

THE SECRET BILL

WHAT YOU ARE NOT BEING TOLD ABOUT WHO IS GOING TO PAY THE PRICE FOR DECARBONISATION

SUMMARY

This briefing attempts to produce an indicative figure for how much extra households in Scotland are going to have to pay for climate change mitigation as a result of the methodology the Scottish Government is using as opposed to the methodology Common Weal proposes. It draws on two main reports; the Common Home Plan (a costed, comprehensive Green New Deal for Scotland) and The Retrofit Challenge (a more detailed paper on how to retrofit houses for energy efficiency written by Scotland's leading retrofit architect) then uses two modifiers to indicate how much extra it will cost to do it the way the Scottish Government is doing it, one to cover the profit they are inducing to incentivise the private sector to do the work and one for the inherent inefficiency that that creates.

It concludes that the average cost to households of climate change mitigation work is in the order of £46,000 - but that in addition to that the private sector model favoured by the Scottish Government adds an additional £9,800 in profit and extra inefficiency taking the total per household to over £56,000. If the cost of replacing petrol vehicles is included the cost to households rises to over £100,000 of which about £20,000 is an unnecessary premium. These are average numbers and the figure for some households will be much higher. The public is not being told about this honestly and nor is there an open and honest debate about whether this is the right way to go about the work.

INTRODUCTION

In 2019 Common Weal published the world's first comprehensive, costed Green New Deal which would take Scotland deep into net carbon negative territory (called the Common Home Plan¹). It modelled all the activity needed to reduce and then remove almost all the environmental harm created by our way of life in Scotland, irrespective of where that harm takes place.

This was followed up with The Retrofit Challenge², a more detailed study by architect Chris Morgan drawing on his experience of retrofitting existing houses to enable them to reach close to passive house performance. It provides more detailed costings for the challenge of retrofitting Scotland.

From the combination of that work it is possible to derive a broad cost model for achieving climate change mitigation in Scotland. The top-line figure in the Common Home Plan is that all cost activity (going beyond just carbon reduction and including other factors like pesticide reduction and ending plastic pollution) would come to approximately £175 billion in total for Scotland (2019 prices). These costs are broken down for each area of activity so it is possible to identify those costs which would otherwise fall on households. But rather than leaving individual households to arrange this work themselves the Common Home Plan proposed a clear model for paying for this – borrow the capital and repay it over 50 years creating an annual tax bill of £5 billion, but attached to collective public delivery of the work, an industrial policy and public ownership of utilities which, when modelled, would generate at least £6 billion of tax and other direct revenues, more than paying for the work. This means that the cost is met by taxpayers, not households, but the way that is being done it will generate sufficient revenue growth to pay for itself.

WHAT IS ACTUALLY HAPPENING

However, this is not the approach being taken by either the Scottish or UK Governments^{3,4}. Both

governments are pursuing a free-market solution which pushes all the cost onto the householder – and they are simply not telling you the truth about it. Both want to avoid public responsibility for the work by making it the responsibility of the individual, requiring them to purchase the work from the private sector. This has a number of effects, not least that this precludes an effective industrial strategy because of the inability to enact large-scale public procurement.

But there is a more direct impact that households will feel. First, they will be left to meet these costs themselves and any support will take the form of grants or loans. This is an expensive way for government to get this work done, but has another effect – it requires two additional premiums to be added to the base costs identified via the Common Home and Retrofit Challenge papers.

The first is that to push the cost down onto householders it is necessary to incentivise the private sector to undertake the work. This means that a profit premium must be added to the cost of the work. The second is that relying on each household to arrange (and pay for) their own works means that work will be done house at a time on an all-but random basis. Rather than working street-at-a-time and retrofitting a series of households at once (which brings large economies of scale), smaller teams will return over and over to the same street over the course of potentially 20 years, greatly reducing the efficiency gains from collectively planned works. The profit premium must be added to the costs to incentivise the household/free market model being pursued and the inefficiency premium is an inevitable consequence of doing the work in a disorganised, sporadic manner.

