



Report to

Department of Communications, Climate Action & Environment

**Review of the Obstacles that Hindered the Planned
Introduction of Pay by Weight Charging in July 2016**

Final Report

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Executive Summary

1. Although it had been flagged well in advance that mandatory pay by weight pricing (PBW) for household waste collection would be introduced in mid-2016, the planned introduction did not go ahead. Primary legislation was passed in July 2015 and regulations were signed in January 2016. However, a second set of regulations in June 2016 removed the requirement to charge on a pay by weight basis.
2. This report has been prepared by KHSK Economic Consultants in response to the decision by the Department of Communications, Climate Action & Environment (DCCA) to undertake a review of the obstacles that hindered the planned introduction of pay by weight charging in July 2016 and that resulted in this deferral.
3. The consultants are mindful that this review has been prepared with the benefit of hindsight that was not available ahead of the planned time for introducing the policy measure. The review requires that the consultants identify the reasons why the planned introduction could not proceed and was deferred. However, there is no intention to assign blame in any sense and nothing in the report should be read as such. It should also be noted that it might not necessarily have been possible to foresee in advance the outcomes of decisions that were taken in the run-up to the date that was identified to introduce the policy measure.
4. The report is based mainly on consultations with a range of personnel including a written questionnaire to industry operators. While the consultants have attempted to capture the information that was provided the report does not just summarise responses and there is additional analysis and, in some cases, an assessment of the importance of various factors that were suggested.
5. The factors that have been identified as hindering the planned introduction of the policy measure fall into three categories. The first is the adverse external environment into which the measure was to be introduced. This includes the political landscape, a populist 'issue-seeking' opposition, a hostile media, and a sour public mood. None of this is under the control of the relevant policy makers and it cannot be concluded that any policy innovation in line with waste

policy objectives could have overcome this adversity. However, policy makers must accept that this is the case and the focus needs to move on to the extent to which the measure was optimally designed and communicated.

6. The second category of factors relate to the design of the measure that was to be introduced. A key issue that supported the growth of opposition to the measure was the fact that when some operators published their proposed new prices, it was clear that this would result in substantially increased waste charges for a cohort of customers, particularly in the Dublin area, who had previously been paying charges that were well below normal levels. Operators are of course entitled to raise prices in line with commercial realities and legal requirements. However, while there was no restriction on the level at which the service charge could be set, it was perceived by the relevant operators that the adoption of PBW charging would effectively reduce the viability of below cost selling as a marketing strategy, for a period at least. This provided an opportunity for a very small number of operators in the Dublin area who had customers on very low charging schemes to raise prices, since the threat of competitors gaining market share, which had previously inhibited their ability to increase prices, was perceived to have been temporarily reduced.
7. The extent to which this opportunity arose as a result of the disruption that would inevitably arise due to a new pricing regime, or was a result of policy design, is unclear. What is clear is that, while the consultants have not concluded that the policy design was determined with the express aim of curtailing below cost selling – even though this may be a desirable objective in itself – developments in the run-up to the proposed introduction of PBW in mid-2016, in addition to views expressed to the consultants, clearly indicate that this was perceived by some operators who had previously used aggressive pricing strategies, particularly in the Dublin area, to be a definite short term impact of the policy measure. The inclusion of minimum prices in the legislation also meant that PBW became inextricably associated with proposed price increases. The proposed introduction of mandatory PBW pricing then became publicly portrayed and interpreted primarily as a means to raise revenues for operators rather than as a mechanism to implement the producer pays principle. Consequently, the policy's objective could not be adequately communicated and there was almost no debate around the desirability of the actual purpose of introducing mandatory PBW pricing.
8. The third category of factors arises from the fact that no matter what measure is proposed or how optimal its design, anything that involves change needs to be

communicated and understood properly. Although there was engagement with stakeholders in advance of the proposed introduction and a plan was devised, an adequate national programme of communication was not undertaken for a number of reasons, an alternative narrative in relation to PBW was allowed to develop and this narrative was not countered. Furthermore, many operators did not adequately publish their prices in a timely manner nor explain adequately to consumers might they might reduce the cost of managing their waste under PBW pricing, although there were some exceptions to this. As well as communicating specific policy innovations, there is also a need for ongoing education in relation to good practice in waste management and a need for a clear roadmap of how policy will develop.

9. All is not lost and while there are certainly difficulties in relation to the introduction of PBW, the policy retains a lot of support among informed stakeholders. It is seen as the right thing to do and there are good reasons to conclude that it is likely to be effective in altering the behaviour of waste producers. The failure to introduce it as planned in 2016 has not changed this. However, the problems that have been identified will need to be addressed and a new narrative needs to be developed around this policy approach.

1. Introduction

1.1 Background

This report has been prepared by KHSK Economic Consultants under the contract awarded by the Department of Communications, Climate Action & Environment (DCCAE) to undertake a consultancy project entitled *Review of the Obstacles that Hindered the Planned Introduction of Pay by Weight Charging in July 2016*. The study was guided by the requirements of the Request for Tenders that was published by the Department in November 2016 and the proposal that was provided by the consultants in response. It was also undertaken in response to inputs from the steering committee that was established by the Department to oversee the study.

The background to the study is provided by the plan to introduce mandatory pay by weight (PBW) pricing for household waste collection in July 2016, the decision not to proceed with this policy measure, and the subsequent decision by the Department to review why this occurred. The terms of reference identified the purpose of the review as being to:

- Examine the difficulties that arose during the planned introduction of Pay by Weight in July 2016;
- Provide a fuller understanding of the issues that made it difficult to introduce pay by weight; and
- Assess the nature and level of the challenges that are currently facing the introduction of a charging structure to incentivise the prevention and segregation of household waste.

To this end, the consultants were requested to consult with and seek feedback from each company or individual holding a household kerbside collection permit, relevant individuals in the public sector, organisations associated with the waste management sector and other stakeholders as may be identified. It was foreseen that this process would involve direct interaction with stakeholders and a questionnaire to industry operators that would facilitate a thorough and robust examination of the issues. The consultants were also required to analyse the information and views obtained through this process and to provide a written report to the Department and a steering committee that had been established within a timeframe that was specified by the Department at the outset.

1.2. Methodology and Report Structure

The work involved in this study was divided into three broadly sequential elements:

- A consultation process to identify the issues that hindered the planned introduction of PBW in July 2016;
- Analysis of the responses obtained in this process seeking clarification where necessary;
- Provision of a written report to the Department on the study and its findings.

The consultation process comprised two elements that were undertaken broadly concurrently. The first element covered contacts with private waste management operators. These were considered to be a sufficiently homogenous group such that their views could be obtained by means of a written questionnaire. While meetings and telephone interviews were held with a number of operators in the waste management industry, the primary source of information from private waste management operators was the responses to this questionnaire.

The questionnaire was developed following an initial meeting with the steering group and a small number of meetings with stakeholders to identify and clarify the relevant topics. The questionnaire was distributed by email to 40 waste management operators who are not members of the IWMA on Friday, December 9th and was sent to the Secretary of the IWMA on the same day for distribution to IWMA members. The email was addressed to individuals in all cases using information provided by the National Waste Collection Permit Office (NWCPO) for firms that hold current household collection permits and information held by the IWMA.

Recipients were requested to provide their responses to the consultants on or before Monday December 19th. A reminder email was sent to operators on Wednesday December 14th and again on Monday 19th requesting that the completed questionnaire be returned as soon as possible. This final contact also informed operators that responses would be considered if they were received in the days following the deadline. IWMA members also received similar follow-up prompts.

Respondents were assured that all responses would be treated as confidential and while the information obtained would be used to inform the consultants' report to the Department, all the information provided would be anonymised so that it would not be possible to directly identify the source of any response.

The questionnaire contained five headings:

- The main questions;
- The planned pricing structure;
- Other issues associated with introducing PBW last July;
- Consumer views and understanding of PBW; and
- Future policy.

Most of the questions were targeted at specific topics that were raised in the initial consultations, but a few questions were open-ended to allow respondents to raise such issues as they considered to be relevant. The questionnaire was also used to gauge the level of support for PBW. A copy of the questionnaire is contained in Appendix 2 below.

A total of 23 responses was received, giving a response rate of 36%. The responses were mostly comprehensive and addressed all the questions. A small number of responses also raised issues that the operators in question considered to be relevant as obstacles that hindered the introduction of PBW, but that had not been specifically included on the questionnaire. However, these were a minority suggesting that the questionnaire had covered the range of issues satisfactorily. Appendix 3 below contains a summary of the responses that were received.

The second element of the process centred on a more diverse range of stakeholders where a less structured format was required. This group comprised

- Individuals within the public sector including, but not limited to, the DCCAE and Local Authorities;
- Representative Organisations; and
- Some of the larger private sector waste management firms where clarification of information provided in response to the questionnaire was required.

These consultations were undertaken on a confidential basis during December 2016 and in the first two weeks of January 2017. A full list of the individuals that were consulted is contained in Appendix 1. In undertaking these discussions, the consultants provided assurance, where such was considered to be required, that the purpose of these discussion was not to assign responsibility (or blame) for the fact that the planned introduction of the policy measure was deferred, but to review what happened in terms of the relevant issues that arose so as to inform the Department in identifying future policy measures.

Information that was obtained from responses to the questionnaire and through the consultations informs the material in Chapters 2, 3 and 4 of this report. In compiling the report and drawing conclusions, the consultants found it useful to divide the quite wide range of issues that were raised into those that could be considered to be factors in the external environment into which the policy measures would be introduced i.e. not directly under the control of the relevant policymakers, and issues that were considered to be concerned with the design of the policy and decisions in the run-up to its proposed introduction. The former are discussed in Chapter 2 while the latter comprise Chapter 3.

Communications form a linkage between these two environments and issues concerned with communicating the policy to customers and within the public sector, are discussed in Chapter 4.

Finally, Chapter 5 contains a summary and conclusions. This may form the basis for consideration of how policymakers might proceed should a decision be made to introduce PBW in the future. However, it does not contain a set of recommendations for the design of a future policy. It is understood that recommendations for future policy are to be considered by a different group as part of review of PBW and were not discussed specifically in the consultations.

1.3 *Preliminary Comments*

The contents of this review are based on the meetings and interviews that comprised the consultation process, along with the questionnaire responses and a review of relevant published documentation. At the outset it needs to be emphasised that the consultants do not see, and did not approach, this review as an exercise in assigning any blame for the fact that PBW pricing was not introduced as planned. Consequently, nothing in this report should be read or interpreted as the consultants assigning responsibility for the outcome that occurred, even where the views of stakeholders, as reported, may suggest an intention to assign responsibility. Indeed, it is arguable that some of the issues that led to problems could not have been foreseen, while others may have been foreseen but their importance could not be assessed. In identifying these issues and the role they played, the consultants do not purport to suggest that a feasible solution to the identified problem was available during the time period under review, or currently, and it should be understood that the insights obtained in undertaking this study were done so with the benefit of hindsight.

It is inevitable with a diverse group of interviewees and respondents that a wide range of issues will be identified and that some of these will be irrelevant and will contradict other opinions. The consultants' approach has been to try to keep the discussion here as close to the central objective of identifying the factors that hindered the introduction of PBW last year. Other issues that were raised but that have been deemed to not be of direct relevance to the introduction of PBW pricing are not discussed.

The approach taken is to state the issue as discussed in the consultations and then to provide commentary based on the consultations and on the judgement of the consultants. This is done to try to add value and understanding while ensuring that the consultants' opinions do not overshadow the views expressed by consultees. This commentary should not be read as an evaluation of any issue, although the conclusions chapter below does identify what that consultants consider to be the main reasons the policy was not introduced as planned.

2. The External Context

2.1 *The Political Landscape*

When asked the question ‘why was PBW not introduced as planned?’ the most common response on both the questionnaire and in the interviews was that the plan failed because of the political situation that existing in Ireland in 2016. This was expressed quite forcefully in many cases and many responses indicated a level of frustration that this situation resulted in mandatory PBW pricing not being introduced.

It is of course true that the current Government is considered to be somewhat unstable and politicians are nervous that the difficult economic situation in Ireland, which has continued for a prolonged number of years, has resulted in a volatile electorate with few political certainties. It is also true that the Minister’s decision to defer in 2016 was taken at a late stage. In addition, no one has fundamentally questioned the policy objectives set out in ‘*A Resource Opportunity*’ and these remain in place. This led many consultees and respondents to the questionnaire to conclude that political expediency was an important factor in the decision not to introduce PBW.

However, to a considerable extent, saying there was political uncertainty is merely to state a truism, rather than to identify a useful explanation for what occurred. Political decision makers will try to avoid sharp policy reversals, as these can indicate weakness, while also trying to act in a manner that coincides with the public mood. The answer lies therefore not in assigning blame to political factors, but in examining why the public mood changed against PBW, assuming it had previously been in favour. Again it is possible to point to a negative, populist political cohort who object to policy innovations without proposing viable alternatives. It is also possible to point to a negative, indeed cynical, media. All this existed in opposition to PBW but, again, these entities just reflect a public mood that had turned against PBW. So while these forces helped to shape and vitalise the opposition, it cannot be concluded that they created opposition where none otherwise existed.

