecast. We used the RM's forecast at product level reported in its RPI-X template. This template contains detailed product-by-product information in the same format as the RPI-X template that Frontier submits to Postcomm. The RPI-X template is not a volume model itself – these are RM's EPM and Frontier's CPMM. Instead, the output from those models (and other sources for non-modelled mail) is fed into the RPI-X templates in a common format that can then be used to facilitate Postcomm's financial modelling.

Table 22 shows the access volumes projected by RM and Frontier over the control period at product group level, and Table 23 shows the equivalent figures for RM E2E volumes. Annexe 6 replicates these tables in share terms.

Overall, the mix of access volumes estimated by RM and Frontier is broadly similar – that is mainly arising in the provision of Mailsort products, although over time more PPI volumes are also acquired by the entrant in the Frontier forecasts. The Frontier forecast also exhibits a little more 1st class volume handled by entrants than RM. This may be regarded as a little over-optimistic, but is retained as part of the Frontier forecasts to reflect the possibility that entrants may seek to offer next day services and/or that customers may seek to substitute out of 1st class products for a cheaper 2nd class service through access. The mix of E2E volumes to be handled by RM is also proportionately similar between RM and Frontier's forecasts.

	Frontier	RM (Sep 05)
2006/07		
Stamp, Meter/ Prepaid 1C & 2C	37	13
MS, FS/PkS/PP1, WS 1C	149	10
MS, FS/PkS/PP2, WS 2C & 3C	1,592	2,961
PPI 1C & 2C	93	193
SD, PS, RS and other 1C & 2C	1	83
<i>Total</i>	<i>1,872</i>	<i>3,259</i>
2007/08		
Stamp, Meter/ Prepaid 1C & 2C	92	25
MS, FS/PkS/PP1, WS 1C	196	20
MS, FS/PkS/PP2, WS 2C & 3C	1,896	3,174
PPI 1C & 2C	370	306
SD, PS, RS and other 1C & 2C	1	92
<i>Total</i>	<i>2,556</i>	<i>3,617</i>
2008/09		
Stamp, Meter/ Prepaid 1C & 2C	225	51
MS, FS/PkS/PP1, WS 1C	290	36
MS, FS/PkS/PP2, WS 2C & 3C	2,496	3,803
PPI 1C & 2C	503	519
SD, PS, RS and other 1C & 2C	1	128
<i>Total</i>	<i>3,515</i>	<i>4,536</i>
2009/10		
Stamp, Meter/ Prepaid 1C & 2C	464	80
MS, FS/PkS/PP1, WS 1C	371	51
MS, FS/PkS/PP2, WS 2C & 3C	2,950	4,010
PPI 1C & 2C	668	696
SD, PS, RS and other 1C & 2C	2	123
<i>Total</i>	<i>4,454</i>	<i>4,960</i>

Table 22: Product mix of access mail according to Frontier and RM's projections

Based on RM projection submitted in September 05

	Frontier	RM (Sep 05)
2006/07		
Stamp, Meter/ Prepaid 1C & 2C	5,986	6,013
MS, FS/PkS/PP1, WS 1C	506	648
MS, FS/PkS/PP2, WS 2C & 3C	7,687	6,597
PPI 1C & 2C	3,196	3,186
SD, PS, RS and other 1C & 2C	5,550	5,464
<i>Total</i>	22,925	21,908
2007/08		
Stamp, Meter/ Prepaid 1C & 2C	5,966	6,025
MS, FS/PkS/PP1, WS 1C	453	628
MS, FS/PkS/PP2, WS 2C & 3C	7,955	6,894
PPI 1C & 2C	3,023	3,173
SD, PS, RS and other 1C & 2C	5,981	5,857
<i>Total</i>	23,378	22,577
2008/09		
Stamp, Meter/ Prepaid 1C & 2C	5,707	5,847
MS, FS/PkS/PP1, WS 1C	391	629
MS, FS/PkS/PP2, WS 2C & 3C	7,654	6,582
PPI 1C & 2C	2,683	2,717
SD, PS, RS and other 1C & 2C	6,331	6,131
<i>Total</i>	22,766	21,906
2009/10		
Stamp, Meter/ Prepaid 1C & 2C	5,327	5,630
MS, FS/PkS/PP1, WS 1C	301	586
MS, FS/PkS/PP2, WS 2C & 3C	7,430	6,560
PPI 1C & 2C	2,373	2,300
SD, PS, RS and other 1C & 2C	6,558	6,304
<i>Total</i>	21,989	21,380

Table 23: Product mix of RM E2E mail according to Frontier and RM's projections, m

Based on RM projection submitted in September 05

The product group "SD, PS, RS and other 1C & 2C" includes some 3bn door-to-door items and over 1bn international items.

Annexe 1: Frontier's response to RM's comments

In August 2005, RM responded to our June 2005 report as part of its overall response to Postcomm's initial proposals for the 2006 price and service quality review²⁸. Our report had two components. First it covered Frontier's description of the CPMM and its output; and second, it reviewed RM's approach to forecasting mail market volumes. This annexe is Frontier's response to RM's comments.

RESPONSE TO RM'S CRITIQUE OF THE CPMM

RM has raised a number of concerns with the CPMM in Annex 18 and Annex 19 of its response to Postcomm. On 4 October 2005, Frontier met RM to discuss its comments. This discussion revealed some fundamental misunderstandings on the part of RM, which we expect the meeting and this report have now resolved.

This section summarises the points misunderstood by RM and deals with the other points that were raised.

Risks with a model focused on customers

RM raised two issues in relation to the fact that the CPMM focuses on competition for customers as opposed to routes. First it undermined the importance of zonal competitive entry and second, it led to a level of data aggregation that was not consistent with mailers' behaviour. We review these two in turn.

Geographical dimension

In August 2005, RM argued that the geographical dimension of competition was "much reduced within the CPMM". This response stemmed from a misunderstanding or misinterpretation of the model, which we expect the meeting in October and this report have now resolved.

As noted in the main report, in the CPMM, the entrant is assumed to compete for a customer's mail, and will quote a price that is conditional on the product, format and spatial characteristics of the mail. Having won the mail, the entrant will choose to either deliver it itself, or put it through RM's access system on the basis of what is cheapest to do, which generally depends on where the mail will be delivered. As indicated in Frontier's June report, in the CPMM, the entrant will dual-source on a route-by-route basis between access and end-to-end. This feature of the model was explained to RM in some detail at the meeting in October to resolve their fundamental misunderstanding of this point.

²⁸ Annexe 18 "Frontier Economics' Report on "Volume Modelling for the Price Control: a Response by RM" in "Response to Postcomm's Initial Proposals for the 2006 price and service quality review", RM, August 2005.

Moreover, in the CPMM the entrants' dual-sourcing decisions are based upon mail flows in 5 delivery zones, rather than the three that RM assumes in their modelling. Consequently, it follows that the level of dual-sourcing undertaken by the entrant is increased by the order of 6,000 routes in the CPMM compared to that used in the EPM, and that therefore the CPMM has a greater geographic dimension than the EPM.

Level of aggregation

RM's advisors, Professor Helmut Cremer and Professor Philippe de Donder, are of the view that the level of product aggregation is too high in the CPMM.

Frontier's approach to product aggregation aims to reflect the evidence on attitudes and behaviour of mailers. All the interview evidence from customers points towards dual-sourcing by product or weight step within product. There is no evidence to support the proposition that customers will generally dual source either by zone (except for the local-to-local customers that are explicitly handled in the CPMM), or by the 32,000 routes that is the basis for competition in RM's EPM at this stage in the development of the market. Moreover, customers have demand-side characteristics (e.g. switching costs, perceptions of quality, brand valuation) that cannot be easily applied to routes - consequently, customer-specific information can be mapped more easily back to a customer-based mode such as the CPMM.

What neither RM nor its advisors appear to have recognised until the meeting of 4th October is that in the CPMM the entrants make their operational decisions on highly disaggregated data. As indicated above, entrants are presumed to take account of all the products' characteristics including its destination for costing purpose, which feeds into its dual-sourcing decision. These decisions are made on a route-by-route basis (as noted above) and there are some 7,000 more routes in the CPMM than the EPM for this purpose. We expect that the meeting and this report have clarified this technical matter.