WHAT DOES THE WORK COVER?

There is a wider range of work that needs to be done for Scotland to meet its environmental responsibilities and not all of it can be the responsibility of households. There are therefore five areas where it is currently proposed that costs should be pushed down onto the householder. The first is building thermal efficiency (retrofitting for insulation

and draughtproofing). The second is moving to renewable heating (removing gas boilers and replacing with a renewable heating system such as air source heat pumps). The third is further decarbonising electricity and expanding it for the additional needs of electrifying transport (this cost will be passed to households via energy bills). The fourth is installing the car charging infrastructure for electric vehicles (the Scottish Government plans are for this cost to be pushed onto the householder via a premium on the cost of car charging). The final cost is the cost of shifting from petrol or diesel cars to electric vehicles (the timescale for this is slightly different than for some of the other work).

Not all of these can have their costs assessed in the same way. The installation of renewable energy generation will be done largely in the same manner irrespective of how it is paid for so it does not carry an efficiency premium. The same is true of electric vehicle transition, but not of electric charging infrastructure where multiple private providers each installing their own infrastructure does carry an inefficiency premium. The table below therefore includes each of these assumptions.

RECOGNISING LIMITATIONS

The Common Home Plan sets out a means of delivering all the work needed for a just transition as a major public works programme. This is by far the most efficient way to do the work and therefore brings the lowest costs. It also enables the delivery of the project to be most effectively coordinated with a workforce development strategy, a supply chain development strategy and a broader industrial strategy to help create the capacity to deliver as much of the work as possible based on domestic suppliers. This maximises the domestic economic growth potential and so maximises the resulting revenue gains via increased tax take. This in turn is how the work can be largely self-financing.

In assessing the impact of the alternative model being pursued by the Scottish Government it is important to recognise that there are limitations on the government's ability to pursue a full

public works programme as a result of its limited borrowing powers or to capture the revenue from the economic gain because of its limited tax powers. To use the method proposed by Common Weal to its fullest extent Scotland would require the full range of fiscal powers that would only be available either with independence or a maximalist form of federalism.

However, that is only part of the story. There are many aspects of a just transition which the Scottish Government is perfectly capable of doing itself, such as building car charging infrastructure. This can be self-financing. Other aspects of the work can be done through local authorities which have more extensive borrowing powers. So there are plenty of workarounds which could have been explored by a government which was interested in pursuing a public option. For ideological reasons the Scottish Government's agencies do not appear to have that interest and have repeatedly taken the view that it is not just that allowing this to be done through the private sector is necessary but that it is desirable. Scotland will pay a price for this.

THE COST OF HOUSING AND ENERGY TRANSITION

The detailed sources for the base costs can be found in the Common Home Plan. The cost of housing retrofit is almost certainly too low now as a result of construction material inflation but remains a reasonable indicator. This was calculated on the basis of assessing a range of existing retrofit and costing the materials and labour required. The model being used to decarbonise heating is inherently more inefficient than that being proposed in the Common Home Plan exactly because the Common Home Plan assumes collective works and so a different (and significantly less efficient) approach must be taken if work is to be carried out by the household. So an average cost of air source heat pump installation is being used. How the other costs are derived is explained in more detail in the main report but are largely technical assessments of future need costed according to previous measurable real-world data.

The profit premium is drawn from a general assessment of the required operating margins in the construction industry. There are a number of assessments of the profit margins in construction as different kinds of construction work bring different margins. For example, large-scale civil engineering projects carry an operating margin of between 4 and 6 per cent^{5,6}, but for domestic construction (smaller firms working on a single house) that operating margin rises to an average of 17 to 24 per cent⁷. So for household-based work we are assuming a profit premium of 15 per cent and for larger-scale civil work of 5 per cent. Electricity retail operates on a profit margin of about 3.6 per cent but the profit margin in electricity generation is 19.9 per cent⁸. A low-mid assumption is taken here of 10 per cent. As a 'new start industry', commercial car charging services are assumed to require a higher profit margin so an assumption of 15 per cent is used here.