Very often, the existence of strong opposition to a policy measure indicates that there is a serious flaw in the policy in terms of its desirability (as distinct from its viability). However, in this case it was the almost unanimous view of the stakeholders who were consulted in undertaking this review that this conclusion should not be drawn. Instead, the view was that this opposition emanated from a cohort of public individuals who oppose change on an opportunist basis and who seized on this issue

as a basis for a populist campaign that paid little attention to the desirability of PBW pricing or to the facts. In this regard, the observation that political opposition to the measure appeared to pay little or no attention to the desirability of the objective of reducing residual waste, or to the inherent fairness of heavy waste producers being required to pay for managing this excess waste rather than being subsidised by others, is instructive. This is important as it means that the policy objective should not be changed because it proved to be politically unpopular. Indeed, it also means that the policy measure should not be changed simply because of this situation, unless additional issues are uncovered.

So, the identification of political factors should not be interpreted just as a narrow interpretation of the balance of power in terms of Dail numbers but as a recognition of a deeper malaise. Importantly, this is unlikely to change in the near future. This means that the difficult political environment must be accepted as an ongoing challenge that needs to be managed.

In managing this situation, it is important that the policy measure is as logical and robust as possible and that actions do not provide platforms from which opposition can build. However, some of the actions that were taken in the run-up to the planned introduction of PBW contributed to the opposition gaining strength. Among these two were of particular importance.

The first was the fact that a small number of operators, particularly in the Dublin area, did indeed target the imminent introduction of PBW as an opportunity to raise prices for customers who were previously paying waste charges that were well below the costs of managing the waste. It was these proposed price increases that provided the basis for much of the opposition. This may be opportunistic to an extent, but it reflected a side effect of the policy measure and the structure of the industry. It is likely that there was some confusion among customers due to the proposed new pricing being complex, but prices in parts of Dublin were unsustainably low and needed to rise. Some of the firms who had long term below cost customers had wished to increase the prices paid by these customers, but aggressive price competition had previously made this impossible unless they accepted that they would lose market share¹.

¹ A distinction is drawn in this report between two groups of below cost customers. The first group comprises customers, mostly located in the Dublin area, who have been charged prices that are below the cost of managing waste for a period of years, often since the local authorities in their areas withdrew from household waste collection. It is estimated that this group covers about 30,000 households. The second group comprises customers who have been enticed to either switch service

The move to PBW provided an opportunity to address this as it was perceived that the new pricing structure would make it commercially difficult for competing firms to offer the sorts of low prices that had been seen in the past. This perception existed even though the minimum PBW prices that were contained in the legislation were at a level that would have made it possible for firms to continue to do so and there was no minimum restriction on the service charge.

The ultimate effect was that the increases in prices that were announced at the time the PBW policy measure was planned to be introduced gave those opposing the change plenty of support for their arguments that PBW was just a way for operators in the industry to increase prices. This was bolstered by claims that this increase could happen because there was insufficient competition in the sector to protect the interests of consumers, even though this claim has not been supported by analysis of the sector. This became the dominant message, a development that was facilitated in part by the failure to implement a clear communications programme that informed consumers that PBW had a desirable objective of reducing waste, would ultimately reward those who changed their behaviour and would provide consumers with greater clarity and a degree of control over the cost of their waste management services.

The second important action that strengthened the position of those in opposition to the measure was the removal of the proposal to introduce mandatory minimum PBW charges for the recycling bin². Views on whether there should be a charge for the recycling bin differ. Many consultees pointed out, correctly, that a zero charge creates the impression that managing the material that goes into the recycling bin is costless. The value of the materials that are recovered does contribute to the cost of managing this material, but much of the cost is paid for by means of a cross subsidy from the charges for other bins. Furthermore, having a zero charge for the green bin suggests to the waste producer that putting as much material as possible into this bin is the best action for them to take. In fact, reducing the amount of material overall is a preferable action in line with the waste pyramid. The logical conclusion of this

provider or to remain with their existing supplier by the offer of low prices for a period of time, often 12 months. It is not known how many households have availed of such offers but estimates that were suggested to the consultants put it in the range of 20,000 in mid-2016.

² It is common within the industry to refer to the different segregated waste streams that are collected from households as black bins (for residual waste for disposal), brown bins (for composting material) and green bins (containing dry recyclable material). This terminology is used interchangeably in this report. In practice, the colour of bins for each use do vary and it is not uncommon to see a green coloured bin used for residual waste with, perhaps, a blue bin for dry recyclables. Other colours are also used.

argument is that waste reduction should be the only zero cost option for householders. In contrast, many consultees supported the change to ensure that the green bin should remain nominally ‘free’ as this would have increased the price differential between it and alternative bins. By doing so it would have increased the incentive to segregate material better.

Irrespective of their views on this matter, consultees were clear that removing the proposed charge at a late stage was a mistake that weakened the chances of introducing PBW and gave confidence to those opposing the measure that there was an opportunity here to score political points against the Government while purporting to be standing up for the interests of consumers.

In conclusion, the political situation was important and certain features of this, such as the contemporaneous disagreements over water charges, contributed to this. There is an existing, established, large, opportunistic, populist opposition to innovations such as PBW and it is arguable that, irrespective of how well the measure was designed or how desirable its implementation might be, it could have proven impossible to introduce it in mid-2016. However, the fact is that this environment must be taken by policymakers to be a given and it cannot be considered that it will change anytime soon. Therefore, rather than simply pointing to this difficult environment, it is more useful to examine if aspects of the policy design or other actions contributed to the impact of the opposition and assess if deficiencies in this respect inhibited the planned introduction of PBW pricing.

2.2 *The Media and the Social Mood*

There would be definite social benefits from the introduction of mandatory PBW pricing. There could also be private benefits as it would allow the cost of waste management to fall if volumes of waste fell – see the discussion of this in Chapter 4 below – and because it would transfer some control of costs to consumers. It would also reduce cross subsidising of customers through price discrimination and might, in time, contribute to simpler pricing and customers being better able to compare the various offers that are available. The intention to introduce PBW was flagged well in advance, the design of the policy measure was guided by the producer pays principle (PPP), a consultation process was implemented and all the necessary legislation was published and passed. The waste management industry was supportive – the evidence uncovered in this study indicates strong support that is still in place – although it must

be acknowledged that the actions of some operators, particularly in the Dublin area, in using the opportunity to raise prices seriously undermined the introducing of the policy. Most of the required investment was also in place or would be within a short time after its introduction. But, despite this apparently solid foundation, the media and the social mood became so hostile that it became politically impossible to proceed as planned.

There were policy design issues that contributed to this – as discussed in the next chapter below – but it is also the case that the measure was being introduced into an environment where there was a negative social mood towards politicians and policy innovations and a media that increasingly adopted a cynical, populist approach to policy irrespective of the merits of any particular measure. This exacerbated the pre-existing negative social mood. This is an inescapable conclusion from a review of media coverage at the time.

Media coverage almost universally concentrated on potential negative impacts of the measure and constantly pointed to the possibility that the charges that would be borne by some households would rise. The coverage almost totally ignored the fact that increased charges for some households is actually a central requisite of the producer pays principle. The short term impact of a move to PPP on the waste management costs of any household depends on how that household alters its behaviour in response to the incentives that are provided and on the prices that are charged. However, in the long term, the impact will be fully dependent on how the household alters its behaviour – apart from the cost of operating the new pricing system – assuming there is a competitive industry³. As there will always be a range of responses some must lose while others gain. However, when properly applied, PPP guarantees a net overall gain for society of which consumers are an important element. Achieving and maximising this gain is the correct purpose of policy, not guaranteeing that there will be no losers from the policy⁴. As such, the coverage was

³ The argument here is that PBW does not change the cost of managing waste to any considerable extent once the initial investment is made. So long term prices are not affected, although there may be a short term ‘setting in’ period when prices could be volatile. Since PBW should reduce waste volumes the cost of managing waste overall should fall. Each household can then maximise their share of this reduced cost by altering their behaviour.

⁴ It is a long standing principle of economics and a foundation of socioeconomic cost benefit analysis – which is required to be applied to many policy interventions in Ireland – that the Kaldor-Hicks principle must be applied. This states that a policy change should proceed, even if there are winners and losers from the policy, but only if the gains of the winners are such that they could compensate the losers, with a surplus. However, no such compensation needs to be undertaken. If this principle is not followed then policy assessment reverts to what is known as the Pareto principle, which asserts that a policy can only be introduced if someone gains and nobody suffers a loss. This is a recipe for total

socially irresponsible and it displayed either a wilful or actual ignorance of the principles of responsible economic policymaking.

Much of the media coverage was also damaging in two further respects. First, with only a very limited number of exceptions, there was little or no attempt to explain the rationale for the change. A central role of the media is to inform the public. However, even where some explanatory coverage was published it concentrated on how charges would be applied without transmitting the message that PBW was aimed at achieving a desirable social aim and that consumers could contribute to the social good while realising private gains through changing their behaviour. Neither was there any coverage in the national press of areas where PBW was already operating and successful. Furthermore, there was no explanation of the fact that below cost customers are actually being subsidised by other customers and that they have an incentive to act against the public interest by ignoring the volume of waste they produce. As a result, the idea that PBW pricing was simply being introduced as an additional new charge was created without any alternative interpretation of the measure being put forward⁵.

The second area where media coverage was damaging was in allowing the introduction of PBW to be seen as being similar to the introduction of water charges. It was inevitable that there would be parallels drawn given the time overlap, the utterances of some politicians and the fact that both waste and water are utility services that were previously provided by local authorities without direct charging. However, not only did much of the media coverage fail to point out that the two policy measures were totally unrelated – the former being designed largely as a way to generate revenue to pay for the service, the latter policy measure being a way to influence behaviour – but there were instances of coverage that could be characterised as ‘waste charges are another type of water charges’. This approach had a ready audience and, as discussed below, the design of the policy may have made it easy for the media to draw these types of comparisons.

A final point to note in terms of media coverage is that, as with the political situation, this cynical approach to covering policy changes is highly unlikely to change any time soon. Furthermore, the situation is now probably worse as a result of the decision to

inertia and is unworkable. However, the approach that was implicitly promoted by the media coverage was based on the Pareto principle.

⁵ This relates to the stance taken by the media, which is outside the control of policymakers. It is a different issue to the communications issue that is discussed in the Chapter 4 below.

defer, even if the water issue has been removed from prominence. Some media interests will inevitably have seen the policy reversal as Government weakness and as some sort of victory for ‘people power’, or as evidence of their own ability to influence developments and set the agenda. Any future attempt to introduce PBW would need to consider the implications of this development.

The Water Controversy

The planned introduction of PBW coincided with the water charges controversy and it has been suggested to the consultants that consumers became somehow confused between the two proposed changes or that those who opposed PBW were able to harness the opposition to water charges to bolster their standing.

There is no doubt that the coincidence of these two policies was an important negative as discussed above, but there is little support from either the consultations or the questionnaire for the idea that consumers were genuinely confused. Certainly both issues fed into and suffered from the negative mood among consumers, but consumers were not confused between the two issues. Instead, the general feeling among consultees was that the water issue generated a fear – or a hope – among politicians that there would be a similar public backlash against PBW as there was against water charges. This was the main impact of the coincidence of the waste and water policies.

In summary, while accepting that there was considerable confusion among consumers about what PBW would mean and that some politicians attempted to draw parallels between waste and water, consumers were not confused by the two issues to any extent. However, the timing was important and this fed into the decision not to proceed.

2.3 *The Dublin Market and Price Discrimination*

Many of those contacted in the course of undertaking this study have stressed that opposition to the introduction of mandatory PBW pricing was primarily generated from within the Dublin area. This opposition is identified as being based on claims that the introduction of the policy measure would result in price rises for substantial numbers of customers within Dublin. The primary reason identified for why this would happen is that there is a large number of households in Dublin who are paying waste charges that are well below the norm and are, in some cases, paying charges

that are below the cost of managing of the material, before any account is taken of the need to cover the costs of collecting the waste.

Various estimates have been suggested for the number of such customers within the range of 30,000 to 50,000 households. While there does not appear to be a definitive source from which to provide an accurate number, most people who raised this issue appeared to believe that the number is towards the lower end of this range. This situation arose initially as a result of waivers that had been previously granted to some, mostly lower income, household by the Dublin local authorities when they operated waste collection services. When the customer bases for these services were transferred to private operators it was a condition in many cases that the waivers would be maintained for a period of time. As this requirement has expired there have been attempts on behalf of operators to raise prices but this was reversed due to a price war that was generated as a result of an attempt by a new entrant to gain market share in recent years. This resulted in a new cohort of low priced customers⁶.

Whatever the precise number, there seems to be little doubt that this is a real issue and this was known and was considered by policymakers when formulating the policy measure. It is clear from the consultations that industry operators in the Dublin area perceived that the introduction of PBW pricing would have made it more difficult to continue to offer the very low rates that had previously been seen. However, it was apparently not foreseen that some operators would use the introduction of PBW as an opportune time to address the existence of below cost customers almost in a single stroke⁷.

While there was likely opportunism in the actions of some operators in signalling large price rises for below cost customers to coincide with new pricing schemes, it is

⁶ It is this second cohort of customers that gives rise to the uncertainty about numbers. It is generally accepted that about 30,000 customers had waivers at the time the business was transferred from the local authorities to private collectors and that most of these still pay well below the actual cost of handling residual waste. These should be considered to be long term below cost customers. However, it would appear that there are many others that have special deals, although these generally have a fairly short expiry, usually about 1 year at maximum. Prices for the first group could be raised at any time, but it seems that these were targeted for price rises at the time PBW was to be introduced. The contractual situation of the latter group varies, but their prices would rise over time in any case. However, PBW could then be blamed for not renewing their low 'introductory' rates.