Presentation of CPMM and its output

Economic model vs. operational model

In Annex 19 of RM's response, Professor Helmut Cremer and Professor Philippe de Donder say that they "contest the qualification of the CPMM as an economic model". Frontier does not make such a claim. Frontier refers to the CPMM model as a *simulation* model throughout its report – recognising that the behaviour of customers and operators is not actually modelled endogenously.

What Frontier does believe is correct, however, is that the construction of the model and its parameterisation is better rooted within a standard economic framework than the EPM. As described in the June 2005 report, this is a model of undifferentiated Bertrand competition taking price, quality and brand effects into consideration. This analysis forms the potential market share that entrants can win, which is then converted to an actual market share once switching costs are taken into account.

This is a simple, transparent and logical approach which contrasts with the single switching function in the EPM that is intended to capture simultaneously, all three effects in a single measure. Moreover, it is worth noting that if we chose to extend our approach to endogenise price and product differentiation choices within the CPMM – which Professors Cremer and de Donder appear to advocate – then this would imply entrants taking a lower market share than would be the case under the approach we have adopted. There are several theoretical and modelling reasons for preferring the simulation-based approach at this stage in the development of the market that are relevant but are unnecessary to address here, because the most compelling is the precautionary principle. Postcomm has statutory duties to ensure the continued provision of the USO and consequently would be ill-advised to adopt a modelling framework that presumed a particular type of strategic interaction between rivals that under-estimated entry. Our approach yields the maximum amount of entry, given the entrant cost and customer switching assumptions in the model.

Parameterisation

RM challenged some of the parameter values for the brand value and the switching functions, arguing that cannot be claimed to be based on the results of Roland Berger's 2004 survey.

For the parameterisation of the brand value in the first year of the period, Frontier refers to the specific question of the Roland Berger survey in its report. Frontier and Postcomm have retained the parameter values which embody a gradual erosion of the brand value over time.

For the parameterisation of the switching function, it relied on the percentage of customers that would switch immediately when faced with a 5 and 8% discounts according to the Roland Berger's survey. Frontier and Postcomm did not include the percentage of customers that may start negotiating nor listen to the offer as surveyed by Roland Berger. This reflects our view that in a newly liberalised market, customers may initially be reluctant to switch and this is only over time that they will be more likely to switch. The 3 cases used in the scenario analysis in the main text of this report make use of this parameterisation.

Lack of scenario analysis

RM has also commented on the lack of scenario analysis in the volume forecasts underpinning the initial proposals. As we indicated in the June 2005 report, some work was still needed to be done to refine and update the inputs to the model. These refinements have been described in the main report, the most significant of which being the replacement of unsatisfactory estimates of entrant costs (drawn largely from RM sources) with a more objective and independent view of entrant costs.

Given these workstreams, it would have been wasteful to engage in extensive scenario analysis. Instead, the approach that was adopted at the time was to evaluate the financial impact of the volume forecast with reference to the financial impact of RM's volume forecast. This approach would have revealed the extent to which the Frontier forecast yielded outcomes that would, in and of itself, have led to financeability concerns. If that had been the case, then further

scenario analysis may have been warranted at that time. In fact, however, it transpired that RM would have received a tougher X factor had Postcomm adopted RM's forecast rather than that developed by Frontier, as Table 24 illustrates. RM was made aware, in working meetings at the time, that the X factors were higher using their own forecasts.

		Captive	Non-captive	Access
Initial proposals	RM	3.2%	2.2%	14.3%
	Frontier	3.1%	2.0%	6.9%

Table 24: X-factors based on different volume forecasts

Source: LECG modelling based on Frontier and RM volume forecasts

Now that the model inputs have been refined and updated, we have undertaken sensitivity analysis on the assumptions, and these are reported in the main text of this report.

RESPONSE TO RM'S CRITIQUE OF FRONTIER'S ANALYSIS OF RM'S MARKET FORECAST

RM engaged Professor Florens to comment upon Frontier's critique of the RM approach to forecasting overall letters market volumes. His conclusions are as follows:

Econometric models should certainly be used for forecasting as an important information source. Basically an econometric forecast is the best way to describe the future if nothing changes except the explanatory variables incorporated in the model: the behaviour of agents and of the non modelled environment should be stable. Then also the econometric structural model is useful because this non-statistical analysis may take the form of a change in the parameters.

This change in the parameters or more generally the use of other information is necessarily not based on a statistical argument (because in that case it should have been introduced in the model). The history of forecasting is an argument to weight econometric predictions by other sources of information but not in a statistical way.

All information is relevant. The US demand is not interesting by itself: if it was the variable should have been included in the model. The US demand is interesting because experts use it to form their opinions. Consequently data on US demand should not be used statistically but as a non-statistical element of information which appears to be relevant for forecasting.

In its June 2005 report, Frontier stated:

The analysis we have undertaken suggests no compelling evidence that the model is breaking down. However, there is no guarantee that the model will not breakdown in the future and, in principle, the use of overlays may be justified. It is therefore appropriate to continue to assess the model properties over time, up until the final price control is set, and to determine a methodology for assessing the appropriate magnitude of any overlays used.

General principles

There are three reasons as to why, in principle, forecasts based on an econometric model might be improved by the use of overlays.

- *New factors or drivers can emerge that were not present over the period that the model is estimated. These new drivers are anticipated, but cannot be captured in an econometric forecasting model that uses past data.*
- *Some factors may already be included in the model, but their influence is expected to change significantly in the future. In other words, the elasticities estimated today are not necessarily the elasticities that will hold in the future.*
- *Overlays can also be used to reflect judgement about potential changes in the market.*

There is, therefore, little difference in principle between the position of Professor Florens and the position of Frontier and Professor Ron Smith, an Associate of Frontier who assisted Frontier in our work in this area. Both agree that both statistical and expert views can be used to determine a forecast. The difference lies in the context, of which Professor Florens may be less aware.

In its original submissions, RM presented to Postcomm a forecast based on its ILTM. With barely any further credible statistical analysis of the model, it proceeded to mechanically over-write the model forecasts with evidence on the magnitude of the overlay which was based solely on US experience. In other words, RM did not investigate thoroughly the statistical properties of the model – indeed Frontier had to calculate the confidence intervals of the forecasts since RM did not even provide that basic level of information. RM then used a singular piece of non-statistical evidence to mechanically over-write the model based forecast. Even those who agree with Professor Florens, Professor Smith and Frontier that statistical and non-statistical information should be combined to produce a reasonable forecast may well conclude, as Frontier and Professor Smith did, that the implementation of that principle was not done satisfactorily, and indeed constituted poor practice.

Recommendations for future reviews

We note that the process for Postcomm to be in a position to use RM's forecasts has been lengthy and ultimately unsatisfactory.

In the context of forecasting mail volumes for future price controls, Postcomm has two choices. Firstly, Postcomm could develop its own volume forecasting model. Alternatively, Postcomm could continue to rely upon RM's forecasts but undertake sensitivity analysis of total volumes through the CPMM and financial modelling exercises of the type described in the main body of the report.

It is a matter for Postcomm to decide on which route to pursue.

Annexe 2: RM prices

This Annex describes the methodology for updating the CPMM RM prices with the new RM Price In Proportion prices (PiP prices). It reviews our approach for both full-tariff RM prices and access prices.

NEW FULL-TARIFF PRICES

Data sources

The full-tariff RM prices were taken from the following documents:

- “Pricing in proportion, Indicative specifications and prices (Royal Mail, March 2005)”;
- “Response Services PIP prices v3.doc” (a separate file from Postcomm/Royal Mail); and
- “The sum of it (An easy-to-use guide to our new postal rates, April 2005” (Royal Mail).

Generic mapping by format

We applied:

- PiP letter prices to the CPMM formats “Manual Letter” and “Mech Letter”;
- PiP large Letter prices to the CPMM format “Flat”; and
- PiP packet prices to the CPMM format “Packet”.

