

Although not operating (yet) in the UK, pay-by-weight charging systems for domestic refuse collection vehicles use established technology. Steve Banner investigates

Local politicians are acutely aware that measures which affect the collection of domestic waste have to be implemented cautiously for fear of provoking the ire of voters. Suggestions that bins should be weighed and householders billed according to how much rubbish they put in them have provoked howls of protest.

Weighing system and refuse collection route planning and optimisation software supplier AMCS nevertheless believes that the time is ripe for the introduction of PBW (pay by weight) – sometimes referred to as PAYT (pay as you throw) – for UK domestic waste collection.

Chief marketing officer Mark Abbas does not underestimate the challenges that councils attempting to do so would face, but points out that changes to the design of RCVs at least make it technically easier.

“One major development is that manufacturers are now supplying vehicles with lifting gear already prepared for the installation of weighing equipment,” he says. “This means that no additional fabrication is required and reduces the amount of time that trucks need to be off the road.

“The technology of the weighing systems has also improved,” he continues.

“Each lifter can now be fitted with a dynamic weighing load cell that allows two or more different household bins to be weighed independently and simultaneously,” Abbas adds. “The dynamic design used removes the need to stop the lifter to gain an accurate weight reading, which means that the



WEIGH FOR

vehicle’s productivity is not affected.

“Historically, weighing systems required a lot of wiring and connections as each element was individually installed,” Abbas explains. “This made fitting and calibration a time-consuming and ultimately expensive business. However, modern systems have greatly improved interfaces with lifter controls, cutting the number of sensors and signals required. This makes installation easier, reduces the component costs and minimises the potential points of failure, improving reliability.”

PBW is well established in the Republic of Ireland. “It’s been around for the past 15 years, with private companies rather than councils collecting domestic rubbish,” says John Murray, general manager, Ireland, at weighing technology specialist VPG – Vishay Precision Group. “We’ve received a lot of enquiries for the systems we offer from local authorities in the UK over the past 18 months, with some of the London boroughs interested.”

VPG is in the process of launching the BinWeigh 03 dynamic bin weigher

TRADE WASTE MADE GOOD

While PBW may be anathema to many members of the British general public, the approach has been widely adopted in the collection of trade waste.

Norfolk operator Norse Waste Solutions has had Enviroweigh fitted to its trade waste collection vehicles and saved money by doing so, reports Norse general manager Shaun Ferris.

“We can now charge a tonnage weight for what we pick up,” he says. “Previously we were subsidising customers who were paying for an average weight of 70kg per container, but were actually disposing of 400kg. Having accurate information has enabled us to identify customers who regularly present overweight containers and approach them to review what they throw and help them recycle more,” he adds.

Norse has a service contract with VWS that covers Enviroweigh against all breakdowns, with parts, labour and annual calibration included.

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Mark Abbas



for RCVs on domestic refuse collection work. Murray explains how it works: “A 7-inch in-cab touchscreen allows the driver to see the weight and the RFID chip number when a bin is lifted, and if the weigher and weighing chair are working properly. The system will also record the date and time the bin was emptied, and if a bin is overweight and as a result cannot be tipped.

“The type of product can be recorded, too,” he adds. “In Ireland, fleets run a lot of RCVs with bodies split 50/50 between general and recyclable waste, so it is important to ensure that waste is tipped into the right place.”

BinWeigh 03 can be configured to prevent bins from being emptied into the wrong compartment. However, a physical check may still be necessary to ensure that a bin does not contain recyclables when it should hold general rubbish and vice versa, for example.

“The crews will invariably do a quick visual inspection, and we know of one company that is fitting cameras so that waste can be photographed as it is weighed,” says Murray.

All the information recorded by BinWeigh 03 goes straight to the waste

company in real time using 4G wireless data transfer over the GSM network, a capability boasted by most modern weighing systems. Irish householders are billed accordingly via their online account.

“Collections can be suspended if bills aren’t paid, but people can always top up their accounts online and reactivate them,” he says. If a bin cannot be emptied because the customer has run out of credit, then the RCV driver is informed via the in-cab screen.

The data can also be used to respond to claims that bin collections were missed. If a fault develops in BinWeigh 03, then an alert is automatically generated.

Operatives can see some of the information the driver sees on a status screen on the back of the vehicle – if a bin should not be tipped because an account has been suspended, for example, or because the chip is missing.

ONGOING MAINTENANCE

How often do weighers have to be recalibrated?

“There is no legal requirement in the Republic of Ireland after initial certification, but we would suggest once every three months,” Murray replies. “It is worth noting that the country may introduce obligatory annual recertification.”

Like BinWeigh 03, c-trace’s dynamic weigher meets the Class Y(b) accuracy requirements of the IOLM, International Organisation of Legal Metrology, which creates global standards for use in weights and measures legislation (see link below).

Ian Martin, c-trace’s UK sales director, says: “It takes multiple weight readings as the bin goes up, is emptied, and comes back down again, to ensure an accurate figure is achieved.”

Accurate weighing is vitally important, agrees VWS, Vehicle Weighing Solutions, which claims an accuracy of



around 0.5% for its Enviroweigh dynamic bin-weigher.

Equally important is robust construction, given the environment in which weighers work, says VWS managing director Julian Glasspole.

“Our load cells are stainless steel and the electrics are housed in die-cast metal boxes,” he says. “Enviroweigh does not impose a weight penalty – the load cells weigh no more than 3kg to 4kg – and should last the life of the vehicle.”

He adds that weighing domestic waste need not involve a pay-by-weight charging scheme for householders.

“I know of one local authority that is using it to encourage recycling,” he says. “If RCV bin-weighers indicate that a block of flats is throwing away less and recycling more, then the council rewards it by paying for improvements to the children’s playground.”

Surely even the harshest critics of PBW couldn’t complain about that. [IE](#)

FURTHER INFORMATION

‘Automatic catchweighing instruments’, IOLM R51-1 – <https://is.gd/capeli>

Zero Waste Europe PBW case studies – <https://is.gd/uyemog>