



Electronics Case study RDC



RDC is Europe's leading IT asset recovery services provider with over 20 years of experience. In January 2012 RDC moved into new 355,000 square feet headquarters and operational centre in Braintree, Essex, which is believed to be the largest facility of its type in the World. RDC manages over 1.5million items per annum from the UK headquarters for customers ranging from global blue chip organisations and public sector bodies through to SMEs and sole traders. Every Computer disposed of is individually managed, tracked and can be reported on at item level through the in-house IT disposal asset management system. The stages through the process include electrical safety testing to verify that used PCs are safe to connect to mains power, diagnostic software to test the functionality of parts and components and data eradication to remove all data including licensed software. With more than 350 employees RDC has grown larger than just a small and medium-sized enterprise, but as there are many smaller businesses working in the same field, although on a more regional level, RDC might be a good example for environmental assessments in the refurbishment business as such.



Customers of RDC are increasingly interested in environmental facts and figures from vaguely inquiring for any quantification on environmental benefits or the contribution to a circular economy to Life Cycle Assessment evidence. Already in the past Gary Griffiths, Head of Sustainability at RDC, compiled such kind of simple calculations, taking a 2003 publication by the United Nations University as the point of reference to claim how much of the initially embedded carbon of IT can be recovered through recycling and even more, through reuse. Inquiries among OEMs for more up-to-date data resulted in a rather poor response and limited insights in latest quantified environmental impacts for IT. Therefore updated,

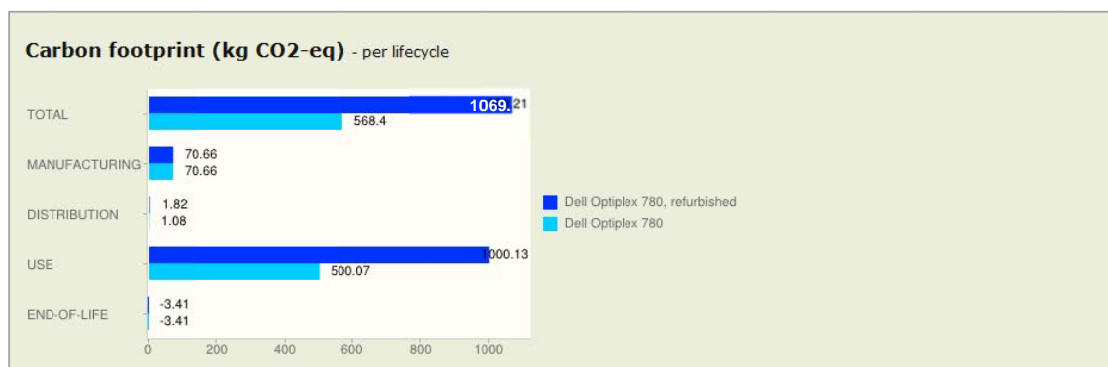


verifiable and preferably auditable data are of great interest to RDC to put reliable figures to inquiries from clients.

It took Gary's colleague Steven Baskett just about an hour to source relevant product data to model a Dell PC. Only use phase power consumption values were hard to find, thus calculations are based on rough estimates for the various modes only and might not properly reflect real values. This, however, is less relevant for assessing the benefits of reusing a computer versus building a similar new one: For such a comparison only manufacturing, transports and recycling scenario really matter.

As RDC typically takes care of business-to-business products they are active in a market, which typically sees significantly higher collection rates at end-of-life than the consumer market, for which a default value of 50% collection applies. Estimates for the business-to-business segment indicate a rather high collection rate and as an approximation 80% is assumed.