Full dataset in CPMM and assumptions

For each of the thirty one CPMM products, we report the PiP prices we assumed in the model. These prices are either the exact RM listed PiP prices or are RM PiP modified to match the CPMM structure. These latter are highlighted with shaded cells in the tables. Procedures used to derive prices in such cells are described below each table. Modifications common to several product-formats are only described once.

1. Stamp 1 Cons

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	30.00	30.00	30.00	61.00	85.00	85.00	188.00	253.00
Flat	42.00	42.00	42.00	61.00	85.00	85.00	188.00	253.00
Packet	94.00	94.00	94.00	119.00	159.00	159.00	229.50	253.00

Table 25: CPMM Stamp 1 Cons full-tariff prices, pence per item

For the Stamp 1 Consumer product, we use Public Tariff, 1C Stamps prices.

CPMM has only one weightstep from 501 to 1000 grams, while the Public Tariff section of the price schedule has this weightstep split into two: 501-750g and 751-1000g. For the Packet format where prices in these two weightsteps are different, we take their average and apply it to the 501-1000g CPMM weightstep:

- Public tariff 501-750g: 206 pence;
- Public tariff 751-1000g: 253 pence; and
- CPMM 501-1000g: $(206+253)/2 = 229.50$ pence.

We apply the price of the 751-1000g weightstep of the Packet format for the 1000g+ weightstep.

We apply this approach to all product-formats where relevant.

The Flat format is defined only up to 750g. Correspondingly, for the 501-1000g weightstep we calculate the unit price of Flats as the average of the price of Flat in the weightstep 501-750g, and the price of Packets in the weightstep 751-1000g:

$$P(\text{Flat}[501-100]) = (123+253)/2 = 188.00$$

We apply this approach to all product-formats where relevant.

In the 1000g+ weightstep of the Flat format, we use the price of Packet in the same weightstep.

We apply this approach to all product-formats where relevant.

The Letter format is defined only up to 100g. Correspondingly, for the higher weightsteps we use prices from the Flat format.

We apply this approach to all product-formats where relevant.

2. Stamp 1 Bus

We apply to this product the same set of prices that we use for Stamp 1 Cons.

3. Stamp 2 Cons

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	21.00	21.00	21.00	53.00	72.00	72.00	152.00	199.00
Flat	35.00	35.00	35.00	53.00	72.00	72.00	152.00	199.00
Packet	80.00	80.00	80.00	104.00	132.00	132.00	182.50	199.00

Table 26: CPMM Stamp 2 Cons full-tariff prices, pence per item

For the Stamp 2 Consumer product, we use Public Tariff, Second Class prices.

For the Packet format we calculate the 501-1000g CPMM weightstep price as follows:

- Public tariff 501-750g: 166 pence;
- Public tariff 751-1000g: 199 pence; and
- CPMM 501-1000g: $(166+199)/2 = 182.50$ pence.

The Flat format is defined only up to 750g. Correspondingly, for the 501-1000g weightstep we calculate the unit price of Flats as the average of the price of Flat in the weightstep 501-750g, and the price of Packets in the weightstep 751-1000g:

$$P(\text{Flat}[501-100]) = (105+199)/2 = 152.00$$

4. Stamp 2 Bus

We apply to this product the same set of prices that we use for Stamp 2 Cons.

5. PPI 1

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	29.00	29.00	29.00	60.00	83.00	83.00	183.00	246.00
Flat	41.00	41.00	41.00	60.00	83.00	83.00	183.00	246.00
Packet	92.00	92.00	92.00	116.00	154.00	154.00	223.00	246.00

Table 27: CPMM PPI1 full-tariff prices, pence per item

For the PPI 1 product, we use Public Tariff, First Class Meters/Account prices.

For the Packet format we calculate the 501-1000g CPMM weightstep price as follows:

- Public tariff 501-750g: 200 pence;
- Public tariff 751-1000g: 246 pence; and
- CPMM 501-1000g: $(200+246)/2 = 223.00$ pence.

The Flat format is defined only up to 750g. Correspondingly, for the 501-1000g weightstep we calculate the unit price of Flats as the average of the price of Flat in the weightstep 501-750g, and the price of Packets in the weightstep 751-1000g:

$$P(\text{Flat}[501-100]) = (120+246)/2 = 183.00$$

6. Meter/Prepaid 1

We apply to this product the same set of prices that we use for PPI1.

7. PPI 2

We apply to this product the same set of prices that we use for Stamp 2 Cons.

8. Meter/Prepaid 2

We apply to this product the same set of prices that we use for Stamp 2 Cons.

9. MS1 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	24.63	24.78	24.55	34.20	40.31	55.57	104.25	134.43
Flat	31.40	31.40	31.40	34.20	40.31	55.57	104.25	134.43
Packet	68.60	68.60	68.60	71.90	75.14	85.72	113.25	134.43

Table 28: CPMM MS1 Dir full-tariff prices, pence per item

MS1 Dir is a group of three products: MS1 120 Dir, MS1 700 Dir, and MS1 1400 Dir.

For Letters 0-100g, the prices that we use are a volume-weighted average of the corresponding prices of the three products (see shaded cells in the above table).

For Letters 101-1000+g and all Flats and Packets, we use the prices of MS1 1400 Dir as reported by RM.

Details of the calculation of each individual product's price are listed next.

MS1 120 Dir

For the MS1 120 Dir product, we use Mailsort and Walksort, Mailsort 1 120 prices. These are the same prices as the listed prices for Mailsort 1 120 direct in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005".

This tariff section has two groups, Optical Character Recognition and Customer Barcode, each consisting of three components by volume band. Because the CPMM does not differentiate mail along those dimensions, we average across these six price values to derive the MS1 120 Dir price for the CPMM as follows:

OCR

- >4k <50k: 24.03 pence;
- >50k <100k: 22.96 pence; and
- >100k: 22.87 pence.

CBC

- >4k <50k: 23.74 pence;
- >50k <100k: 22.67 pence; and
- >100k: 22.58 pence.

CPMM MS1 120 Dir price: $(24.03+22.96+22.87+23.74+22.67+22.58)/6 = 23.14$.

MS1 700 Dir

For the MS1 700 Dir product, we use Mailsort and Walksort, Mailsort 1 700 prices. These are the same prices as the listed prices for Mailsort 1 700 direct in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005".

This tariff section has three components by volume band. Because the CPMM does not differentiate mail along this dimension, we average across the three price values to derive the MS1 700 Dir price for the CPMM as follows:

- >10k <50k: 23.16 pence;
- >50k <100k: 22.09 pence; and
- >100k: 22.00 pence.

CPMM MS1 700 Dir price: $(23.16+22.09+22.00)/3 = 22.42$.

MS1 1400 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	24.80	24.80	24.80	34.20	40.31	55.57	104.25	134.43
Flat	31.40	31.40	31.40	34.20	40.31	55.57	104.25	134.43
Packet	68.60	68.60	68.60	71.90	75.14	85.72	113.25	134.43

Table 29: MS1 1400 Dir full-tariff prices, pence per item

For the MS1 1400 Dir product, we use Mailsort 1&2 1400, Mailsort 1 directs prices. For details of our approach, see the section for MS2 1400 Dir further below. We use the prices reported in Table 30 to calculate the prices of the CPMM MS1 Dir product.

10. MS1 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	26.23	27.51	27.41	38.00	44.78	61.71	117.80	153.93
Flat	34.90	34.90	34.90	38.00	44.78	61.71	117.80	153.93
Packet	77.90	77.90	77.90	81.70	86.52	98.55	129.85	153.93

Table 30: CPMM MS1 Ord full-tariff prices, pence per item

MS1 Ord is a group of three products: MS1 120 Ord, MS1 700 Ord, and MS1 1400 Ord.

For Letters 0-100g, the prices that we use are a volume-weighted average of the corresponding prices of the three products (see shaded cells in the table).

For Letters 101-1000+g and all Flats and Packets, we use the prices of MS1 1400 Ord.