⁷ A possible explanation was that the impact was expected to be seen in less below cost selling – which resulted in the second, short term cohort of customers – rather than on the prices paid by long term below cost customers. Therefore, it was expected that PBW would mean that as people with special introductory deals reached the end of their introductory period that would gradually move to normal charging levels as a similar deal would not be available. As a result, the problem would be gradually resolved.

also the case that prices would have to rise at some stage. However, this provided a legitimate basis for some public representatives and others who wished to oppose PBW to point to what appeared to be evidence that this was just an additional charge and a way for unscrupulous operators to raise prices.

These claims were accompanied by claims that competition in the waste management sector is weak, particularly in the Dublin area. Indeed, a cursory examination of the market structure for household waste collection in the Dublin area would suggest that there may be some issues with competition. Two of the four administrative areas are dominated by a single firm with a different firm having a large market share in the other two areas. Furthermore, the businesses of firms that gained local authority customers some years ago continue to be concentrated in the area in which they gained the initial market share. As a result, there are areas of the city, particularly in the suburbs, where households do not have much choice of operator, even though there are numerous operators in the Dublin area.

It is important, however, not to jump to conclusions in relation to competition in Dublin based on this market structure. The fact is that prices in Dublin are relatively low, although this is due in part to lower collection costs in urban areas. However, pricing is complex in terms of number of pricing plans that are offered and there is evidence that firms discriminate between customers and offer incentives to stay with an existing supplier. These are contrary to PPP and also mean that there is a considerable amount of price discrimination and cross subsidisation between customers, but they also suggest intense competition. Importantly there are good economic reasons, primarily related to economics of density, to suggest that over time a dominant firms is likely to emerge in any area and will be in a strong position to resist any attempts by new entrants to gain market share. What matters in this case is not that individual firms have large market shares, but that the threat of new entry remains real in order to ensure that the dominant player cannot abuse its position. Furthermore, the Competition and Consumer Protection Commission have confirmed to the consultants that complaints about the waste management sector, in contrast to the impression that is sometimes created, usually account for no more than a very small part of the overall number of complaints that are received from consumers in any period. However, the CCPC also confirmed that complaints about waste operators tend to spike occasionally and that the May to July 2016 period contained one such spike. The complaints that were received in that period were mostly from the Dublin area. This would seem to confirm that competition is actually working quite well in the sector but that customers had concerns about developments in Dublin in the period immediately prior to the planned introduction of PBW.

The evidence is that there is an important problem with below cost selling in Dublin. This is discussed further below and some operators did act opportunistically to address this situation in close proximity to the time at which PBW was to be introduced. This seemed to provide confirmation that PBW was simply an additional charge even though the price increases that were proposed were as a result of existing below cost customers and related to PBW only to the extent that its introduction was seen as an opportunity by some operators to address the situation. This was very important in the building of support in opposition to the policy.

The general view of consultees was that the existence of below cost customers was a very important issue and that this will need to be addressed in advance of introducing PBW. It was also considered that the 12 month price freeze may have simply made this worse as these months could otherwise have been used to move these customers to higher priced plans i.e. to gradually resolve the issue. In any case, since this issue can only be resolved by these customers paying higher waste charges in the future, the point was made that there is a real prospect that the sector could undergo a period of disruption as, or before, the issue is resolved.

3. Policy Design Issues

3.1 Policy Objectives & Design

It is possible to divide household waste policy and policy measures into two broad categories according to the objective in question. The first category comprises policies that are aimed at ensuring that an efficient, reliable, equitable and responsible service is available to householders. The second comprises measures to achieve waste management that is in line with pre-defined objectives that achieve certain environmental and economic outcomes. Basically this means outcomes in line with the EU Waste Directives and policy statements such as *A Resource Opportunity*.

The proposed regulatory reform that included the planned introduction of pay by weight pricing included measures that fall into both of these categories. PBW pricing could contribute to the objectives in the first category, but its main objectives were in the latter, as would be expected with policies guided by the producer pays principle. Policy intervention to achieve particular outcomes unavoidably means changing people's behaviour. Otherwise it would be redundant as people would just act out of self-interest in a manner that brought about the desired outcome.

Policy that is aimed at changing behaviour can take three main approaches that can all be used simultaneously and, properly designed and applied, can reinforce each other. The first is to educate people about what is desirable. The second is to regulate to force people to act in a particular manner. There is generally some role for this approach, but it involves attempting to get people to act in a way that they perceive to be not in their interests. As a result, this approach should be kept to a minimum. The third approach is to adopt regulations that change the economic incentives that are perceived by individuals so that it becomes in their self-interest to act in a manner that will bring about a desired outcome. This is by far the most efficient approach in situations where undesirable actions by an individual do not have catastrophic results as it requires limited monitoring or enforcement once it is in place.

Pay by weight pricing to achieve waste reduction and better segmentation of waste is a good example of this type of policy intervention. Some regulatory basis is required, such as the need to mandate that it must be used sufficiently to alter behaviour. But the success of PBW depends on altering the incentives facing consumers, rather than on demanding actions that are not seen to be in their own interests. Policy measures

of this type would generally be expected to face less opposition than restrictive interventions and to have a higher success rate if properly designed.

In the case of industry operators, the economic incentive for many was to avoid change, particularly in the short term. As a result, it was necessary to educate operators on what was to be done, the reasons why this was being done, and to impose the regulations in a manner that minimised the regulatory impact of the new policy. Considerable efforts appear to have been applied to this end by policymakers⁸.

The conclusion from these considerations is that PBW pricing was the correct approach for policymakers to use to achieve a better environmental outcome and the approach that was taken adhered quite well to minimising the regulatory impact. Such evidence as is available from research programmes and from areas where PBW is already used as the basis for charging for households waste also indicates that policymakers could have had confidence in advance that mandatory PBW pricing for household collections would achieve its aims and that there would not be excessive resistance. So the overall approach appears to have been correct.

The primary objective of introducing mandatory PBW pricing was to alter the behaviour of consumers by implementing the producer pays principle so that the overall volume of waste, and in particular the amount of waste that would be placed in the residual bin, would be reduced. Based on communications from the Department in the period prior to its proposed introduction and from the consultations, it was thought that PBW could also have a role in reducing the incidence of below cost selling, but influencing the behaviour of waste producers, i.e. householders, was the primary reason for proposing its introduction.

There are a number of reasons why the objective of addressing below cost selling was of interest to the Department:

- The charging of low prices for waste management conflicts with the producer pays principle as it ensures that the producer does not even pay the private costs of managing the waste which are likely below the social costs;

⁸ This is not to suggest that the proposed policy was perfect or in line with the wishes of all and it is clear from the consultations that some operators would have preferred a different approach. It is not possible to know to what extent these opinions have been formed with the benefit of hindsight. In any case, it would not be possible to devise an approach that would meet every request.

- There was a concern that very aggressive price competition could result in cost cutting in the way the waste is managed leading to bad practices, such as illegal dumping, and ‘a race to the bottom’;
- Below cost selling can be very disruptive to the industry as aggressive competitors engage in price wars to gain market share and possibly force competitors out of the market;
- There is a social issue as responsible householders who recognise that the cost of good waste management must be paid for are effectively subsidising those on low prices; and
- Operators did not wish to see an ongoing price war, particularly in Dublin, while operators outside Dublin came under increasing pressure to explain why their prices were so much higher than in Dublin.

The consultants are not in a position to determine the relative importance of these various explanations. However, these provide the rationale for why reducing the incidence of below cost selling was seen as desirable.

Implementing the Producer Pays Principle

PPP requires that polluters pay for their actions and, by ensuring this, that they are incentivised to alter their behaviour. Altering the behaviour of waste producers was the core objective of PBW and so PBW was to be introduced as a way to implement the producer pays principle. The householder is the waste producer. So, PBW needed to be designed to influence household behaviour. But eliminating below cost selling requires that it is the behaviour of (some) waste sector operators that is changed⁹. This poses a difficulty since attempting to design a set of measures to simultaneously influence the behaviour of two different sets of decision makers inevitably would make the measure more complex. If below cost selling needs to be addressed, then this needs to be done before or distinctly from, not as part of, the introduction of PBW.

However, this was not done and the measure was designed, as a result of the emphasis that was placed on identifying the costs of managing waste as the basis for setting

⁹ It is acknowledged that an arithmetic application of the minimum prices that were set for PBW to typical waste volumes produced by households would produce theoretical prices that would not in themselves have forced the operators who had offered very low prices to raise their prices had the new policy been introduced. However, what was seen to happen was that operators did not continue to offer prices at these levels. Irrespective of whether this was a calculation that it would be too risky to do so or was simply an opportunistic decision not to offer pricing schemes at these levels, it has been made clear to the consultants, and it is clear from the actions of operators in the period immediately preceding July 2016, that the strategy of offering very low prices to either keep or retain customers was about to change with the introduction of PBW pricing.

prices, in a manner that meant that, in practice, it was perceived by operators who had engaged in below cost selling strategies as making these strategies non-viable, at least in the short term. The extent to which the design of the measure depended on setting prices according to the costs faced by operators rather than the price that would alter the behaviour of waste producers can be seen in the analysis that was undertaken in the DKM report¹⁰. At an early stage the report contains the following passage:

A critical question is: what is the appropriate level of pay by weight charge? The Polluter Pays Principle indicates that it should equal the actual cost of disposal/recovery, for the relevant waste stream⁷.

Footnote 7: Strictly speaking it should equal the long run marginal cost of disposal/recovery.

DKM (2015) page 2-3

DKM were correct that this as a critical question. The footnote is also almost correct – it should equal the marginal social cost of disposal, not the private costs that are faced by operators¹¹. However, the important thing to remember about PPP is that, while it imposes a charge on a polluter, its purpose is not to raise revenue to somehow remove or compensate for the negative effects of that pollution. Instead, its purpose is to impose a cost on the individual that decides to pollute such that they will alter their behaviour.

It is quite clear that it had been determined that the minimum PBW charges should be set according to the average costs of managing different streams of waste rather than by identifying the level that would influence the behaviour of private individuals¹². In

¹⁰ *Household Waste Management Costs in Ireland*. Report by DKM Economic Consultants to the Department of the Environment, Community & Local Government, December 2015. It should be noted that these comments and what follows is not a critique of the DKM report as the consultants have not seen the terms of reference against which that report was produced.

¹¹ The distinction between ‘private cost’ and ‘social cost’ is central to the concepts that underlie PPP. PPP can be used in a situation where society has decided that there is a cost that arises from the decisions and actions of a private individual, but this cost is not borne by the individual. Instead it is imposed on society. Society has decided that this cost is of such magnitude that it would be preferable if the individual’s actions were changed so that the cost does not arise. The correct policy option is therefore to impose a cost on the individual such that the cost that is being borne by society is now also imposed on the individual. This cost will cause individuals, on average, to change behaviour in line with the wishes of society. This is why it is important to specify that it is the marginal social cost that matters. It could be argued that the existence of the landfill levy means that the average private costs, as borne by waste operators, would approach the marginal social costs, although there is no reason to conclude they would be the same. However, this is not the point being made here.

¹² A primary reason for this approach was to ensure stability in the industry. Operators were unable to predict accurately how customers might react to the new prices in terms of the volume and weight of material that would be placed for collection. The concern was that if the minimum prices were not related to operators’ costs then there could be a period of numerous price changes and a lot of industry disruption in the short term after the introduction of PBW that could have long run implications for the structure and stability of the industry. While the consultants understand these concerns it remains

effect, what had happened was that what had started as a policy that emphasised issues central to economics – such as incentives, social and private costs and benefits, and how these affect decisions – had altered to emphasising issues of interest to accountancy, such as covering variable costs and revenue streams. This change in thinking is also seen in the December 2014 letter from the National Waste Collection Permit Office that PBW prices must cover the bulking, processing, transport, and treatment of waste.

The Impact on Policy Design

The analysis of the approach that was taken may at first appear to be of esoteric interest. However, this change in thinking subsequently greatly influenced the design and presentation of the policy, its complexity and the way it was written in the legislation. The biggest impact of adopting this objective was the perceived requirement to set the minimum charges per kg and to set these at a level that was sufficient to cover the marginal cost of disposal. This approach was in line with the analysis in the DKM report and the findings of that report were ultimately the key determinant that was used in deciding the level of the minimum charges that were proposed to ensure that the per kg cost to waste producers was sufficiently meaningful to bring about a change in behaviour.

The purpose of PBW was to apply the producer pays principle in order to change behaviour. The fundamental question that needed to be asked should have been to ascertain what level of charge would do this. There is no evidence of this question having been asked and no research seems to have been undertaken. Instead, the private costs of managing waste were assumed to be a correct basis for the design.

The policy design that resulted led to PBW charges being seen primarily as part of the revenue stream that would be earned by operators. Naturally, operators would see the charges in this way. That is how businesses operate. But it is not the role of policymakers to design charges in order to produce a particular revenue stream unless it has been determined that prices need to be regulated. This is not the case in relation to waste. It is acknowledged that it was necessary to ensure that PBW charges would be a meaningful element of charges but the policy had been drawn into a design where specifying minimum prices was seen as necessary. This had important implications for the way the policy was then perceived and PBW could not be

questionable whether this was the correct basis on which to identify the level of PBW prices as it changed the focus away from the reactions of customers to incentives.

adequately differentiated from increasing charges. The problem was simply compounded by the fact that the prices that were identified were below what firms needed to charge, but were interpreted as recommended prices.