The inefficiency premium is derived from a 2017 UK Government report estimated that this inefficiency premium could be in the range of 5 per cent to 20 per cent⁹. There are multiple factors which cause this scale of inefficiency such as not being able to work on one element of the overall work in one house while waiting for completion of a previous piece of work in another house, and because of duplicated travel time etc. This is particularly relevant to large-scale retrofit because of its unpredictability and so we are assuming an inefficiency premium not at the top of that scale but at the higher end – 15 per cent.

With costs which are passed to the household via higher ongoing bills (electricity and car charging) we are comparing a private sector model with a publicly-provided one and assuming the capital costs are passed to consumers over a ten-year period.

THE COST OF VEHICLE REPLACEMENT

In addition to all of these costs households will eventually have to change to electric vehicles. This is a slightly different issue because unlike the other cases above there would be an inherent

replacement cost anyway (people might go their whole life without retrofitting their home but will inevitably have to replace a car eventually). In addition to that it is not easy to know how the second hand market in electric vehicles will develop (there isn't a large second hand electric car market at the moment). We have priced this at current average replacement value but this is unlikely to represent the real cost to households over time. What is a real cost is to create a national electric vehicle charging infrastructure via a series of private companies rather than as public infrastructure. Here both the profit and inefficiency premiums apply.

To include the cost of replacing cars adds a significant additional burden. There are approximately 1.3 cars in Scotland per Scottish household. As of 2022 the average EV costs around £44,000 – a figure that drops to around £27,000 if we exclude luxury vehicles. Taking this 'low' average of non-luxury vehicles only and assuming a 1-to-1 replacement of existing cars with electric vehicles (even if car journey miles are reduced by 20 per cent as per current government targets, if transport policy does not include a means of allowing people to give up cars entirely then they will still be buying a car that they merely use less), then the average household could expect to pay an additional £35,000 to replace their vehicles. If we assume that these are paid for via a five year loan or Hire/Purchase Agreement at 10 per cent interest, then this will add an additional £11,000 in interest payments. This could very well push the total cost to Scottish households of the 'Net Zero' transition to above £100,000.

THE COST OF EV CHARGING INFRASTRUCTURE

The direction of EV charging infrastructure may also result in huge costs to individuals if done privately vs collectively. At the most extreme end, every house with an EV car may demand a home charging unit. These currently cost somewhere in the region of £800 - £1000¹⁰ with the upper end of the range being a 7kW charger – 22kW rapid chargers require three phase power which is rare

in UK homes. Slower charging times are likely to be less of an issue where cars can be charged overnight. However, from a cost perspective, a 22kW rapid charging unit placed in a public car park that the Local Authority already controls may only cost a little more than a home charging unit at about £1,500¹¹. Of course, this rapid charger can serve many more cars than a home charging unit can. The EU currently recommends a target of around one public EV charger for every 10 cars¹² which would imply, assuming again an average of 1.3 cars per Scottish household, a cost to each household of £195 to install sufficient public chargers around Scotland – a saving of over £1300 compared to installing a 7kW charger in every home.

Not, of course, that every home could have such a charger installed. If the Net Zero transition is going to rely on private individuals making the transition themselves then Scotland must recognise that this will be limited by the number of people who own a car but live in a house that does not facilitate home charging. Some houses will not have driveways or garages. Some may be flats or tenements. Some of these will rely on on-street parking in narrow roads that do not allow for easy installation of on-street charging. Where

there is space to install a charger, land rights and issues with joint-consent over planning may be a significant barrier and co-ownership of a charger may come with complications over access and how to bill the users of the charger. There have already been instances recorded in Scotland of EV owners running cables dangerously across pavements to charge their car or even running daisy-chained extension cords down from upper-floor tenements.¹³ These dangerous practices are a direct response to the lack of ability of individuals to be able to efficiently transition to Net Zero on their own. The health and safety implications and ultimate costs in healthcare and property damage in the event of injuries and sustained by unsafe charging may be significant even if they are currently not known and lie outwith the scope of this report.