Details of the calculation of each individual product's price are listed next.

MS1 120 Ord

For the MS1 120 Ord product, we apply the same price as for the MS1 120 Dir (23.14 pence per item).

MS1 700 Ord

For the MS1 700 Ord product, we use Mailsort and Walksort, Mailsort 1 700 residues price, equal to 26.10 pence per item. This is the same price as the listed price for Mailsort 1 700 Ord in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005".

MS1 1400 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	27.60	27.60	27.60	38.00	44.78	61.71	117.80	153.93
Flat	34.90	34.90	34.90	38.00	44.78	61.71	117.80	153.93
Packet	77.90	77.90	77.90	81.70	86.52	98.55	129.85	153.93

Table 31: MS1 1400 Ord full-tariff prices, pence per item

For the MS1 1400 Ord product, we use Mailsort 1&2 1400, Mailsort 1 residues prices. For details of our approach, see the section for MS2 1400 Dir further below. We use the prices reported in Table 32 to calculate the prices of the CPMM MS1 Dir product.

11. MS2 120 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	16.76	16.76	16.76	No volumes				
Flat	16.76	16.76	16.76					
Packet	No volumes							

Table 32: CPMM MS2 120 Dir full-tariff prices, pence per item

For the MS2 120 Dir product, we use Mailsort and Walksort, Mailsort 2 120 prices.

This tariff section has two groups, Optical Character Recognition and Customer Barcode, each consisting of three components by volume band. Because the CPMM does not differentiate mail along those dimensions, we average across these six price values to derive the MS2 120 Dir price for the CPMM as follows:

OCR

- >4k <50k: 17.40 pence;
- >50k <100k: 16.62 pence; and
- >100k: 16.56 pence.

CBC

- >4k <50k: 17.19 pence;
- >50k <100k: 16.41 pence; and
- >100k: 16.35 pence.

CPMM MS2 120 Dir price: $(17.40+16.62+16.56+17.19+16.41+16.35)/6 = 16.76$.

The MS2 120 Dir product is defined only for Letters below 100g. However, there are none-zero volumes of Flats below 100g of this product in the CPMM input data (based on EPM). The listed tariff structure of RM available to us does not contain any reference as to what prices should be used for Flats of this product, so we apply to these volumes the same price as for Letters.

12. MS2 120 Ord

We apply to this product the same set of prices that we use for MS2 120 Dir.

13. MS2 700 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	16.23	16.23	16.23	No volumes				
Flat	16.23	16.23	16.23					
Packet	No volumes							

Table 33: CPMM MS2 700 Dir full-tariff prices, pence per item

For the MS2 700 Dir product, we use Mailsort and Walksort, Mailsort 2 700 directs prices.

We combine three categories from this tariff section as follows:

- >10k <50k: 16.77 pence;
- >50k <100k: 15.99 pence; and
- >100k: 15.93 pence.

CPMM MS2 700 Dir price: $(16.77+15.99+15.93)/3 = 16.23$.

The MS2 700 Dir product is defined only for Letters below 100g. However, there are none-zero volumes of Flats below 100g of this product in the CPMM input data (based on EPM). The listed tariff structure of RM available to us does not contain any reference as to what prices should be used for Flats of this product, so we apply to these volumes the same price as for Letters.

14. MS2 700 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	18.90	18.90	18.90	No volumes				
Flat	18.90	18.90	18.90					
Packet	No volumes							

Table 34: CPMM MS2 700 Ord full-tariff prices, pence per item

For the MS2 700 Ord product, we use Mailsort and Walksort, Mailsort 2 700 residues price.

The MS2 700 Ord product is defined only for Letters below 100g. However, there are none-zero volumes of Flats below 100g of this product in the CPMM input data (based on EPM). The listed tariff structure of RM available to us does not contain any reference as to what prices should be used for Flats of this product, so we apply to these volumes the same price as for Letters.

15. MS2 1400 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	18.30	18.30	18.30	29.20	34.91	49.19	95.70	126.40
Flat	23.20	23.20	23.20	29.20	34.91	49.19	95.70	126.40
Packet	59.20	59.20	59.20	62.50	66.76	77.41	105.10	126.40

Table 35: CPMM MS2 1400 Dir full-tariff prices, pence per item

For the MS2 1400 Dir product, we use Mailsort 1 & 2 1400, Mailsort 2 directs prices.

For those weightsteps where price is defined in 1-gram increments (i.e., above 250g) we use the midpoint of each weightstep to determine the CPMM price in that weightstep. For example, each extra 1 gram of large letters costs additional 0.1142 pence. This means that for the CPMM format Flat in the weightstep 251-350g we use the price equal to: price of the 101-250g weightstep + $(350-250)/2 * 0.1142 = 29.20 + 50 * 0.1142 = 34.91$.

We apply this method to all product-formats where price is defined in 1-gram increments.

Because CPMM data does not provide the average weight of mail in the 1000g+ weightstep, we apply to this weightstep the price evaluated at 1000g.

We apply this method to all product-formats where price is defined in 1-gram increments.

The Flat format is defined only up to 750g. For the 501-1000g weightstep of the Flat format, we apply the average of the price of Flat evaluated at 750g, and the price of packet evaluated also at 751g.

We apply this method to all products (Flat format) where price is defined in 1-gram increments.

16. MS2 1400 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	19.30	19.30	19.30	30.90	36.94	52.94	101.30	133.85
Flat	25.30	25.30	25.30	30.90	36.94	52.04	101.30	133.85
Packet	62.70	62.70	62.70	66.20	70.71	81.99	111.30	133.85

Table 36: CPMM MS2 1400 Ord full-tariff prices, pence per item

For the MS2 1400 Ord product, we use Mailsort 1 & 2 1400, Mailsort 2 residues prices.

17. MS3 120/700 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	14.38	14.38	14.41	14.36	nv	nv	nv	nv
Flat	14.47	14.44	14.36	14.36	nv	nv	nv	nv
Packet	nv	nv	nv	nv	nv	nv	nv	nv

Table 37: CPMM MS3 120/700 Dir full-tariff prices, pence per item

NV: no volume

MS3 120/700 Dir is a group of two products: MS3 120 Dir and MS3 700 Dir.

The prices that we use are a volume-weighted average of the corresponding prices of the two products.

Although the two products comprising this group should not have any volumes other than Letters 0-100g (according to product definitions in RM's pricing guides), EPM data that we use as input for these volume projections contains non-zero volumes of:

- A) MS3 120 Dir Flats in the 0-60g weightsteps, and
- B) MS3 700 Dir Letters in the 101-250g weightstep, and the same product Flats in the 0-250g weightsteps.

We apply to 0-60g Flats the weighted average price of Letters of the two products, and we apply to 61-250g Flats and 101-250g Letters the price of Letters of MS3 700 Dir (in both cases, weighted-averaged according to volumes of the two products in these format-weightsteps). These prices are highlighted in the table.

Details of the calculation of each individual product's price are listed next.

MS3 120 Dir

For the MS3 120 Dir product, we use Mailsort and Walksort, Mailsort 3 120 prices. These are the same prices as the listed prices for Mailsort 3 120 direct in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005".

This tariff section has two groups, Optical Character Recognition and Customer Barcode, each consisting of three components by volume band. Because the CPMM does not differentiate mail along those dimensions, we average across these six price values to derive the MS3 120 Dir price for the CPMM as follows:

OCR

- >4k <50k: 15.70 pence;
- >50k <100k: 14.92 pence; and
- >100k: 14.86 pence.

CBC

- >4k <50k: 15.49 pence;
- >50k <100k: 14.71 pence; and
- >100k: 14.65 pence.

CPMM MS3 120 Dir price: $(15.70+14.92+14.86+15.49+14.71+14.65)/6 = 15.06$.

MS3 700 Dir

For the MS3 700 Dir product, we use Mailsort and Walksort, Mailsort 3 700 directs prices. These are the same prices as the listed prices for Mailsort 3 700 direct in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005)".