There was to be a further important implication. If PBW pricing proved to be an effective means to address below cost selling, then it follows that existing below cost customers must see price increases as a result of its introduction. Because some operators in the Dublin region perceived that unsustainably low prices would not be offered following the introduction of the policy to anything like the extent that had previously occurred, it was inevitable that the prices that many below cost customers were paying would rise above what they were had been used to for a long period of many years. Operators had been presented with the opportunity to claim that they had to increase these prices in order to comply with the legislation, although this was not strictly the case. The design of the policy was thereby inextricably linked with increasing prices for a cohort of customers as firms announced the new pricing structures. It was this linkage that led to much of the opposition.

It is important that the design of a policy is optimised to achieve its primary objective. However, it is the view of the consultants that the policy design process was influenced by a wish to influence operators who engaged in below cost selling and that this is reflected in the attention that was paid to identifying the private costs of managing waste rather than identifying the prices that might influence customers to change behaviour. The ultimate outcome was that the PBW charges in the policy design came to be seen primarily as part of operator's revenue generation mechanism and they would subsequently be set at a level that policy makers believed would cover the variable (marginal) costs of waste management.

There are two problems with this. First, it cannot be concluded that the resulting charges would be at the correct level that would lead to the implementation of the polluter pays principle. Second, if legislated prices are set according to the costs that are faced by waste management operators, which was the approach that was taken, then the greatest impact is likely to be seen in changed behaviour by operators, not by customers. This is what happened when previously aggressive below cost sellers signalled that they would be unlikely to pursue this strategy following the introduction of PBW and operators with existing below cost customers saw this as an opportunity to raise prices.

3.2 *Setting Minimum Prices*

There was a wide consensus among consultees that the setting and publication of minimum prices for various waste streams was a flaw in the policy design, particularly as these published prices subsequently proved to be well below market prices. It was accepted that there was a rationale in terms of precluding operators from setting per kg rates at such low levels that the policy would be ineffective.

It is the consultants' opinion that it was not necessary for the policy measure to specify minimum prices in order to introduce PBW pricing¹³. Whatever approach was used it would need to be able to ensure that PBW charges would be adequate to achieve specified targets for the policy measure. However, as discussed above, the policy design emphasised that the PBW charges must cover the private costs of managing the waste. It is the consultants' opinion that the cost structure of operators was excessively reflected in the design of the policy as the objective was to influence households i.e. the waste producers, not the waste managers. But by being drawn into setting prices to achieve a revenue stream the policy left itself open to being assessed in terms of how overall prices might change. The real purpose of the measure – to reduce residual waste by influencing the behaviour of waste producers – was lost in this debate. While this outcome may in part have been a result of poor communication of the policy, as is discussed below, it is the consultants' opinion that the policy would have remained vulnerable to criticism because of its design, irrespective of how well it was communicated.

¹³ It is understood that alternative approaches were considered during the period when the policy was being designed but were not preferred for various reasons. One such alternative would be to require that operators' pricing plans must meet a criterion that an acceptable minimum portion of charges would arise from per kg prices in order for that operator to be permitted to collect household waste. However, it was deemed that this could not be enforced. Another was placing a maximum value on fixed or per lift revenue. This could be portrayed as policy placing upper limits on operators instead of imposing minimum costs on consumers. It was suggested in the interviews that this approach might be outside the area of responsibility of the Department and might require a regulator. The consultants do not have an opinion on this but this should not be an impediment to good policy design. It has also been suggested that setting a maximum portion of revenues to be raised by non-PBW charges would somehow be in breach of competition policy as it would imply that prices were being set. However, the consultants are not at all convinced by this argument as the approach that was taken overtly set minimum PBW prices. In general, the authorities that are concerned with the implementation of competition policy tend to see the setting of minimum prices as a difficulty but are less concerned with interventions that set maximum levels.

3.3 Other Policy-Related Issues

Bags

An operational problem with the introduction of PBW arises since the physical characteristics of some household premises mean that they cannot be accessed by a wheelie bin service. This issue was recognised in advance of the proposed introduction of mandatory PBW pricing and provision was made for such households to be exempted. However, no comprehensive register of such premises was available and it was decided that the exemption would apply to households in areas that had been identified by the local authority as requiring exemption.

CSO data indicate that while this is an issue it is relevant for only a quite small number of premises¹⁴. Data released in early 2016 indicate that 80% of households across the country have a wheelie bin service already in place. Of the remaining household, only 4% reported that they use pre-paid bags that are collected with a further 4% sharing a bin with a neighbour, 8% bringing the material to a licensed centre and the final 4% using some unspecified means to manage waste. When weighted for the whole country, this means that about 67,500 households use bags.

It is unlikely that all of these households use bags because their houses cannot be accessed by wheelie bins and some do so because they prefer this option. No differences were seen between rural and urban areas, although terraced houses – which tend to be in urban areas – had a slighted higher propensity to use bags with 7% of households in terraces using this method. This would suggest that some users in rural areas would be able to adopt the wheelie bin system.

The consultants understand that areas were identified for exemption, but there is considerable unease as, in some instances, large numbers of houses appear to fall within the areas that have been identified¹⁵. The data above would certainly appear to support the view that excessive exemptions were implemented. This issue was raised in the run up to the proposed introduction of PBW and while it is likely that a flexible, possibly even a lenient, approach would have been taken in relation to the

¹⁴ CSO (2016) *QNHS Module on Household Environmental Behaviour*, Q2 2014, Table 5. The Quarterly National Household Survey (QNHS) is an extensive survey that is considered the best source of many economic datasets such as unemployment statistics. Additional questions in relation to household waste management were included in the survey undertaken in the second quarter of 2014.

¹⁵ For example, the consultations indicate that up to 1,000 Dublin streets, out of a total of about 1,100, were to be included in the exemptions.

enforcement of PBW for such areas, it is clear that the issue had not been resolved satisfactorily. This added to the confusion that was generated at the time.

It is also the case that, although the CSO data indicate that the bags issue would be relevant to only a fairly small number of households, this issue generated a very large number of expressions of concern from householder to the Department. The issue appears to have centred on the fact that some light waste producers who had previously used bags would have to move to wheelie bins as a result of not being in an area where designation was required. This would have very likely led to fixed charges where none had existed before. As a result, these light waste producers would have seen a big increase in their charges. The results of the questionnaire of operators suggest that this issue would have been resolved in time but the failure to provide an adequate suite of pricing options in the run-up to July 2016 meant that this issue added to concerns about the new policy.

This is clearly an area where there are issues that would need to be considered in the future. Simply accepting the exemptions that were proposed would reduce the impact of introducing PBW and would lead to complaints that some houses were exempted while other with similar physical characteristics gained no exemption. On the other hand, failing to identify genuine requirements for exemption would be precisely the sort of issue that could lead to a repeat of the sort of opposition that was encountered in 2016. Thus, while a relatively small number of households are genuinely involved it is an issue that hindered the introduction of PBW.

Medical Waivers

An issue that arose at quite a late stage in the preparations for introducing PBW related to provisions or waivers for waste produced by people with disabilities and certain medical conditions. While different waste streams related to disabilities can arise, the waste that is produced by users of incontinence pads is heavy and disposal is the only means of managing this waste. Although some users already get allowances from waste operators, some could be impacted by the move to PBW. Apart from direct issues of social equity, this would mean that the PBW charges would effectively be unavoidable penalties as such people have no opportunity to divert these products from the waste disposal stream.

The consultations suggest that little specific attention had been paid to this matter when the policy measure was being designed, although the consultants cannot be definitive in this regard. However, action was taken during May and June 2016

following representations from stakeholders and a solution was devised by the industry when it was agreed that users of incontinence pads that had been supplied by the HSE would be offered a weight allowance by industry for the disposal of the pads based on the number of pads received. The cost of disposal would be spread across all waste management customers. In many regards this is effectively what happens currently.

This was understood at the time to be a solution that would accommodate most users but, while acknowledging that a genuine effort was made in the run-up to the proposed introduction of PBW, the representative association for users of pads has indicated that they consider the proposed solution to be insufficient. It has been claimed that there were proposed limits on the number of pads per day and that the weighing process that was used was not accurate. It was also claimed that the proposal related only to pads provided by the HSE to clients on medical cards so that this would be a means-tested solution that could have excluded an unknown number of users. It was also perceived that the proposed use of HSE data in this manner raised concerns about confidentiality.

Given that it is relatively easy for public discourse to focus on the treatment of carers it was inevitable that this issue would come onto the agenda and it was an easy point around which opposition could coalesce. While acknowledging that industry operators tried to devise a solution in 2016, the consultations indicate a strong preference among stakeholders that a social mechanism be devised to pay for the disposal of this waste, ideally through a publicly funded scheme to avoid any distortions for pricing in the sector. This solution should also involve self-identification with medical validation by users – in effect a means whereby users would need to claim a waiver without reference to HSE information on the supply of pads.

The Role of Pay per Lift

It is unclear what percentage of household waste charges arise as a result of pay per lift charges, but they are quite widely used, particularly in rural areas. It was a deliberate intention of the legislation that was passed in preparation for introducing PBW that operators would not be allowed to charge for waste collection by means of

a pay per lift charge, even if they were also using PBW charges¹⁶. The rationale for this restriction is that PBW is a superior approach in terms of altering consumer behaviour and having both PBW and pay per lift, along with the flat service charge, would be overly complex and confusing for customers.

It is indeed true that PBW is superior although pay per lift can be useful for very light producers of waste when used along with PBW. However, it is a matter of opinion regarding the extent to which having the three charges would be more confusing than just the two charges. The consultations suggest that it is the multitude of pricing plans that are available that is the confusing issue as it makes it difficult for householders to compare different offerings. In general, customers would soon get used to understanding the different charges on their own bills.

There was a fairly general consensus among operators in favour of allowing pay per lift to operate if PBW weight was introduced as this would be more desirable from a commercial perspective. Many correctly pointed out that PBW would help to reduce if not eliminate the main problem with pay per lift which is the presentation of excessively heavy bins on an irregular basis. Operators pointed out that allowing pay per lift alongside PBW would reduce the incentive to householders to produce very light bins for collection every week that could arise under some formulation of PBW, for example, if there was an allowance of a certain weight per lift with PBW charging above this allowance. However, there are issues for consideration in relation to pay per lift for the brown bin as it could incentivise householders to only put this bin out on an occasional basis.

In summary, there was no evidence that either allowing or restricting the use of pay by lift was a major issue that inhibited the introduction of PBW. There is also no definitive conclusion that allowing pay by lift would have reduced the effectiveness of PBW, provided a mechanism was available to ensure that PBW charges were set at an adequate level and accounted for an adequate portion of total waste charges. However, there are commercial reasons to argue that pay per lift should be allowed to operate in accordance with, but not as an alternative to, PBW pricing for the residual bin with the option being left open to the operator. This could reduce operators' costs that could be passed on to householders.

¹⁶ It was contended by a minority of interviewees that pay per lift would have remained allowable, but policymakers intended that this would not be the case.

Brown Bins

It was suggested in some consultations that the contemporaneous introduction of brown bins inhibited support for the new PBW policy measure. There were two main arguments here. The first was that many customers are not yet used to these bins and they added to confusion around the issue particularly as they gave rise to an additional pricing requirement. The second was that since brown bins are not yet provided to all customers, particularly in rural areas, these customers would not have the option to divert material from the residual bin to the brown bin. As the material that is suitable for brown bins tends to be relatively heavy, this would mean that these customers would not have the option to change behaviour and would therefore be forced to pay higher costs. Some of benefits of PBW, from an environmental viewpoint, would be lost.

There are indeed issues surrounding the availability and use of brown bins, but there is little evidence that this was an issue of any importance in terms of inhibiting the introduction of PBW last July. This is not to say that problems might not have arisen with the operation of the new pricing system had it been introduced. It is true that the roll-out of brown bins remains ongoing. However, there is very little evidence that an unmet demand from consumers in this regard inhibited the introduction of PBW. Neither is there much evidence that a third bin actually did, or would have, overly confused consumers in terms of the PBW charges over and above the uncertainty that arose last July.

The main problem in relation to brown bins relates to their usage or, more accurately, their lack of usage. CSO data show a distinct difference in usage patterns between the brown bin and the residual and recycling bins¹⁷. These data show that while 80% of households use a wheelie bin that is collected to handle residual waste and 76% use a bin for recyclables, only 35% of households use a brown bin for material for composting. Most households reported to the CSO survey that they disposed of compostable material through composting at home and 26% reported that they used other bins to dispose of this material. These findings are supported by calculations produced by Cré which show that the total tonnage collected from brown bins in 2015 at 143,000 was just 27% of the estimated potential tonnage of brown bin material¹⁸.

¹⁷ CSO (2016) *QNHS Module on Household Environmental Behaviour*, Q2 2014, Table 7

¹⁸ Calculations by Cré – The Composting and Anaerobic Association of Ireland based on EPA data and the *Statement of Regulatory Impact Analysis Waste Management (Household Food Waste Collection) Regulations 2011* prepared for the Department of Environment, Community and Local Government by Indecon Consultants

This low level of usage means that the benefits of the brown bin have not been realised and they remain relatively expensive, per lift, for collectors to collect.

Given the extent of the roll-out that has occurred, these data indicate that it is customers' failure to use the brown bin rather than lack of an option to use it that is the limiting factor. Therein lies a danger: PBW would make using the black bin particularly expensive for food wastes as they tend to be heavy. It is expected that these would be diverted to the brown bin. But it is clear that households are inexperienced in using the brown bin and this could lead to a high degree of contamination of this bin. As a result, while brown bins were not a major issue that inhibited the introduction of PBW in 2016, an education programme in relation to the use of brown bins is required along with a mechanism to ensure that regulations in relation to segregation are properly enforced.