ASSESSING THE COST PREMIUM

The following table draws the assumptions set out above together and applies them to the data described.

Issue	Base cost per household	Profit premium (5 - 15%)	Inefficiency premium (15%)	Total cost to households	The privatisation premium per household
Retrofitting housing for thermal efficiency	£15,000	£1,500.00	£2,250	£18,750	£3,750
Installing renewable heating	£10,000	£1,000.00	£1,500	£12,500	£2,500
Cost of moving to zero-carbon energy	£17,000	£1,700	N/A	£18,700	£1,700
Installing electric car charging (total £10bn, added to charging cost over 10 years)	£4,200	£420	£630	£5,250	£1,050

Cost of replacing existing car (Assuming average of 1.3 cars per household)	£35,000	£11,000	N/A	£46,000	N/A
Cost to install EV chargers	£195 (a per household share of a public EV charger)	N/A	£1,305 (The cost premium to install a charger at home)	£1,500	£805
Total Cost Per Household (no car replacement)	£46,200	£4,620	£4,380	£55,200	£9,000
Total Cost Per Household (with car replacement)	£81,395	£15,620	£5,685	£102,700	£10,305

CONCLUSION

The cost of doing full climate and environmental mitigation for Scotland will be in the order of £175 billion. Many of the parts of that where the cost can in some way be passed to the householder are among the most labour-intensive and therefore costly. The elements where in principle the cost can be pushed onto the householder is in the order of £120 billion (or something in the order of £52,000 per household). However, to push costs down to the household the two additional premiums identified must be added to that. The total cost of the profit premium across Scotland is around £11 billion or £4,620 per household and the total cost of the inefficiency premium is £10.4 billion or £4,380 per household.

The laissez-faire, free-market approach being taken by the Scottish and UK governments has two major impacts. First, it becomes difficult or impossible to effectively capture the economic benefits of the work to be done as rather than large-scale public procurement (which could create jobs in Scotland) each small contractor is likely to buy materials imported from abroad. Second, the cost of doing things this way is inherently higher.

Both governments seem to believe that by failing to level with the public about the scale of what is ahead and disguising that scale by creating a 'get on with it yourself' model, they can keep public expenditure low and rather than pay for it via tax they will require householders to pay for it directly. What this analysis shows is that that cost of that is an additional £21.4 billion nationally or around £9,000 per household excluding the costs of replacing any cars with EVs. This is an expensive and ideological way to go about the process and it is householders who will pay the price for this and private sector contractors who will benefit at their expense.

There are two remaining points to be made. The first is that this model also means that sustaining quality control across the entire programme becomes much more difficult and expensive as the inspection regime required to ensure the work done was done properly would be just as piecemeal as the work itself and would have to contend with inspecting different work done in different materials to different standards even in similar houses in the same location. The track record of using large numbers of small firms to carry out this work has been patchy at best¹⁴ and it is possible that this work will be done

expensively and still not meet the standards required to achieve climate objectives. It must be stressed that when working on building standards as high as required for these objectives then the inspection regime is as important as the installation itself – it doesn't matter how efficiently insulated a modern, triple-glazed window is if it is fitted badly and leaks more heat around the seals than is gained by the glazing. Secondly, it is essential to note that all the numbers contained in this brief are averages per household. This is not realistic nor will these costs fall equally on households or even necessarily in proportion to household income or wealth. In reality some households can have much lower costs than this if they are newer houses or have already had insulation work done. In turn, some households will face a bill many times this amount. By removing the public delivery of this work some people will be absolutely crippled by costs if left to deal with this themselves or, more likely, will simply not do the work even if it means suffering yet another winter in the cold with a heating bill that they also cannot pay.

REFERENCES

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