This tariff section has three components by volume band. Because the CPMM does not differentiate mail along this dimension, we average across the three price values to derive the MS3 700 Dir price for the CPMM as follows:

- >10k <50k: 14.90 pence;
- >50k <100k: 14.12 pence; and
- >100k: 14.06 pence.

CPMM MS3 700 Dir price: $(14.90+14.12+14.06)/3 = 14.36$.

18. MS3 120/700 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	17.35	17.37	17.42	nv	nv	nv	nv	nv
Flat	16.76	16.91	17.43	nv	nv	nv	nv	nv
Packet	Nv	Nv	nv	nv	nv	nv	nv	nv

Table 38: CPMM MS3 120/700 Ord full-tariff prices, pence per item

Nv: no volume

MS3 120/700 Ord is a group of two products: MS3 120 Ord and MS3 700 Ord.

The prices that we use are a volume-weighted average of the corresponding prices of the two products.

Although the two products comprising this group should have volumes for Letters 0-100g only (according to product definitions in RM's pricing guides),

EPM data that we use as input for these volume projections contains non-zero volumes of:

- A) MS3 120 Dir Flats in the 0-60g weightsteps, and
- B) MS3 700 Dir Flats in the 0-100g weightsteps.

We apply to 0-60g Flats the weighted average price of Letters of the two products, and we apply to 61-100g Flats the price of Letters of MS3 700 Dir (in the first case, weighted-averaged according to volumes of the two products in these format-weightsteps). The cells for these prices are shaded in green.

Details of the calculation of each individual product's price are listed next.

MS3 120 Ord

For the MS3 120 Ord product, we use Mailsort and Walksort, Mailsort 3 120 price (the same as for MS3 120 Dir, 15.06 pence per item).

MS3 700 Ord

For the MS3 700 Ord product, we use Mailsort and Walksort, Mailsort 3 700 residues prices. These are the same prices as the listed prices for Mailsort 3 700 residues in the RM's document "The sum of it (An easy-to-use guide to our new postal rates, April 2005": 17.43 pence per item.

19. MS/FS3 1400 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	15.30	15.30	15.30	23.60	28.21	39.75	78.60	105.18
Flat	18.60	18.60	18.60	23.60	28.21	39.75	78.60	105.18
Packet	49.20	49.20	49.20	52.03	55.58	64.44	87.47	105.18

Table 39: CPMM MS/FS3 1400 Dir full-tariff prices, pence per item

For the MS/FS3 1400 Dir product, we use Mailsort 3 1400 prices, averaging across three tariff list categories: <50K, >50k <100k, and >100k.

20. MS/FS3 1400 Ord

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	17.90	17.90	17.90	27.50	32.96	46.61	92.83	124.53
Flat	22.90	22.90	22.90	27.50	32.96	46.61	92.83	124.53
Packet	58.20	58.20	58.20	61.60	65.80	76.28	103.55	124.53

Table 40: CPMM MS/FS3 1400 Ord full-tariff prices, pence per item

For the MS/FS3 1400 Ord product, we use Mailsort 3 1400 residues prices.

21. FS/PkS/PP1

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	29.00	29.00	29.00	52.50	72.60	72.60	162.35	219.70
Flat	35.90	35.90	35.90	52.50	72.60	72.60	162.35	219.70
Packet	82.20	82.20	82.20	103.60	137.60	137.60	199.20	219.70

Table 41: FS/PkS/PP1 full-tariff prices, pence per item

For the FS/PkS/PP1 product, we use Flatsort 8 and Packetsort 8, First Class prices. This includes using Public Tariff First Class (Meters and Account) prices for the Letter format, according to the instruction in the Flatsort 8 and Packetsort 8 section.

22. FS/PkS/PP2

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	21.00	21.00	21.00	46.40	63.00	63.00	134.80	177.80
Flat	30.60	30.60	30.60	46.40	63.00	63.00	134.80	177.80
Packet	71.50	71.50	71.50	92.90	117.90	117.90	163.05	177.80

Table 42: CPMM FS/PkS/PP2 full-tariff prices, pence per item

For the FS/PkS/PP2 product, we use Flatsort 8 and Packetsort 8, Second Class prices. This includes using Public Tariff Second Class prices for the Letter format, according to the instruction in the Flatsort 8 and Packetsort 8 section.

23. PS1

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	24.80	24.80	24.80	32.90	39.04	54.37	94.23	108.70
Flat	31.40	31.40	31.40	32.90	39.04	54.37	94.23	108.70
Packet	61.90	61.90	61.90	65.20	68.10	75.35	94.20	108.70

Table 43: CPMM PS1 full-tariff prices, pence per item

For the PS1 product, we use Presstream, First Class direct prices. This includes using Mailsort 1400 First Class prices for the Letter format, according to the instruction in the Presstream section.

24. PS2

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	18.30	18.30	18.30	26.00	31.57	45.48	81.68	93.80
Flat	23.20	23.20	23.20	26.00	31.57	45.48	81.68	93.80
Packet	54.10	54.10	54.10	57.50	59.92	65.97	81.70	93.80

Table 44: CPMM PS2 full-tariff prices, pence per item

For the PS2 product, we use Presstream, Second Class direct prices. This includes using Mailsort 1400 Second Class prices for the Letter format, according to the instruction in the Presstream section.

25. RS

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	24.89	24.89	26.53	56.94	76.81	77.01	nv	nv
Flat	38.82	38.82	40.10	58.75	80.74	80.65	173.99	Nv
Packet	86.11	86.11	89.26	113.29	148.99	148.72	214.84	246.50

Table 45: CPMM RS full-tariff prices, pence per item

The Response Services group of products consists of two products: RS1 and RS2. We apply to these two products Indicative PIP prices – Response Standard (Business Reply/FREEPOST), first and second class correspondingly, from the “Response Services PiP prices v3.doc” document. We then use volume-weighted average of the two prices in each corresponding weightstep for this product group.

Prices of the two individual products comprising this group are presented below.

RS1

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	29.50	29.50	29.50	60.50	83.50	83.50	183.50	246.50
Flat	41.50	41.50	41.50	60.50	83.50	83.50	183.50	246.50
Packet	92.50	92.50	92.50	116.50	154.50	154.50	223.50	246.50

Table 46: RS1 full-tariff prices, pence per item

RS2

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	21.50	21.50	21.50	53.50	72.50	72.50	152.50	199.50
Flat	35.50	35.50	35.50	53.50	72.50	72.50	152.50	199.50
Packet	80.50	80.50	80.50	104.50	132.50	132.50	183.00	199.50

Table 47: RS2 full-tariff prices, pence per item

26. WS1 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	19.10	19.10	19.10	26.40	31.11	42.89	61.73	0.00
Flat	24.20	24.20	24.20	26.40	31.11	42.89	61.73	0.00
Packet	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 48: CPMM WS1 Dir full-tariff prices, pence per item

For the WS1 Dir product, we use Walksort 1 & 2, Walksort 1 prices (note that this product does not have the Packet format, so the corresponding prices are set to zero).

27. WS1 Ord

We apply to this product the same set of prices that we use for WS1 Dir.

28. WS2 Dir

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	13.90	13.90	13.90	22.20	26.53	37.36	54.68	0.00
Flat	18.20	18.20	18.20	22.20	26.53	37.36	54.68	0.00
Packet	Revenue-derived							

Table 49: WS2 Dir full-tariff prices, pence per item

For the WS2 Dir product, we use Walksort 1 & 2, Walksort 2 prices. This product does not have a listed price for the Packet format; however, there are none-zero volumes in this format in the CPMM input data. We apply revenue-derived prices to those volumes.

29. WS2 Ord

We apply to this product the same set of prices that we use for WS2 Dir.

30. Standard Parcel

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Flat	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00
Packet	360.00	360.00	360.00	360.00	360.00	360.00	360.00	360.00

Table 50: CPMM SP full-tariff prices, pence per item

We apply to this product RM listed prices for Standard Parcel (i.e., current weight-based prices).