The brown bin is required for PBW to realise its potential to change behaviour rather than an issue that hindered the introduction of PBW. Similarly, PBW is required in order for most of the benefits of having brown bins to be realised. Given this, the roll-out of brown bins should continue and should not be seen as a hindrance to introducing PBW. However, it is essential that adequate education on the use of the brown bin is provided and that measures are available to ensure good segregation of material.

3.4 Options for a Phased Introduction

Mandatory PBW Charging for C&I Waste First

A single date, July 1st 2016, was set for mandatory PBW pricing for household waste collections. It has been suggested that trying to introduce mandatory PBW pricing across the whole of the household waste collection sector all at once was risky as it focussed all attention on this one instance and it would have been better to try to phase in PBW in some manner.

Three distinct suggestions were discussed in the consultations in relation to ways in which PBW pricing might have been phased so that the single date 'big bang' aspect could have been diluted. The first idea is that PBW could have been applied to C&I waste first. The rationale here is that populist political opposition would have been unlikely to arise to anything like the same extent and the smooth operation of PBW

for C&I waste would have shown that this was a desirable development that could then have been extended to the household sector.

The main reason that has been suggested for not going first with mandatory PBW pricing for C&I waste appears to be that the investment that would have been required for trucks to handle and weigh the larger 1,100 litre bins that are used had not been put in place for all licensed C&I collectors. There may be some evidence for this. Although apartments – which generally use the larger bins and are managed by operators as C&I customers – were included in the legislation that was to be introduced in July 2016, there is a general perception in the sector that the regulations could not have been enforced in respect of apartments for a period of time.

Whether this is true or not, the case for introducing PBW to C&I first to signal that this policy can work is very weak. For a start, much C&I waste is already charged using PBW as some, or all, of the price setting, and has been for some time. This was not a mediating factor in the debate in 2016 any more than was the fact that about 20% of households already have PBW pricing. Second, introducing PBW to collections from apartments would not have a big impact on consumer behaviour. In an apartment complex, the waste charge is applied across all households irrespective of the behaviour of any household. Thus, there is a clear free rider problem and little incentive for any householder to change behaviour unless segregation is enforced onsite at the time of placing the material into the bin. So the dynamics are very different. Finally, introducing PBW to C&I waste would not have addressed the issues that actually inhibited PBW to households, as discussed in this report. These issues would still have remained.

In summary, phasing in PBW by applying it to C&I first would have little benefit. The signalling effect would be very limited, the benefits of PBW would be put off and the actual factors that inhibited its introduction would remain in place. Introducing PBW for C&I and for household waste are distinctly different measures and PBW charging for C&I waste, while desirable, would not have addressed the problems that were encountered¹⁹.

¹⁹ An associated minor policy measure would be to introduce mandatory PBW pricing for all public sector contracts. This would certainly seem to be an option to be pursued but, again, it would have limited benefits in terms of overcoming the obstacles that were encountered in relation to households.

A Period of Optional PBW

A second option that was discussed was that PBW should have been introduced following a period where consumers would have been provided with an option of PBW or an alternative. It was argued that this would have introduced PBW pricing to a wider range of customers than at present.

This is true, but it is unlikely that this would have been of great benefit as there would have been a clear incentive for heavy users to remain on fixed charge pricing. Operators would then have needed to apply relatively high per kg charges in order to recoup costs. This would also have undermined the incentive to change behaviour that is the whole purpose of PBW. Such a system would have created uncertainty, and resistance to extending the measure from being optional to being mandatory could have become more established leading to a prolonged effort.

A Regional Approach

Based on the widely held perception that opposition to PBW was primarily based on opposition within Dublin, it was considered that this could have been addressed by proceeding with the introduction of mandatory PBW charging outside Dublin first before extending it to all areas at a later date.

The big difficulty with this idea is that this could have been perceived to be an unfair subsidy to Dublin – an opt-out from a requirement imposed on the rest of the country. In this case, there is a real possibility that the opposition that was centred on Dublin in 2016 could simply have extended to the rest of the country even though the actual foundations for opposing the measure were dubious. The experience in 2016 shows that this is not a limiting factor. If PBW had been phased in in this way then it would have still required that difficulties posed by the existence of below cost customers in Dublin were addressed before it could have been extended to Dublin.

A possible alternative approach that was suggested was that it should not have been attempted to introduce PBW on a national basis. Instead, support should have been given to local authorities or other public sector agencies to introduce it at more local levels through the use of by-laws. A number of consultees suggested that the attempt to introduce a ‘one size fits all’ policy was a mistake and could not be made to work. The consultants are unconvinced regarding the importance of this issue, but are aware of some instances of such by-laws already operating. However, the by-laws differ in different areas and central co-ordination would likely be required.

In summary, phased introduction of PBW may seem like a way that major opposition to the measure could have been avoided, but phasing would have led to further problems. There may be one exception to this – deferring the introduction of PBW to the Dublin market until sometime after it is operational in the rest of the country. Views among consultees and operators who responded to the survey were divided on this matter. While there would be a risk that political opposition to PBW could extend to the country outside Dublin, this approach would have meant that mandatory PBW for household waste collections could have been introduced for much of the country, while allowing some time to sort out the problems in Dublin.

4. Policy Communication, Education & Cohesion

4.1 *Communicating the Policy*

Chapter 2 above deals with the external environment to which the policy measure would be presented and Chapter 3 with internal issues related to the design of the policy. The main subject of this chapter is the link between these two environments – how the policy was communicated. However, as will be discussed below, the issue is wider than simply internal-external communication. There is also a need to examine the way consumers are educated about waste policy, the role of the industry in communicating with consumers, and the need to ensure good communications and understanding of policy within the public sector.

There was pretty much an unanimous acceptance among interviewees that there was a severe failure to communicate the policy and that this contributed in a big way to the difficulties that arose. However, beyond this there is a wide range of views on what this means and where the responsibility lay.

There is no doubt that serious issues arose in terms of the plans that were initially made to communicate the introduction of the policy measure. Initially it was proposed to engage an outside firm. A budget was identified, but the estimates for this budget, in as far as the consultants are aware, seem very small indeed when compared to what might be required. For example, Repak spend approximately €1 million per annum on what is essentially an ongoing education campaign. This plan was then changed and the responsibility was transferred to the WMPLA group. However, this was done at quite a late stage. Then the change in the policy to remove a minimum price for the green bin meant that the campaign they had developed to communicate the policy had to be changed at short notice.

The result was that:

- There was no clear information campaign in relation to what was proposed and what individuals could, and would need to, do in order to minimise their waste charges;
- There was no longer term educational campaign in relation to how PBW was a means to implement PPP to achieve desirable social aims;
- There was no contingency plan to address misinformation or false presentation of the facts, such as to counteract what happened.

It is clear that there were deficiencies in communicating what was proposed and in countering adverse information and views. There is a general acceptance among public sector stakeholders that the primary responsibility for the poor communication of the proposed policy measure lies with the public sector and that there were deficiencies. However, the issue is deeper than just communicating this one policy as there appears to be a lack of an education programme targeted at consumers in relation to what constitutes good waste management on their part.

In relation to the responsibility of industry, although the IWMA had engaged with the media on a number of occasions, many interviewees claimed that operators did not provide adequate ongoing information to customers on how waste is managed and how PBW would improve this in line with national and EU objectives²⁰. There is a lack of clarity in relation to the role of industry and, in response to a question on the questionnaire, most operators were adamant that the responsibility for this lies with the public sector alone, even though the customer charter requires operators to communicate with customers.

It was claimed in consultations that many operators did not provide customers with pricing intentions until very late in the day and that some did not provide any information on proposed PBW charges at all. There are obvious commercial reasons why operators would not wish to be first movers in terms of notifying price changes and some consultees have claimed that the situation was compounded in the Dublin region when smaller operators appeared to follow the pricing lead of larger operators. Operators were also criticised because of a lack of transparency that contributed to a lack of trust on behalf of customers as they did not always have the necessary information to compare offerings. There is certainly a vast range of pricing plans that may have contributed to uncertainty and it is not a big step from this to a loss of trust. Against this background consumers were easily swayed by arguments that PBW was just a way to raise prices.

A somewhat different issue, but related to communication, is that there seems to have been confusion regarding the situation of customers who were on contracts. Many apparently thought that they were on contracts for 12 months at a fixed price but then found their prices were to be changed once PBW arrived.

²⁰ One problem with relying on the industry to promote the acceptance of PBW by the public is that there could be a credibility issue i.e. the claim, as indeed was made in 2016, that operators would only be promoting this innovation if it was in their interests, rather than in the wider interests of society as was actually the case. In addition, it is important that the communication approach is consistent and so it would need to be centrally designed and delivered.

4.2 The 87% Claim

A calculation was undertaken in the Department that concluded that 87% of households would see a reduction in waste charges. This result was later used by the Minister in a press briefing and received extensive media coverage. There was a widespread consensus among consultees that the claim by the Minister that 87% of people would see lower charges as a result of PBW pricing was wrong and was very damaging. There were three main reasons for this.

First, this claim focused attention on what would happen to charges rather than on the purpose of PBW which was to divert waste from disposal. People who changed their behaviour could achieve lower prices but, equally, people who continued to produce high levels of waste could expect no such benefit. People could have understood this, but this was not the message that was created by this claim. Instead it created the impression that reduced charges were the aim and then when the prices were published some simple arithmetic showed that many would not see lower charges. Industry operators could then be blamed.

Second, this claim was put out into an environment where there was a lot of uncertainty and not a lot of other information. The estimate seemed very high to even a casual observer and there was no real explanation about how this fall would be achieved. No research was published to back up the claim. It just didn't seem possible. As a result it soon lacked credibility. This was serious as when an official statement is made, but is perceived to lack credibility, it means that almost any competing claim can be made and be perceived as being equally credible.

Third, this statement came to be seen as almost the only message that was being put forward and was widely repeated in the media. So it was not just that this was a statement that lacked credibility, it was soon perceived that this was the only statement that was to be made and it lacked credibility. There was nothing else to go on.

The consultants have reviewed the basis for the conclusion that 87% of people would see lower charges, with 8.5% unchanged, leaving just 4.5% of consumers facing higher charges as a result of PBW. The research basis for this conclusion is quite limited. There are also concerns about the reasoning that was used in reaching the conclusion as the calculations appear to assume that collectors would set per kg charges close to the minimum levels even though the charge for residual waste was

inadequate to pay all handling costs and it had been proposed that the National Waste Collection Permit Office would require that the variable charges should cover the bulking, processing, transport, and treatment of waste²¹.

It was generally accepted by consultees that this research was inadequate to support the claims that were made and that the conclusions of this piece of research were never intended to be used in this manner. Consultees have gone further and said that no such conclusion could have been reached as the prices that would be charged were not known.

However, while agreeing that the research was both insufficient and inappropriately structured to support the claims that were made, the consultants do not accept this final conclusion. In fact, by adopting some realistic assumptions it is possible to construct a statistical argument that leads to supportable projections in relation to how many customers might see price falls as a result of PBW charging. A preliminary outline of how this might be approached is contained in Appendix 4.

This, albeit preliminary, analysis recognises that waste charges would fall only if customers changed their behaviour in response to PBW and diverted waste from the residual bin. Otherwise costs would rise as there are costs associated with introducing PBW that would need to be recouped. If it is assumed that 20% of the material, by weight, is diverted from disposal then this would theoretically lead to an average fall of 7.5% in charges for 72.5% of customers. In practice, because different customers will react to the introduction of PBW in different ways, we can conclude that about 36% of customers would see price reductions of 7.5% or more²². Achieving these savings all depends on customers changing behaviour and if only 10% of material was diverted then the calculation indicates that only about 30% of customers would see savings of more than 3% on their waste bills.

These results should be understood as the impact of moving to PBW pricing on customers waste charges in the longer term i.e. following a period when prices would be likely to be volatile. So the reduction might not be seen in the immediate aftermath of the introduction of PBW. Since prices will be set by the cost of handling

²¹ Letter from NPWCO to waste collection operators dated 5th December 2014

²² These estimates are preliminary and have been derived using the approach and assumptions detailed in Appendix 4 below. These results would apply to the long run and volatile prices in the short run could greatly disrupt the outcome. No primary customer research has been undertaken and a robust piece of research along these lines is well outside the scope of this project.

the waste – assuming there is competition in the industry – the key data requirement in developing these projections was not what prices were likely to be charged by operators. Lack of this information is not a limiting factor. Two pieces of data are required: the profile of bin weights i.e. the average weight and the standard deviation, and survey data on the expected response of customers to PBW pricing being introduced²³. However, in the absence of these data the consultants consider that the approach in Appendix 4 provides a more credible result than the claim that 87% of customers would experience savings.

4.3 Policy Clarity, Cohesion and Certainty

Going beyond communicating policy, a number of interviewees raised issues that are more to do with the overall clarity and cohesion of policy in relation to waste management. While long term policy has been fairly consistent, a number of operators apparently thought that PBW would not proceed. Others resisted the move as they did not see how overall policy fits together. However, it is difficult to point to any deficiencies in this respect as actually inhibiting the introduction of PBW as most operators were ready to implement it.