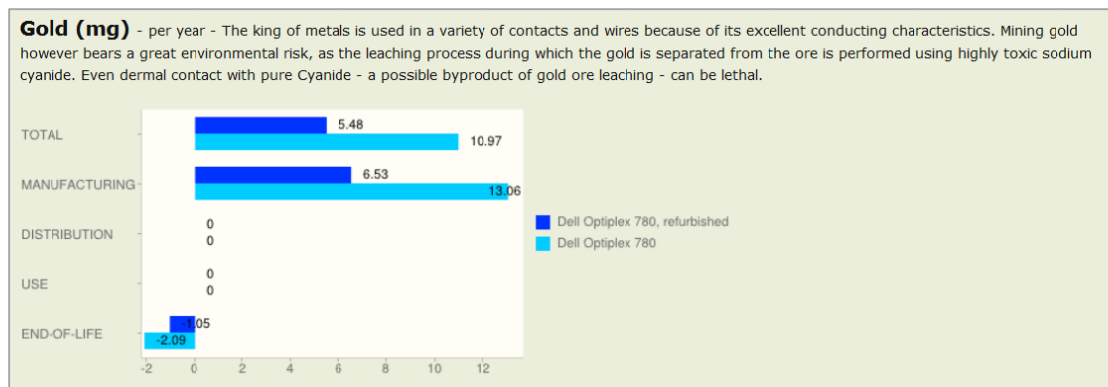
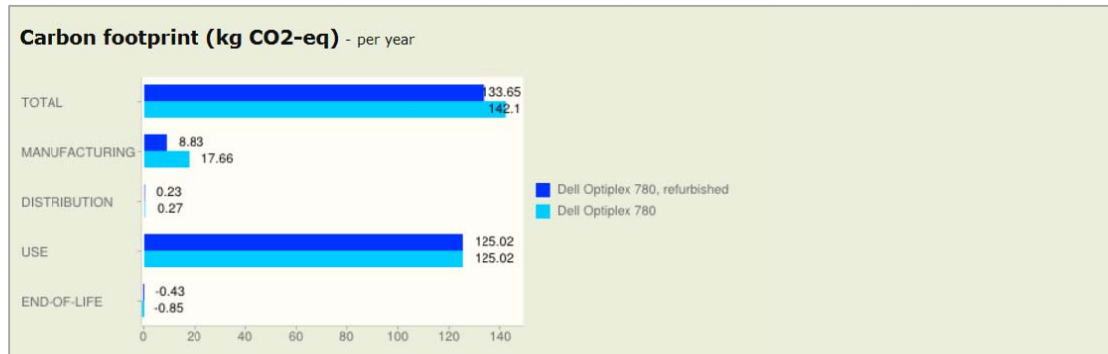
An asset refurbishment company inevitably causes additional environmental impacts through logistics from picking up used devices, operating the refurbishment facility including power consumption for testing equipment and data erasure, and finally shipping the units to second users. All this has to be valued against the effect of extended lifetimes. Modelling own logistics and allocating it properly to individual devices is challenging and might require a more detailed modelling than what is provided by the "LCA to go" tool. Entering some first rough assumptions and in the light of calculated total carbon credits for refurbishment it turned out however, that own logistics in most cases do not significantly contribute to overall greenhouse gas impacts of a computer over its lifetime and rough estimates of distances and means of transportation might suffice for calculations: The example of the modelled Dell Optiplex PC yields a carbon saving of 68 kg CO₂-eq. for doubling the unit's lifetime through sound refurbishment (2 new Dell Optiplex PCs vs. 1 refurbished Dell Optiplex PC), compared to additional 600 g CO₂ for pick-up and resale logistics within England.



Gary pointed out the fact, that the scenario of a refurbished IT unit versus buying a new one does not necessarily hold true in every case. Frequently refurbished computers are also sold to non-European destinations for instance, where refurbished computers open up new markets where new units are not a viable option, which is a kind of rebound effect, but helps to bridge the digital divide. In such cases it is more appropriate to compare per "year of usage". For an extended lifetime from 4 to 8 years for this Dell computer the carbon footprint per year of use is reduced by 7.5 kg CO₂-eq. As seen in the graph below, this is related to the



“environmental depreciation” of the manufacturing emissions over a longer life time. Similarly, when it comes to material efficiency, actual gold consumption per year of use is reduced by 5.5 mg. Actually resource savings are larger than this as the tool provides a worst case assessment.



Gary recognises some potential for the tool. One of his main interests is to make results and calculations auditable: Just as clients ask for various norms to be followed on quality and environmental management, safety, and approved data erasure processes a certification of the carbon footprint savings would clearly be an asset.