31. Special Delivery

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	385.00	385.00	385.00	425.00	425.00	425.00	425.00	535.00
Flat	385.00	385.00	385.00	425.00	425.00	425.00	425.00	535.00
Packet	385.00	385.00	385.00	425.00	425.00	425.00	425.00	535.00

Table 51: CPMM SD full-tariff prices, pence per item

We apply to this product RM listed prices for Standard Parcel (i.e., current weight-based prices), at the lowest compensation band.

NEW ACCESS PRICES

PiP access prices vary by three product groups: Mailsort 120, Mailsort 1400, and Walksort. We map the PiP access prices of these groups onto the CPMM products as described below.

Data sources

The PiP access prices were taken from three PDF documents:

- “Condition 9 Access PiP prices - Access 120”;
- “Condition 9 Access PiP prices - Access 1400”; and
- “Condition 9 Access PiP prices - Access Walksort”.

We apply to access prices the same format mapping as was described in the full-tariff section above.

Mailsort 120 products

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	13.60	13.60	13.60	23.23	29.44	44.10	94.23	126.14
Flat	18.50	18.50	18.50	23.23	29.44	44.10	94.23	126.14
Packet	45.85	45.85	45.85	49.77	56.34	69.47	103.53	126.14

Table 52: CPMM Mailsort 120 access prices

Access price rules

The following rules were applied in identifying these prices.

- Access prices for Packets and Flats below 250g, and for Letters below 100g, were taken directly from the corresponding listed weightsteps.
- Access prices for Packets and Flats in the 251-350g weightstep were evaluated at 300g, using the table in the document “Condition 9 Access PiP prices - Access 120”.
- Access prices for Packets and Flats in the 351-500g weightstep were evaluated at 425g.
- Access price for Packets in the 501-1000g weightstep was evaluated at 750g.
- Access price for Packets in the 1000+g weightstep was evaluated at 1000g.
- Access price for Flats in the 501-1000g weightstep was calculated as the average of access prices of Flats and Packets both evaluated at 750g.
- Access price for Flats in the 1000+g weightstep is the same as the corresponding access price for Packets.
- Access prices for Letters above 100g are the same as the corresponding access prices for Flats.

Applicable products

Access prices shown in Table 53 were applied to the following CPMM products:

- MS1 120 Dir;
- MS1 120 Ord;
- MS2 120 Dir;
- MS2 120 Ord;
- MS2 700 Dir;
- MS2 700 Ord;
- MS3 120 Dir; and
- MS3 120 Ord.

Mailsort 1400 products

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	13.13	13.13	13.13	21.85	27.12	39.71	80.11	107.19
Flat	16.67	16.67	16.67	21.85	27.12	39.71	80.11	107.19
Packet	42.53	42.53	42.53	46.77	51.87	62.49	87.98	107.19

Table 53: CPMM Mailsort 1400 access prices

Access price rules

Rules applied in identifying these prices were the same as in the case of Mailsort 120 products.

Applicable products

Access prices shown in Table 54 were applied to the following CPMM products:

- MS2 1400 Dir;
- MS2 1400 Ord;
- MS/FS3 1400 Dir; and
- MS/FS3 1400 Ord.

Walksort products

Format	0-50g	51-60g	61-100g	101-250g	251-350g	351-500g	501-1000g	1000+ g
Letter	11.82	11.82	11.82	20.98	25.42	36.42	72.39	96.91
Flat	15.53	15.53	15.53	20.98	25.42	36.42	72.39	96.91
Packet	39.41	39.41	39.41	46.15	49.99	58.97	80.53	96.91

Table 54: CPMM Walksort access prices

Access price rules

Rules applied in identifying these prices were the same as in the case of Mailsort 120 products.

Applicable products

Access prices shown in Table 55 were applied to the following CPMM products:

- WS1 Dir;
- WS1 Ord;
- WS2 Dir; and
- WS2 Ord.

Other products

For all other CPMM products, we used MS 120 access prices. These products include:

- Stamp 1 Cons;
- Stamp 1 Bus;
- Stamp 2 Cons;
- Stamp 2 Bus;
- PPI1;
- Meter/Prepaid 1;
- PPI2;
- Meter/Prepaid 2;
- FS/PkS/PP1;
- FS/PkS/PP2;
- PS1;
- PS2;
- RS1;
- RS2;
- SP; and
- SD.

Annexe 3: Entrant costs

This annexe reports the entrant costs used in the CPMM for the Base (low) efficiency case. The full analysis behind these results and the full set of entrant costs is discussed in a separate report: *Entrant Costs* – a report by Frontier and PLCWW for Postcomm, November 2005.

Format	Zone	Non-local MS1, E2E	Meter/PPI 1, E2E	Local MS1, E2E
Flat	Zone 1	34	59	24
Flat	Zone 2	79	136	69
Flat	Zone 3	81	138	70
Flat	Zone 4	139	236	128
Flat	Zone 5	1,559	2,339	1,549
Man L	Zone 1	21	42	16
Man L	Zone 2	66	119	61
Man L	Zone 3	67	121	63
Man L	Zone 4	125	219	121
Man L	Zone 5	1,546	2,324	1,541
Mech L	Zone 1	21	42	16
Mech L	Zone 2	66	119	61
Mech L	Zone 3	67	121	63
Mech L	Zone 4	125	219	121
Mech L	Zone 5	1,546	2,324	1,541
Packet	Zone 1	113	217	51
Packet	Zone 2	280	501	218
Packet	Zone 3	104	202	66
Packet	Zone 4	306	545	244
Packet	Zone 5	3,054	4,603	2,992

Table 55: Average cost per unit of the E2E model for Class 1 products, pence per item, at 5% of the market

The zone 5 costs were overwritten in the CPMM model and set at twice the RM listed price for the relevant product. This reflects the views of operational experts that no E2E entry can be expected to take place in zone 5.

Format	Zone	Non-local MS2,3 E2E	Meter/PPI 2,3 E2E	Local MS2,3 E2E
Flat	Zone 1	16	19	10
Flat	Zone 2	29	32	23
Flat	Zone 3	31	34	25
Flat	Zone 4	49	51	43
Flat	Zone 5	363	365	356
Man L	Zone 1	9	12	6
Man L	Zone 2	22	25	19
Man L	Zone 3	25	28	22
Man L	Zone 4	42	45	39
Man L	Zone 5	356	359	353
Mech L	Zone 1	9	12	6
Mech L	Zone 2	22	25	19
Mech L	Zone 3	25	28	22
Mech L	Zone 4	42	45	39
Mech L	Zone 5	356	359	353
Packet	Zone 1	58	69	20
Packet	Zone 2	109	121	72
Packet	Zone 3	97	108	62
Packet	Zone 4	124	135	86
Packet	Zone 5	781	792	743

Table 56: Average cost per unit of the E2E model for Class 2 and 3 products, pence per item, at 5% of the market

The zone 5 costs were overwritten in the CPMM model and set at twice the RM listed price for the relevant product. This reflects the views of operational experts that no E2E entry can be expected to take place in zone 5.