The communication of overall policy to consumers is always going to be a difficult requirement and most customers would have little interest in seeing how various measures contribute to a long term objective. However, a number of respondents to the questionnaire were clearly of the opinion that the policy design was simply too complicated. Banded charging rather than charging per kg was suggested as a better approach on the basis that it would have been easier for the customer to understand. However, the research in the STRIVE report leads to the conclusion that this approach would be less effective in achieving the aim of changing behaviour if it were implemented in the form of bin sizes or tags. It was also suggested that a hybrid type of model where bins were weighed and customers put on a plan depending on their average weights would have kept pricing simple and reduce waste. The weakness of this approach is that there would have been limited incentive for customers to reduce their waste below some possibly easily achievable level – they would have reduced it enough to get into a lower band but there would have been little incentive to try to

²³ Responses to different prices could be estimated. Effectively, the marginal price of disposal as perceived by a customer moving from a flat charge to PBW would increase from zero to the charge per kilo. Economic theory tells us that demand for disposal would fall; elasticity would tell us by how much. If this elasticity was found to be close to -1 then the actual price that was charged per kilo by operators would not have a great impact on the results.

move right down through that band as they would see no benefit. Overall there was little support for this approach.

One issue that did arise in relation to the overall clarity of the policy approach indicated that this issue is not restricted to the transfer of information and understanding between policymakers and operators and customers, or between operators and consumers. It was clear that there was some confusion and uncertainty within the public sector itself as to what was proposed and what would eventually be delivered as the legislation was developed and underwent changes. This was not just in relation to PBW regulations, but associated measures such as the initially proposed obligation to show how a household manages its waste and the availability and usage of brown bins.

Some consultees from within the public service indicated that they felt they were ‘in the dark’ over what was intended at key times. This suggests that there were sharp changes in the planned policy at times. There were also perceived to be instances of mixed messages about what would be implemented. As a result, some found that they were unable to respond to queries from private individuals when the matter came to a head and were not aware if the Department had clearly indicated who would have responsibility for dealing with these queries.

It is unclear to what extent this might have inhibited the introduction of PBW, but it is clear that this is less than optimal. A clear roadmap is required from the Department on future waste policy and the role, if any, of PBW within this.

4.4 *Was PBW a Step too Far?*

It was suggested in some consultations that the introduction of PBW in July 2016 may somehow have been ‘a step too far’ as a policy innovation. However, this view may be little more than the expression of a truism that became obvious after the event – properly undertaken the move to PBW may have been possible to implement. However, expressing the failure in this way is a useful way to think about the issue. This is because it shifts the thinking from a focus on the external environment to thinking about the design of the policy itself.

There are actually two aspects to the ‘step too far’ argument that can be derived from comments from stakeholders. The first is that the system that was proposed was something of an ideal conceived by policymakers. Such a system would lead to problems even if it was being introduced into a well prepared environment. Such an environment certainly does not exist, indeed it will almost certainly never exist in reality. So it was suggested that it may have been preferable to pursue a second best solution. An example of this may be to facilitate pay by lift for the residual bin, which would have some impact on diverting waste from the disposal stream, even if it is perceived that this form of charging does not constitute as powerful an incentive for consumers.

It has been argued that the PBW policy measure as designed would have pushed Ireland towards being among the most progressive in the world in terms of waste management policy. While this would have practical benefits from the actions of householders who comply with good waste management, it was claimed that there are areas of the country where there is little in the way of any sort of a waste service while there are aspects of existing policy, such as the use of brown bins, where proper implementation is sporadic. The criticism was that it would have been better and more in line with policy objectives to try to extend coverage and compliance – widen the net – than to try to introduce best practice for householders that already had a service.

There has long been a debate about the national household coverage of waste services. However, CSO data were released in 2016 and indicate that 80% of households, comprising about 1.35 million households, have a wheelie bin collection for residual waste²⁴. The survey results showed that a further 16% either use pre-paid bags, share a bin with a neighbour or bring material to a recognised centre for management. Furthermore, 76% of households have a recycling bin with a further 19% using other acceptable methods to recycle material. These results indicate somewhat higher coverage than indicated by previously compiled EPA estimates based on data from the industry. These had indicated that about 1.2 million households, comprising just under 70% of the total, had a waste collection service. In addition, the industry data suggest that coverage in some rural areas might be considerably lower than the national average and that the extent to which the available services are actually used to manage waste may vary²⁵.

²⁴ CSO (2016) *QNHS Module on Household Environmental Behaviour*, Q2 2014.

²⁵ It was claimed in consultations that only 65% of households nationally avail of a waste collection service and that this may be as low as 40% in some rural areas. The implied conclusion is that many households may be using informal means to dispose of waste and some consultees identified this as a major issue that needs to be addressed.

Although ongoing efforts are required to extend the availability and usage of acceptable waste management practices, these data suggest that the sector was sufficiently mature in 2016 for policymakers to try to improve the way in which households with a service present material for collection. It is important therefore to resist a narrative that the move to PBW was an inappropriate policy measure by implying that it was to be introduced at a time that was in some way too early in the development of Ireland's waste management processes. To accept this would risk developing a belief that there is a need to somehow 'water down' the policy or introduce it piecemeal so as not to rush ahead too quickly. This would be a mistake. Of course this is not to say that supporting policies are not required. But mandatory PBW pricing to achieve environmental objectives is not a major policy innovation, provided this single focus is maintained and it is supported by other measures.

The second aspect of this argument is potentially much more useful. This concentrates on the fact that the environment into which PBW was to be introduced was far from ideal for its operation. The focus therefore is not to see to what extent the policy might be amended but to what extent the sector can be developed towards being more ready for PBW. The fact is that most of the focus in terms of preparation for PBW was on industry preparedness – making sure the necessary investments were made and that the necessary regulation were in place. All this is necessary, but the policy was being introduced into a sector where there are concerns about competition, where below cost selling persists, and where issues associated with social equity were not addressed in advance. These perceptions made it easy for fears to be raised. This approach to understanding what occurred means that the introduction of PBW requires that these issues are addressed. The focus is not on reforming the policy that was set out – although some reforms may be considered desirable – but on addressing the challenges that have been identified.

5. Conclusions

Pay by weight charging for household waste is an appropriate mechanism to achieve certain objectives in line with good waste management policy. However, it is not a panacea for identified deficiencies in the sector. Moving to this system of charging need not be complex in itself. PBW works well in areas where it is already being used. Overall, there was good reason to think in advance of the planned introduction of mandatory PBW pricing for household collections that it would achieve its aims and that there would not be excessive resistance. However, this expectation turned out to be false for three main reasons.

The External Environment

There can be no doubt that the policy was being introduced into a difficult environment characterised by a negative social mood, a hostile often cynical media, and a difficult political landscape. It also faced a political opposition with a populist approach and a strong focus on opportunities for short term political gains derived from local issues. Even a cursory review of statements at the time and media coverage of the issue indicates that opposition was being based on local anecdotes – some of which were accurate – rather than on any objective assessment of the measure or of the long term policy aims. The coincidence of a proposed measure – the planned introduction of water charges – that had some superficial similarities to PBW waste pricing also helped to focus attention on this issue.

It cannot be denied conclusively that the adverse environment in mid-2016 may have meant that it was impossible to introduce a policy such as PBW irrespective of the desirability of its long term objectives or how well the policy was designed.

Against this background, the question that must be asked is how policymakers should react? There is no reason to conclude that PBW should be abandoned since the opposition was not based on any analysis of the aims of the policy or of PBW as a means to achieve these aims. Any pre-existing conclusions in relation to these issues remain valid. However, there is a case that deferral was the correct option. By deferring PBW, the situation was diffused and policymakers avoided a situation where opposition continued to grow stronger. This may be a primary reason why PBW was not introduced. The danger was that proceeding as planned could have led to an increasing need for enforcement in the face of opposition. This could have had serious disruptive effects for the industry.

These findings do not constitute a case for abandoning the policy or for a fundamental review of the policy direction. The widespread adoption of PBW pricing for household waste collection was a desirable objective before July 2016 and it remains so today.

Policy Design Issues

Pay by weight pricing is a policy that aims to incentivise a change in the behaviour of individuals who produce waste and have primary responsibility for the segregation of waste streams. A conclusion of this review of the planned introduction of PBW is that the way in which the policy was ultimately designed left the measure open to criticism, particularly given the actions of some operators, particularly in the Dublin region, in the run-up to its expected introduction.

Mandatory PBW pricing means that there will always be two objectives involved, depending on the viewpoint of the stakeholder. For policymakers, acting on behalf of society, the objective was to reduce residual waste by changing the incentives faced by waste producers. So charges needed to be set at a level and in a format that would alter decisions. However, the other key stakeholders involved are waste sector operators. For operators a per kg charge is primarily a means of generating revenue and it needs to be set at a level that generates sufficient revenue to make their businesses commercially viable. This is in no sense a criticism of the sector, it is merely a statement of fact: no matter how committed an operator might be to incentivising diversion from residual waste the main purpose of PBW charges is to raise revenues to pay for the costs of managing the waste.

Given this, it was important that the measure was designed with an emphasis on its role in changing behaviour. However, such research as was undertaken concentrated on the cost of managing waste and not of what level of intervention was required to change behaviour. It is recognised that the policy intervention needed to be designed in a manner that did not excessively disrupt the industry, but the point is that the focus was changed to ensuring that the policy would result in pricing formats where the variable costs of managing waste were fully charged. This had implications for the way the policy was designed, in particular the perceived need to publish minimum prices, the way in which it was perceived, and the impact it had on the competitive strategies of the most aggressive operators. In trying to achieve these objectives, it became impossible to introduce the policy

As with any pricing model, pay by weight is a way for operators to raise the revenue that is required to pay for the cost of managing the waste that is produced. This meant that it was inevitable that the prices, and thus the policy measure, would be assessed in the media in terms of whether the charges, and particularly any price changes, were a justifiable charge based on the returns to operators, rather than the impact of moving to PBW on the environment. When the message that this was a new pricing structure to achieve environmental aims got lost it was an easy step for it to be portrayed simply as a way to raise waste charges. The actions of some operators in the Dublin region bolstered this perception while the inclusion of minimum prices meant that the policy could not be distinguished adequately from these actions. The fact that it provided consumers with a degree of control over their costs where none had existed before and that it would reduce cross subsidising of customers got totally ignored.

Education, Communication and Clarity

It is generally acknowledged that there were serious problems in the way the proposed measure was communicated or, perhaps more accurately, not communicated to customers. A large part of the responsibility for this must lie with the public sector where the need to educate about good waste management practices appears to have been underestimated. In addition, changes to the policy caused plans for communication to be disrupted and the design meant that a clear message was difficult to deliver. However, the industry also has responsibilities in this respect. While accepting that operators will not always be seen by consumers as an objective player, lack of education on why the measure was been introduced as well as the fact that many operators did not notify price changes until late in the day – if at all – added to the growing negative perception.

Three other related issues need to be noted. First, the communication role of the Department is not just about providing information on the mechanics of PBW. Indeed, it can be argued that this is best done if the responsibility is taken by the industry providing information on charges and changes to charging to their customers. Instead, education must be about the role of PBW and how it fits into long term waste management policy. Second, the communication policy must foresee potential sources of opposition and must have a contingency strategy to counter these. This means that communicating the policy must be a consideration during the design period. A different way of saying this is that the policy must be kept simple and not easily presented in a distorted manner. Finally, there must be good communication within the public sector. The consultations strongly indicated that there was a lack of good information and understanding within the wider public sector agencies that are closely related to waste management policy but not directly located within the

Department. A clear plan is required with specific milestones and targets where the role of each agency is clear.

The failure to introduce mandatory PBW pricing for household waste collection should not be seen to have occurred because PBW was a step too far. Neither should it be pushed off the agenda just because of a difficult external environment and the undeniable fact that policymakers have been put on the back foot by the experience of 2016. PBW pricing has wide support, it is an effective means to achieve the objective of waste reduction and segregation, and it is already operating effectively for a sizeable portion of households.

What should have been a simple message to communicate became lost in a discussion about the details of the measure. Aspects of the policy design meant that it was easy for those who wished to oppose the measure to find flaws without needing to address its actual purpose or its potential benefits. Add to this the already difficult environment and the lack of a proper education and communication programme and the costs of the policy measure, both real and contrived, became exaggerated, while the benefits remained unseen. However, this calculation has not been altered by the failure to introduce the policy as planned.

Appendix 1: List of Consultations

The consultants met with the steering group on 2 occasions and had communications with Ms. Deirdre Doran and Mr. Donal Hourigan from the Department of Communications, Climate Action and Environment, and with Mr. Conor Walsh, Secretary of the IWMA, during the course of undertaking the study. Face to face meetings or telephone conversations were held with the following people as stakeholders in their official capacities.

1. Nicholas Bond, Co-ordinator Southern Region WERLA, Cork County Council
2. John Brosnan, Greyhound Recycling Ltd.
3. Seamus Clancy, Chief Executive, Repak Ireland
4. John Connolly, Infrastructure, Development and Regulatory/Policy Affairs Manager, Bord na Móna/AES
5. Hugh Coughlan, Eastern-Midlands Regional Waste Planning Co-ordinator, Dublin City Council
6. Eoin Deegan, Assistant Principal, Department of Communications, Climate Action and Environment
7. Maria Douglas, Co-ordinator Eastern-Midlands WERLA, Dublin City Council
8. Clare Duffy, Social Policy Officer, Family Carers Associations
9. Leo Duffy, Programme Manager, National Waste Collection Permits Office
10. Percy Foster, Cré – Composting and Anaerobic Digestion Association of Ireland
11. Niall Killilea, The City Bin Waste Company
12. Philippa King, Regional Waste Co-ordinator, Southern Waste Region
13. Isabella Kurz, Research Officer, Environmental Protection Agency
14. Fiona McCoole, Waste Statistics Unit, Environmental Protection Agency
15. Philip Nugent, Advisor to the Minister for Housing, Planning, Community & Local Government
16. Brendan O'Neill, Environment Advisory Unit, Department of Communications, Climate Action and Environment
17. Harry O'Rahilly, Economist, Competition and Consumer Protection Commission
18. Sean Scott: Connacht-Ulster Waste Enforcement Regional Lead Authority, Leitrim County Council
19. John Shine, Director of Regulation and Advocacy, Competition and Consumer Protection Commission
20. Kevin Swift, Connacht-Ulster Regional Waste Management Planning Office, Mayo County Council
21. Paul Turner, Manager, Legal Metrology, National Standards Authority of Ireland

The consultants wish to acknowledge the input and expertise of these individuals and thank them for their time. In addition, the consultants spoke less formally with a number of individuals who are aware of the planned introduction of PBW and the fact that it was deferred and who spoke in their capacity as waste service customers.

Appendix 2: Questionnaire Sent to Waste Management Operators

Although it had been flagged well in advance that mandatory pay by weight pricing (PBW) for household waste collection would be introduced in mid-2016, the planned introduction did not go ahead. Primary legislation went through the Houses of the Oireachtas in July 2015 and regulations were signed in January 2016. However, a second set of regulations in June 2016 removed the requirement to charge on a pay by weight basis.

The Main Questions

Question 1: Why do you think the planned introduction of PBW was not successful? What in your view were the main obstacles that hindered the introduction of the policy?

Question 2: Do you support the introduction of PBW in principle? Is your support conditional on other regulatory changes being made? Is there anything in the legislation that was passed to create the necessary framework for PBW that you would wish to see changed?

Question 3: Would you support new incentivised pricing structures broadly along the lines that were planned for July 2016?

When answering these questions please consider and respond to the following specific issues.

The Planned Pricing Structure

The pricing structure that was set out in the legislation that was passed was the preferred one that was identified following a consultation process. However, it was just one of a number of options that could have been considered.

Question 4: Was pricing on a charge per kilogram basis, as was intended, the best model to use? Do you have a preferred way of charging that achieves the objectives of pay by use?

Question 5: Was minimum pricing a suitable price incentive structure to use? If so, was it appropriate to have a single PBW pricing structure for all household customers in all areas?

Question 6: What are your views on the minimum prices that were contained in the legislation? Should minimum prices have been included at all, or should the mandatory PBW requirement have been expressed in some other manner? Please elaborate.

Question 7: What proportion of your total cost base is generally accounted for by variable costs?

Question 8: Was the objective to set the minimum price at a level that covered the variable costs of waste management the correct approach? Was this achieved in the decisions that were made?

Question 9: Should pay per lift have been an optional element of the pricing structure? What problems might have arisen? Is there any role for pay per lift either with or without pay by weight?

Question 10: Would it have been better to introduce PBW on a phased basis? For example, should it have been made mandatory in certain areas to start with and then extended to all areas? Or should it have been phased in by some other manner?

Question 11: Should PBW have first been made mandatory for collections from commercial customers and then extended at a later time to households?

Question 12: Did deficiencies in the planned approach in relation to any of the issues raised in questions 4 to 8 actually hinder the introduction of PBW in July 2016 or could they have been worked through? If so, why did this not happen?

Other Issues Associated with Introducing PBW last July

A number of other issues that arose at the time may have hindered the introduction of PBW. To what extent did any of the following cause problems?

Question 13: Did the removal of a minimum price for the dry recycling bin hinder the process of making the change to PBW?

Question 14: Were the existence of below cost customers, primarily in the Dublin market, a problem that hindered the introduction of PBW? Why was this? How should this be addressed? Does this issue need to be addressed before PBW is introduced?

Question 15: Did the fact that the rollout of the third ‘brown’ bin, particularly for customers in rural areas, was not completed in advance of the planned introduction of PBW complicate the process? How should this be addressed?

Question 16: Did bag collection designation complicate the process of introducing PBW? What needed to be done in relation to bags in advance of introducing PBW?

Question 17: Were additional options required for light waste producers? Is this something that needs to be included in the policy measure or should it be left to arise from competition?

Consumer Views and Understanding of PBW

Much of the media coverage in the run up to the proposed introduction of PBW centered on the impact it might have on the prices for waste disposal that would be charged to consumers i.e. the producers of the waste.

Question 18: Was a perception created among customers that waste charges were likely to rise because of the introduction of pay by use pricing? Who or what was responsible for this?

Question 19: Are you directly aware of any customer resistance to the introduction of PBW? What might have caused this? If so, what would need to be done in advance of any new proposal to introduce PBW?

Question 20: Was there confusion in customers' minds between the introduction of pay by use water charges and pay by weight waste charges?

Question 21: Have you any views in relation to how well the proposed change was publicised? Did consumers understand what was to happen? What more could have been done in relation to public awareness?

Future Policy

The introduction of waste charging that supports the objectives that were set out in by the Department in 2012 in its policy statement entitled *A Resource Opportunity* remains Government policy, although the specific process and policy measures to achieve this remain to be determined. This means that some form of mandatory pay by use pricing is likely to be introduced in the future.

Question 22: What needs to be done in advance of any new programme to introduce mandatory PBW, or an alternative pay by use model, to increase the chances of success? Where does responsibility lie for this?

Question 23: Are there any other related issues you wish to raise that would need to be addressed in advance of any future decision to introduce PBW along the lines previously proposed or in a revised format?

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When finished, please return the completed document to Kevin Hannigan ([kevin@khsk.ie](mailto:kevin@khsk.ie)). Alternatively you may post a hard copy to KHSK Economic Consultants, Barnland, Gorey, Co. Wexford. Responses must be received on or before Monday, December 19<sup>th</sup>.

Thank you for your co-operation.

### **Appendix 3: Summary of Responses to the Questionnaire**

#### ***A3.1 Why PBW was not Introduced as Planned***

This appendix provides a summary of the responses that were received to the questionnaire of industry operators. While some interpretation by the consultants is inevitable in summarising diverse responses, the approach in this appendix is to try to identify the main points that were made by these operators. As such, this material does not necessarily reflect the overall views, findings and conclusions of the consultants as expressed in the main text of this report – although some commentary on the views expressed is included here – since the main text is based on both the questionnaire and the consultations that were held with a wider group of stakeholders.

The first question on the questionnaire addressed the central issue of this report directly by asking an open question on why, in the opinion of respondents, the planned introduction of mandatory PBW pricing was not successful. Respondents were not limited to one response and most identified a number of reasons. However, three issues dominated the responses. These are:

- Political instability;
- Lack of information (for customers) and communication; and
- Design errors.

#### ***Political Instability***

The identification of the political situation as the main factor that caused the planned introduction of mandatory PBW pricing to be deferred was a recurring theme in the responses. A move to a new system such as PBW, no matter how desirable from the point of view of protecting the environment, was always going to be difficult to implement as it implies change. Add to this the fact that consumers have experienced a prolonged period of constrained disposable incomes, a media that has become increasingly populist and negative towards authority, and the existence of a cohort of opportunist politicians, mostly outside Government, who promote populist principles and policies and it is clear that there would be a need for political stability if this measure was to be introduced. However, Ireland was experienced a change of Government in 2016. Against this background, operators perceived that the proposed introduction of mandatory PBW pricing was eventually deferred because of political expediency.



Two implications of this are worthy of comment in the light of the responses. The first is that the political situation is not in itself a definitive explanation as this requires that the proposed measure was, in itself, unpopular. Responses to further questions on the questionnaire indicate that there may be many reasons why this was so, but many respondents also pointed to the fact that changes that were made in the run-up to the policy being introduced undermined the Government's position. The most important was the decision to remove the proposed minimum charge for the dry recycling bin. This was seen as undermining the Government's approach and providing the opposition with confidence that the policy direction could be reversed.

A second implication of pointing to political weakness as the major cause of the failure is that it is implicitly being argued that a strong Government could have, and should have, introduced the policy successfully. In response to prompting in later questions, while most respondents identified a range of weaknesses with the measure and the legislation, there was a general feeling that these would not have been insurmountable. Furthermore, respondents remain largely supportive of mandatory PBW pricing and with the general approach that was adopted.

#### *Lack of Information for Customers*

Not enough information on the proposed changes was provided to customers. Operators viewed this primarily as a failure by policymakers. This requirement is not just limited to information on pricing, but to promoting the understanding that the proposed measure was designed to bring about a change in behaviour on the part of waste producers. However, PBW was seen as an additional charge, not a change in the way waste is charged for. Addressing this is seen by operators to be the responsibility of policymakers although some also pointed to a role for industry.

Operators agreed that the message that consumers would gain a degree of control over how much they would be charged under PBW was completely lost and this message was replaced by one that PBW pricing meant increased charges. The impact of no clear message was compounded by the Minister's statement that 87% of households would see lower charges. This lacked credibility and was not supported by any published research. Furthermore, what were seen as opportunistic price increases, although these were largely limited to areas of Dublin with large numbers of below cost customers, plus a lack of alternative providers in some areas, meant that a message of fear gained prominence. Media hype and reporting of anecdotal outcomes that may not represent the actual impact of PBW pricing, or even be closely related to its introduction, further added to this.

### *Design Errors*

Many respondents considered that there were important errors in the design of the proposed measure that undermined its introduction, irrespective of the above. The most common error identified was the publishing of minimum prices for each kilo collected in the brown and residual bins, even though it is accepted that some means to ensure that PBW is a meaningful element in pricing plans is required and that the idea of minimum prices originated from the industry. Publishing these prices was seen as a mistake since the minimum prices were interpreted as actual recommended prices. However, the published prices bore little relationship to sustainable commercial prices. It was a consistent theme that prices are set by the industry and should not be identified in legislation. A number of respondents also said that the design of PBW was too complicated for consumers to understand with three prices for different bins plus service charges. However, responses to subsequent questions did not generally support this view, as discussed below.

### ***A3.2 Industry Support for Pay by Weight***

The second set of questions aimed to assess the level of support for mandatory PBW weight pricing and for the general approach that was adopted. There was a very clear response in relation to support for the policy direction. Operators almost unanimously support the introduction of mandatory PBW pricing and most support the general approach of per kilogramme pricing. This appears to be based on support within the industry for policy that is in line with the waste pyramid and also a wish to see a return on the investment in equipment that has been made. While pay per lift would have some role in achieving these objectives, there is concern that it would lead to poor segregation and it requires that PBW is also used to prevent compacting. PBW pricing is also generally perceived to be in line with increased professionalism and the provision of a high quality service.

There were a range of views in relation to how important the charge per kilo should be in terms of overall revenues earned. Some operators would wish to see a pure pay per kg system with a ban on flat charging, while other see a role for a multiple of charges including weight charges, per lift charges (excluding the brown bin) and a service fee. Some respondents wish to see charging per weight for the whole bin while many believe that the PBW charge should be limited to weights over a certain limit i.e. a charge per kg above a free allowance.

Despite this range of views there was general agreement on two points. First, the dry recycling bin should not be free as this creates the perception that it is free to manage this waste. In fact, it is subsidised by the charge for the black bin. Second, in as far as possible, the charging structure should be left for the market to decide, although there was general acceptance that some regulation is required to ensure that a certain percentage of charges are based on weights.

For the small number of operators who expressed negative comments regarding per kg pricing, their views appeared to be based mostly on two arguments. The first was that what was proposed was too complicated for consumers to grasp and a different approach, perhaps based on banded weight pricing, would be better. Second, some (presumably small) operators expressed the view that the introduction of mandatory PBW as proposed was part of a general policy approach that favoured larger operators and would eventually reduce competition in the sector. It was not altogether clear why this might be so other than the cost of installing the equipment. Follow-up contacts indicated that this view might be to do with access to processing facilities and a lack of controls over prices in processing facilities, but the link to mandatory PBW pricing is unclear.

### *The Use of Minimum Prices*

There appeared to be a certain amount of uncertainty in the responses regarding how the minimum prices were determined, but the actual publishing of these prices is seen to have been an error. There was a general opinion that setting prices should be left to the market although operators understand the thinking that some mechanism was required to ensure that the pay by weight element would not end up being a very small part of overall pricing. There is clearly perceived to be something of a conundrum here – how to ensure a minimum charge without stating a minimum price. The industry did not necessarily see the imposition of minimum prices as the problem – although many respondents were against any regulation of prices – and it was proposed that prices could have been agreed between policy makers and the industry, but not included in the legislation. It was also suggested that legislation should have contained a requirement that prices must be consistent with the polluter pays principle, in that they must cover specified costs associated with managing the waste, without the need to specify actual price levels.

Some operators were clearly of the opinion that the minimum prices were published as a means to address below cost selling rather than to change consumers' behaviour. Below cost selling in Dublin was seen as a central problem and there was a general view that this will need to be dealt with before PBW can be introduced. There was

general agreement that PBW legislation is not the way to do this. One suggestion was that it should have been addressed by the NWCPO identifying if there was below cost selling in an area and using the permitting procedure to address the problem. But the policy measure could not be distinguished from an intervention that simply raised prices, due to the inclusion of minimum prices.

Operators are strongly of the view that the opposition to PBW was a Dublin problem that arose because of the expected impact of the proposed introduction of the policy measure of the charges paid by below cost customers. Most operators believe, and many reported, that there was limited consumer resistance to the policy measure in the rest of the country. This supports the idea that it was a combination of factors, including the specifics of the market in Dublin, that led to the difficulties. If below cost selling had not been a feature of the industry, or if it was not expected that PBW pricing would impact on the charges paid by these customers, then it appears likely that opposition to the policy measure would have been a lot less vocal.