Format	Zone	Non-local MS1, US	Meter/PPI 1, US	Local MS1, US
Flat	Zone 1	16.1	25.2	12.4
Flat	Zone 2	16.1	25.2	12.4
Flat	Zone 3	16.1	25.2	12.4
Flat	Zone 4	16.1	25.2	12.4
Flat	Zone 5	16.1	25.2	12.4
Man L	Zone 1	4.4	14.2	2.7
Man L	Zone 2	4.4	14.2	2.7
Man L	Zone 3	4.4	14.2	2.7
Man L	Zone 4	4.4	14.2	2.7
Man L	Zone 5	4.4	14.2	2.7
Mech L	Zone 1	4.4	14.2	2.7
Mech L	Zone 2	4.4	14.2	2.7
Mech L	Zone 3	4.4	14.2	2.7
Mech L	Zone 4	4.4	14.2	2.7
Mech L	Zone 5	4.4	14.2	2.7
Packet	Zone 1	34.6	88.2	12.4
Packet	Zone 2	34.6	88.2	12.4
Packet	Zone 3	34.6	88.2	12.4
Packet	Zone 4	34.6	88.2	12.4
Packet	Zone 5	34.6	88.2	12.4

Table 57: Average cost per unit of the consolidator model (upstream only) for Class 1 products, pence per item, at 5% of the market

Format	Zone	Non-local MS2,3 US	Meter/PPI 2,3 US	Local MS2,3 US
Flat	Zone 1	7.1	9.2	4.7
Flat	Zone 2	7.1	9.2	4.7
Flat	Zone 3	7.1	9.2	4.7
Flat	Zone 4	7.1	9.2	4.7
Flat	Zone 5	7.1	9.2	4.7
Man L	Zone 1	2.2	5.3	1.1
Man L	Zone 2	2.2	5.3	1.1
Man L	Zone 3	2.2	5.3	1.1
Man L	Zone 4	2.2	5.3	1.1
Man L	Zone 5	2.2	5.3	1.1
Mech L	Zone 1	2.2	5.3	1.1
Mech L	Zone 2	2.2	5.3	1.1
Mech L	Zone 3	2.2	5.3	1.1
Mech L	Zone 4	2.2	5.3	1.1
Mech L	Zone 5	2.2	5.3	1.1
Packet	Zone 1	19.4	30.6	4.7
Packet	Zone 2	19.4	30.6	4.7
Packet	Zone 3	19.4	30.6	4.7
Packet	Zone 4	19.4	30.6	4.7
Packet	Zone 5	19.4	30.6	4.7

Table 58: Average cost per unit of the consolidator model (upstream only) for Class 2 and 3 products, pence per item, at 5% of the market

Annexe 4: Inputs and assumptions used for volumes analysis

This annexe provides the parameter values used in the CPMM for the scenarios discussed in Sections 4 and 5 of the report.

	Assumptions or data source
Brand value	RM with a higher brand value than entrant. Assumed to be equivalent to 10% price premium in 2004/05, falling to 6.75% by 2010/11. This brand advantage is the same across all customer types.
Quality	RM and entrants offer similar levels of quality for each product.
Relative efficiency	RM and entrant with same efficiency
Treatment of VAT	Actual VAT status of the top 100 customers. An effective rate of 17.5% is used for residential customers, and a rate of 8.75% is used for the local-to-local and other business customers as specified by Postcomm.
Phasing of customer "open-ness"	<p>Top 100 customers: 100% of their mail is competed in each year;</p> <p>Local-to-local business customers: 0% of their mail is competed for in 2004/05, this rises to 100% in 2010/11;</p> <p>Other business customers: 1% of their mail is competed for in 2004/05, this rises to 100% in 2010/11; and</p> <p>Residential customers: 0% of their mail is competed for in 2004/05, this rises to 15% in 2010/11.</p>
Switching function	Mean for 2005/06: .30 for central case, .27 for high case and 0.32 for low case. Mean for 2010/11: 0.02 in all cases. (For Section 5: mean for 2005/06 set at .27)
RM prices	Pricing in Proportion (PiP)
Entrant's prices	CMR project, entrant costs based on low, medium and high levels of scale efficiency
Route data	EPM
Top 100 customers	Actual profile of customer data for 2001/02 applied to 2003/04 data.
Total and product growth	EPM

Table 59: Model parameters and input data

Annexe 5: Detailed scenario results

This annexe provides the full set of volume and market share forecasts under the twenty one scenarios discussed in section 4 of this report.

The volume forecasts reported in this annexe are not strictly comparable with the volume forecast chosen by Postcomm for the Final Proposals. This is because the former are based on a “total letters market” forecast, which is founded on projections for addressed, international and RM door-to-door mail produced and submitted by RM for the Initial Proposals. The volume forecast chosen by Postcomm for the Final Proposals are based on a revised forecast of “total letters market” based on the submission of Royal Mail in September 2005.

The total letters market as defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	168	757	24,598	24,976	170	908	24,445	24,899	171	1,128	24,224	24,788
2006/07	174	964	24,753	25,235	209	1,936	23,746	24,714	240	2,615	23,035	24,343
2007/08	192	1,551	25,237	26,012	252	2,793	23,935	25,332	287	3,646	23,047	24,870
2008/09	238	2,412	24,818	26,024	288	3,836	23,344	25,262	306	4,392	22,770	24,966
2009/10	287	4,031	23,495	25,511	312	4,865	22,636	25,069	321	5,123	22,369	24,931
Shares												
2005/06	1%	3%	96%	98%	1%	4%	96%	98%	1%	4%	95%	97%
2006/07	1%	4%	96%	97%	1%	7%	92%	95%	1%	10%	89%	94%
2007/08	1%	6%	94%	96%	1%	10%	89%	94%	1%	14%	85%	92%
2008/09	1%	9%	90%	95%	1%	14%	85%	92%	1%	16%	83%	91%
2009/10	1%	14%	84%	92%	1%	17%	81%	90%	1%	18%	80%	90%

Table 60: Base (low) case - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	251	870	24,402	24,837	265	985	24,273	24,766	279	1,187	24,057	24,651
2006/07	277	1,019	24,594	25,103	384	1,929	23,577	24,542	470	2,581	22,839	24,130
2007/08	344	1,554	25,081	25,859	487	2,730	23,764	25,129	568	3,598	22,814	24,613
2008/09	453	2,392	24,622	25,818	591	3,769	23,108	24,992	636	4,317	22,514	24,673
2009/10	627	3,939	23,248	25,217	695	4,755	22,363	24,740	716	5,008	22,089	24,593
Shares												
2005/06	1%	3%	96%	97%	1%	4%	95%	97%	1%	5%	94%	97%
2006/07	1%	4%	95%	97%	1%	7%	91%	95%	2%	10%	88%	93%
2007/08	1%	6%	93%	96%	2%	10%	88%	93%	2%	13%	85%	91%
2008/09	2%	9%	90%	94%	2%	14%	84%	91%	2%	16%	82%	90%
2009/10	2%	14%	84%	91%	2%	17%	80%	89%	3%	18%	79%	88%

Table 61: Base (medium) case - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	645	734	24,143	24,511	741	774	24,007	24,394	866	921	23,735	24,196
2006/07	736	803	24,352	24,753	1,245	1,429	23,217	23,931	1,531	1,952	22,407	23,383
2007/08	1,078	1,198	24,703	25,303	1,682	2,055	23,243	24,271	2,018	2,694	22,267	23,614
2008/09	1,608	1,680	24,180	25,020	2,195	2,755	22,517	23,895	2,423	3,134	21,910	23,477
2009/10	2,509	2,691	22,613	23,958	2,896	3,229	21,687	23,302	2,982	3,444	21,386	23,108
Shares												
2005/06	3%	3%	95%	96%	3%	3%	94%	96%	3%	4%	93%	95%
2006/07	3%	3%	94%	96%	5%	6%	90%	92%	6%	8%	87%	90%
2007/08	4%	4%	92%	94%	6%	8%	86%	90%	7%	10%	83%	88%
2008/09	6%	6%	88%	91%	8%	10%	82%	87%	9%	11%	80%	85%

Table 62: Base (high) case - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	178	941	24,404	24,874	182	1,116	24,225	24,783	186	1,315	24,021	24,679
2006/07	188	1,200	24,503	25,103	242	2,293	23,355	24,502	279	3,092	22,520	24,066
2007/08	219	1,696	25,065	25,913	279	2,961	23,739	25,220	310	3,822	22,848	24,759
2008/09	257	2,612	24,599	25,905	311	4,037	23,119	25,138	331	4,595	22,541	24,839
2009/10	318	4,319	23,176	25,336	338	5,152	22,323	24,899	345	5,409	22,059	24,764
Shares												
2005/06	1%	4%	96%	97%	1%	4%	95%	97%	1%	5%	94%	97%
2006/07	1%	5%	95%	97%	1%	9%	90%	95%	1%	12%	87%	93%
2007/08	1%	6%	93%	96%	1%	11%	88%	93%	1%	14%	85%	92%
2008/09	1%	10%	90%	94%	1%	15%	84%	92%	1%	17%	82%	90%
2009/10	1%	16%	83%	91%	1%	19%	80%	90%	1%	19%	79%	89%

Table 63: RM prices case with combined with Base (low) - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	298	992	24,232	24,728	311	1,141	24,070	24,641	379	1,356	23,788	24,466
2006/07	322	1,208	24,361	24,965	548	2,188	23,155	24,249	667	2,967	22,256	23,740
2007/08	439	1,692	24,849	25,695	658	2,847	23,475	24,898	779	3,645	22,556	24,378
2008/09	592	2,538	24,338	25,606	823	3,891	22,753	24,699	895	4,418	22,155	24,364
2009/10	882	4,176	22,755	24,843	990	4,958	21,865	24,344	1,023	5,202	21,588	24,189
Shares												
2005/06	1%	4%	95%	97%	1%	4%	94%	97%	1%	5%	93%	96%
2006/07	1%	5%	94%	96%	2%	8%	89%	94%	3%	11%	86%	92%
2007/08	2%	6%	92%	95%	2%	11%	87%	92%	3%	14%	84%	90%
2008/09	2%	9%	89%	93%	3%	14%	83%	90%	3%	16%	81%	89%
2009/10	3%	15%	82%	89%	4%	18%	79%	88%	4%	19%	78%	87%

Table 64: RM prices case combined with Base (medium) - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	163	1,260	24,101	24,730	163	1,445	23,914	24,636	165	1,692	23,666	24,512
2006/07	167	1,528	24,196	24,960	178	2,704	23,008	24,361	181	3,549	22,161	23,935
2007/08	182	2,135	24,662	25,730	193	3,503	23,284	25,035	197	4,363	22,420	24,601
2008/09	199	3,212	24,057	25,663	206	4,750	22,512	24,887	216	5,238	22,014	24,633
2009/10	219	5,369	22,225	24,910	231	6,185	21,397	24,489	233	6,472	21,108	24,344
Shares												
2005/06	1%	5%	94%	97%	1%	6%	94%	97%	1%	7%	93%	96%
2006/07	1%	6%	93%	96%	1%	10%	89%	94%	1%	14%	86%	92%
2007/08	1%	8%	91%	95%	1%	13%	86%	93%	1%	16%	83%	91%
2008/09	1%	12%	88%	93%	1%	17%	82%	91%	1%	19%	80%	90%
2009/10	1%	19%	80%	90%	1%	22%	77%	88%	1%	23%	76%	88%

Table 65: Zonal access prices case combined with Base (low) - Access, entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

	Low transition path				Central transition path				High transition path			
	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*	Entrant E2E	Access	RM E2E	RM*
Levels												
2005/06	166	750	24,352	24,727	168	899	24,201	24,650	169	1,117	23,982	24,540
2006/07	170	945	24,261	24,733	205	1,897	23,273	24,222	236	2,563	22,577	23,858
2007/08	187	1,505	24,487	25,240	245	2,710	23,224	24,579	278	3,538	22,362	24,131
2008/09	228	2,317	23,840	24,999	277	3,685	22,424	24,266	294	4,218	21,873	23,982
2009/10	273	3,834	22,344	24,260	296	4,626	21,527	23,840	305	4,872	21,273	23,709
Shares												
2005/06	1%	3%	96%	98%	1%	4%	96%	98%	1%	4%	95%	97%
2006/07	1%	4%	96%	97%	1%	7%	92%	95%	1%	10%	89%	94%
2007/08	1%	6%	94%	96%	1%	10%	89%	94%	1%	14%	85%	92%
2008/09	1%	9%	90%	95%	1%	14%	85%	92%	1%	16%	83%	91%
2009/10	1%	14%	84%	92%	1%	17%	81%	90%	1%	18%	80%	90%

Table 66: Total demand case combined with Base (low) - Access, Entrant E2E and RM E2E, volumes and shares

Market shares are percentages of the total letters market as defined by Postcomm (see introduction of Annexe 5 for details).

* RM overall shares are based on Postcomm's rule whereby access volumes are assumed to be half mail items.

Annexe 6: Further comparison of RM and Frontier forecasts for the Final Proposals

This annexe reports the distribution of the product mix won by the entrant under access and RM E2E according to both RM and Frontier's forecasts, and supports the analysis presented in section 5 of this report.

These tables are consistent with the volume forecast chosen by Postcomm for the Final Proposals. The "total letters market" volumes as defined by Postcomm and that underpin these volume and market share forecasts are based on the submission of RM in September, and are unadjusted for the proposed final price cap.

The total letters market as defined by Postcomm refers to the total addressed letter market, RM international and RM unaddressed door-to-door leaflet service. It does not include the unaddressed services and some other addressed services (such as document exchange traffic) provided by other operators, for which no projections are readily available.

	Frontier	RM (Sep 05)
2006/07		
Stamp, Meter/ Prepaid 1C & 2C	2%	0%
MS, FS/PkS/PP1, WS 1C	8%	0%
MS, FS/PkS/PP2, WS 2C & 3C	85%	91%
PPI 1C & 2C	5%	6%
SD, PS, RS and other 1C & 2C	0%	3%
<i>Total</i>	100%	100%
2007/08		
Stamp, Meter/ Prepaid 1C & 2C	4%	1%
MS, FS/PkS/PP1, WS 1C	8%	1%
MS, FS/PkS/PP2, WS 2C & 3C	74%	88%
PPI 1C & 2C	14%	8%
SD, PS, RS and other 1C & 2C	0%	3%
<i>Total</i>	100%	100%
2008/09		
Stamp, Meter/ Prepaid 1C & 2C	6%	1%
MS, FS/PkS/PP1, WS 1C	8%	1%
MS, FS/PkS/PP2, WS 2C & 3C	71%	84%
PPI 1C & 2C	14%	11%
SD, PS, RS and other 1C & 2C	0%	3%
<i>Total</i>	100%	100%
2009/10		
Stamp, Meter/ Prepaid 1C & 2C	10%	2%
MS, FS/PkS/PP1, WS 1C	8%	1%
MS, FS/PkS/PP2, WS 2C & 3C	66%	81%
PPI 1C & 2C	15%	14%
SD, PS, RS and other 1C & 2C	0%	2%
<i>Total</i>	100%	100%

Table 67: Product mix of access mail according to Frontier and RM's projections, shares

Annexe 6: Further comparison of RM and Frontier forecasts for the Final Proposals

	Frontier	RM (Sep 05)
2006/07		
Stamp, Meter/ Prepaid 1C & 2C	26%	27%
MS, FS/PkS/PP1, WS 1C	2%	3%
MS, FS/PkS/PP2, WS 2C & 3C	34%	30%
PPI 1C & 2C	14%	15%
SD, PS, RS and other 1C & 2C	24%	25%
<i>Total</i>	100%	100%
2007/08		
Stamp, Meter/ Prepaid 1C & 2C	26%	27%
MS, FS/PkS/PP1, WS 1C	2%	3%
MS, FS/PkS/PP2, WS 2C & 3C	34%	31%
PPI 1C & 2C	13%	14%
SD, PS, RS and other 1C & 2C	26%	26%
<i>Total</i>	100%	100%
2008/09		
Stamp, Meter/ Prepaid 1C & 2C	25%	27%
MS, FS/PkS/PP1, WS 1C	2%	3%
MS, FS/PkS/PP2, WS 2C & 3C	34%	30%
PPI 1C & 2C	12%	12%
SD, PS, RS and other 1C & 2C	28%	28%
<i>Total</i>	100%	100%
2009/10		
Stamp, Meter/ Prepaid 1C & 2C	24%	26%
MS, FS/PkS/PP1, WS 1C	1%	3%
MS, FS/PkS/PP2, WS 2C & 3C	34%	31%
PPI 1C & 2C	11%	11%
SD, PS, RS and other 1C & 2C	30%	29%
<i>Total</i>	100%	100%

Table 68: Product mix of RM E2E mail according to Frontier and RM's projections, %

Annexe 6: Further comparison of RM and Frontier forecasts for the Final Proposals

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