There was also a general consensus that, given the decision to publish a minimum price, errors were made in identifying what this should be. If such a price is to be stated, the general view was that it should fully cover the costs associated with handling and managing residual waste. However, operators reported that the rates that were stated, particularly for residual waste but also for brown bins, were sufficient to cover disposal costs only and did not cover the costs of handling the waste. As a result, they would not cover the variable costs. Due to poor communication, the minimum prices that were stated were interpreted as the actual prices that would be charged, but they were never going to be sufficient.

### ***A3.3 Other Design and Implementation Issues***

There was fairly general agreement on a number of associated issues. Most operators agreed that the water issue had become so politicised that it made it difficult to introduce the PBW policy measure. However, most operators did not agree that there was any real confusion in the minds of consumers on this issue and there appears to be a general consensus that the fact that consumers are used to paying for waste management means that the two issues are sufficiently distinct.

It was suggested in the questionnaire that implementing PBW across the board for household collections all at once might have been a factor and that some sort of phasing in might have helped. In response to prompts in the questionnaire, there was general agreement that PBW should proceed for C&I, but that this would have little benefit in relation to its introduction for households. Most people considered that PBW should be introduced for the whole country at once, but concerns were expressed due the different cost structure for operators in rural areas compared with urban areas.

There was also general agreement that the issue of designating certain areas for bags needs to be sorted in advance, although not all operators saw this as a major problem that inhibited the introduction of PBW or that would inhibit its operation. Most respondents considered that pricing for light users was not an issue and that any such problems would be sorted by competition in the market. However, there was some disagreement on this point and some respondents pointed out that the lack of a requirement to provide for light users meant that some categories of customers could not benefit from the introduction of PBW, compared to the previous pricing regime, no matter how good they might be at segregating their waste. For the most part, operators do not perceive that the ongoing roll-out of brown bins was a major problem that inhibited PBW, but there was general agreement that regulations in this regard, along with other waste regulations, need to be enforced more strictly.

## **Appendix 4: Waste Charge Expectations and PBW Pricing**

The purpose of this analysis is to address the idea that it is not possible, in the absence of detailed information on the pricing intentions of operators, to make supportable projections in relation to the likely impact of introducing mandatory PBW pricing for household collections.

A full analysis of the likely impact of introducing PBW pricing would require two datasets that could be obtained. The first would contain data on the weights of bins for disposal. This would allow for estimates of the mean and standard deviation of weights. The second would contain data on the likely response in terms of the amount of material that would be presented for disposal when PBW pricing was introduced as this would effectively increase the marginal price of disposal from zero to the minimum charge. From this it should be possible to estimate an elasticity of demand for waste disposal services and the distribution of responses to the new pricing.

However, in the absence of these data it is still possible to construct a statistical argument to project how many customers might be expected to see reduced charges as the result of introducing PBW. We'll make the following assumptions:

1. This calculation relates only to the impact of introducing PBW. So we are assuming that it is possible to distinguish the impact of this change from everything else that might be happening. A different way of saying this is that it is assumed that PBW is being introduced into a stable market.
2. We will assume that markets are competitive so that normal returns are earned at all times and that there are no costs imposed on operators as a result of the move to PBW. This can be relaxed later.
3. It is assumed that all waste markets are much the same in terms of their pricing structures. In effect we are assuming here that the introduction of PBW means a change from a flat service charge only to a structure where approximately 50% of charges will accrue from pay by weight. While the actual structure of charges around the country is far more complex, this is not a bad approximation of the most typical change that would have occurred. This could be relaxed in a full analysis by structuring the analysis to accommodate known differences in different markets.
4. Assume that we are dealing with one waste stream only i.e. waste for disposal. Again this could be relaxed in a full analysis.
5. In the absence of data, we assume that all consumers react to the marginal price increase that is implied by PBW pricing in much the same way. Survey

data would be required to derive elasticities in this regard and an estimate of the variation could be obtained from these data.

6. We assume that the weights of bins are normally distributed around the mean weight. We don't have data on this but it seems a reasonable assumption given the large numbers of customers and the fact that customers can and do put out bins that are not full, but that there is also an upper limit to the weight that can be put in a bin. In the absence of data we will base the analysis on a standard normal distribution.

To begin, assume that PBW pricing is introduced and that it has no effect on customer behaviour i.e. they still place the same weight of material for disposal. There is no change in the aggregate cost of waste disposal and so no change in the aggregate charges. However, if weights are normally distributed then a competitive sector will mean that 50% of customers will experience a fall in charges while 50% experience a rise in charges.

Relax this assumption and assume that PBW charges are introduced and are at a level that results in a diversion of 20% of waste from the disposal stream. In terms of the distribution of bin weights, the mean is now 20% below where it was i.e. the distribution, as shown in figure A3.1 below, has shifted to the left. A proportion of customers who were previously to the right of the diagram are now below the old mean. Put differently, a portion of the customers who were in the area that would have experienced a rise in prices will now see a fall in prices. The question is, what percentage of customers do these people represent?

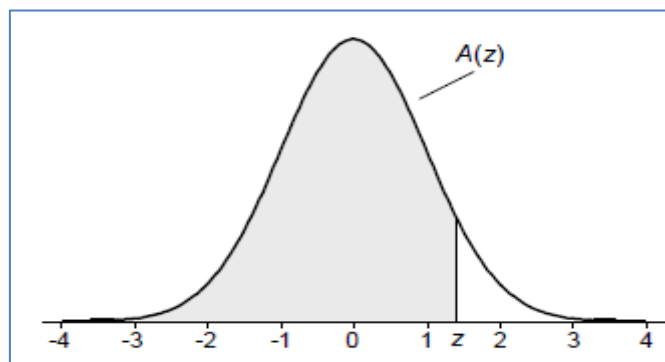
In fact, this is a straightforward answer to this question since statistical tables are available that tell us the answer. As background, understand that in a standard normal distribution, 99.74% of observations will be within 3 standard deviations of the mean (above and below the mean). For the purposes of the remainder of this appendix we will round that to 100%. The tables allow us to estimate what percentage of observations lie within any specified number of standard deviations from the mean. The table to use in this case is the Cumulative Standardised Normal Distribution, often known as the  $z$ -values.

Consider Figure A4.1 below. The tables tell us the area under the curve to the left of any value of  $z$  ( $A(z)$  in this diagram). This can be interpreted as the percentage of the population to which the distribution relates that is below (to the left of) the value of  $z$ . In this diagram, the value for  $z$  is approximately 1.3 standard deviations from the mean. The tables tell us that the shaded area to the left of this point is equal to



90.32% of the total area under the curve. In other words, 90.32% of observations lie in this area with 9.68% of observations to the right of  $z$ . This can be interpreted as meaning that for any observations there is a 90.32% probability that it will lie to the left of the curve.

**Figure A4.1: Cumulative Standardised Normal Distribution**



Returning to our assumption that 20% of waste is diverted from the disposal stream, this means that the new mean will now be 20% below previously. If we take it that 3 standard deviations represents 100% of people then the number of people that this represents will be indicated by taking a  $z$  value that is 0.6 standard deviations from the old mean. The tables tell us that this means that 72.57% of people would now be placing less waste in the disposal stream than previously. If we retain our assumptions that we are talking about disposal waste only, that there are no costs involved in the move to PBW pricing and that there is a competitive market that keeps returns at a normal level, we can conclude that 72.57% of consumers would see a fall in charges if the PBW charge is set at a level that achieves a 20% diversion of waste from the disposal stream.

We can go a bit further with this analysis. Information obtained in the consultations indicates that approximately 50% of operators' costs can be considered to be variable i.e. they rise and fall in line with the amount of waste handled. There would appear to be a quite wide distribution around this with some operators reporting variable costs as high as 80%. However, the prices that were announced in the run-up to the planned introduction of PBW pricing in 2016 appear to support the estimate of 50%.

Typical announced service charges were in the region of €140 per annum. Announced per kg charges were in the region of 22c per kg for waste for disposal (black bins) and 10c per kg for composting (brown bins). Average black bins weigh about 22kg per lift currently. Firms would have built in provision for diversion. So assume this falls by about 20% to 18 kg per lift after PBW was introduced.



Composting bins weigh about 15 kg on average. With an average of 25 lifts per year this would give the average revenue shown in Table A4.1<sup>26</sup>.

**Table A4.1: Average Annual Revenue per Customer with PBW Pricing (€)**

|                               |       |       |
|-------------------------------|-------|-------|
| Service Charge                | 140   | 50.6% |
| Black bin charge (18*25*.22)  | 99    | 35.8% |
| Brown bin charges (15*25*.10) | 37.50 | 13.6% |
| Total                         | 276.5 | 100%  |

It makes sense for operators to attempt to cover their fixed costs with a fixed charge to customers and so a 50:50 split seems a reasonable assumption. The implication of this is that a 20% reduction in waste for disposal, which would result in a 20% reduction in costs under our assumptions, would lead to a 10% reduction in prices to customers. Therefore, we can say that setting the minimum PBW charge at a level that would achieve a 20% diversion of waste from the disposal stream would be expected to result in an average 10% reduction in prices for 72.5% of customers.

It is possible to do this same analysis for any assumptions in relation to the impact of PBW on customer behaviour. So, if only 10% of waste was diverted then we would expect that 61.8% of customers would see an average reduction of 5% in their waste charges. If 30% was diverted then 81.9% of customers would see reductions averaging 15%, and so on.

So what can we say about the claim that 87% would see a reduction? When the announcement was made, it was identified that 8.5% of customers would see no change. There is no way to identify how many customers would see no change using the approach being outlined here – this would require information on the distribution of customers elasticities as discussed above i.e. information on individual customer behaviour. So we can distribute these ‘no change’ customers between those that would see a fall and those who would see a rise in costs so that the 87% now becomes 90% that would see no increase. How realistic is this?

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<sup>26</sup> It is recognised that this is based on a small sample and that there will be considerable variation. But it is sufficient for the purposes of the preliminary analysis being undertaken here. More precise data would be required for a comprehensive analysis.

Returning to the tables, this would require that the new distribution of weights is shifted to the left by 1.28 standard deviations. This would require a 42.7% diversion of waste from disposal. This was not envisaged and appears excessive when compared to expectations of what might be achieved based on the EPA Strive Report. The short discussion of pricing above also suggests that collectors were probably expecting an impact of PBW pricing that would be somewhere around half of this. So the intuitive reaction that these expectations seemed too high and lacked credibility is borne out.

In fact, when some of the assumptions are relaxed then the case for this expectation is weakened further. First, it was assumed above that there would be no costs incurred in introducing and operating PBW pricing. This is not the case and costs are incurred and so it is necessary to consider what the implication of relaxing this assumption might be. It is reasonable to expect that these additional costs will be recouped by operators. This means that if behaviour did not change following the introduction of PBW then charges would not stay flat but would rise overall<sup>27</sup>.

Discussions with consultees indicate that the cost of installing the necessary equipment is in the range of €25,000 to €30,000 per truck. If this is depreciated over 5 or 6 years then this amounts to €5,000 to €6,000 per truck per annum. In addition, there are ongoing associated maintenance and verification costs and some operators have expressed concerns that repairing damage to the equipment could result in substantial costs. There are no ready estimates of what these might be but it seems prudent to allow perhaps €1,500 per truck pre year to cover these costs. Estimates vary, but it is understood that weighing equipment will need to have been installed on around 750 trucks. CSO data indicate that about 1.35 million households have a waste collection service and so each truck services 1,800 households on average<sup>28</sup>. Putting these data together indicates that moving to PBW would increase waste charges by about €4 per household per annum in order to pay for new equipment.

Second, the analysis makes no allowance for the need to cover the costs of recycling. The savings arise only if sufficient material is diverted from disposal. This implies higher recycling and the costs of this will need to be paid for by higher charges. The DKM Report indicated that the cost of processing recycling waste amounted to about €49 per tonne, following collection. So, a current cost of 5c per kg seems reasonable.

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<sup>27</sup> This is a separate issue from the likelihood that prices for some customers would rise in order to address below cost selling as discussed earlier in the report.

<sup>28</sup> CSO (2016) *QNHS Module on Household Environmental Behaviours*, Q2 2014, Table 5

The weight of the recycling bin averages about 12 to 15kg per lift, amounting to about 350kg per annum for 25 lifts. If this rises by 20% as a result of the 20% diversion of waste from the residual bin then this implies that there will be an additional 70 kg of recyclates per household per annum to be handled. If it is assumed that about 50% of this cost can be recouped through sale of recovered materials then this implies an additional cost of about €2 per household.

This means that the additional costs of implementing the new policy measure if it were to achieve a 20% diversion of waste would amount to about €6 per household, equivalent to about a 2.5% rise in prices. So, instead of 72.5% of customers seeing a 10% fall in charges, these customers would on average see a fall of 7.5%.

Third, this is an average and there would actually be a dispersion among the responses of consumers to PBW pricing. Some will try to reduce waste a lot, others will react a lot less. In the absence of data we can only deal here with averages. However, the implication is that it is likely that a considerable proportion who are projected to be in a position to reduce their waste below the old mean would not actually achieve savings while others would achieve higher savings. So, while a 20% reduction in residual waste would mean that 72.5% of customers could reduce their waste management charges by 7.5%, this is an average and we would expect that only 36% of customers would see a reduction of this magnitude.