

Summary: Intervention & Options

| | |
|---|--|
| Department /Agency: Department of Health | Title: Regulatory Impact Assessment of regulations prohibiting the sale of nicotine inhaling products to under 18s |
| Stage: Final RIA | Date: December 2021 |
| Related Publications: Consultation on the Health (Miscellaneous Provisions) Bill; the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016; consultation on regulations to restrict the age of sale of e-cigarettes to over 18s | |

Available to view or download at: www.health-ni.gov.uk

What is the problem under consideration? Why is government intervention necessary?

Since the introduction of smoke-free legislation in Northern Ireland in April 2007, the market for nicotine inhaling products (NIPs) has grown exponentially. The most common form of NIPs are e-cigarettes. These products are completely tobacco-free and are made up of a nicotine-based liquid which is then vaporised and inhaled. Nicotine is a highly addictive substance and given that there are currently no legal restrictions on the sale of NIPs to children, the Department is concerned that e-cigarette use by minors may act as a gateway into smoking tobacco products. Furthermore, while research has shown NIPs to be considerably less harmful than tobacco, the long-term effects of e-cigarette use are largely unknown.

What are the policy objectives and the intended effects?

The policy objective is to help mitigate the risk of children and young people becoming addicted to nicotine by restricting the sale of NIPs (including refill cartridges and nicotine liquids) to persons over the age of 18. Existing licensed nicotine replacement products, currently available on general sales license to under 18s, will be excluded from the new requirements. The intended effect is fewer young people using NIPs and consequently moving on to using tobacco products.

What policy options have been considered? Please justify any preferred option.

1. Option 1 - Do nothing: continue to allow NIPs to be available for sale to under 18s.
2. Option 2 – (preferred option): The option of (a) introducing an age of sale of 18 years for nicotine inhaling products together with (b) an offence of proxy purchasing nicotine inhaling products by adults for children is preferred. This would bring NIPs into line with other age-restricted products such as tobacco and alcohol and would help to protect young people from becoming addicted to nicotine which could in turn lead to tobacco use.
- Option 3 (non regulatory): Introducing a voluntary agreement with retailers that they will not sell these products to under 18's.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects?

Three years after the date of implementation of the policy, expected to be February 2022.

Summary: Analysis & Evidence

| | |
|-------------------------|---|
| Policy Option: 2 | Description: (a) Introducing an age of sale of 18 years for nicotine inhaling products and (b) Introducing an offence of proxy purchasing for nicotine inhaling products by adults for children. |
|-------------------------|---|

| | | | |
|--|--|---|--|
| COSTS | ANNUAL COSTS | Description and scale of key monetised costs by 'main affected groups' | |
| | One-off (Transition) | Yr S | There will be direct costs to retailers, distributors and manufacturers of Nicotine Inhaling Products (NIPs) who can no longer sell to the under 18 market. These costs are reduced however by redirecting spending on other goods and services. Costs to enforcement bodies of circa £20,000 in year one, and ongoing costs of circa £2,500 per year to be subsumed into current tobacco control programme of enforcement. |
| | £ 181,877 | | |
| | Average Annual Cost (excluding one-off) | | |
| | £ 46,558 | | Total Cost (PV) |
| Other key non-monetised costs by 'main affected groups' | | | |

| | | | |
|---|---|--|---|
| BENEFITS | ANNUAL BENEFITS | Description and scale of key monetised benefits by 'main affected groups' | |
| | One-off | Yrs | Increased profits for other industries from redirected consumer spending. Classified as an indirect impact. |
| | £ 6,000 | | |
| | Average Annual Benefit (excluding one-off) | | |
| | £ 5,255 | | Total Benefit (PV) |
| Other key non-monetised benefits by 'main affected groups' | | | |
| Children do not start a life of nicotine addiction leading them to buy NIPs in the future which, given a fully informed decision as an adult they would not have chosen, but did choose when they were a child. | | | |

Key Assumptions/Sensitivities/Risks

An assumption that the policy stops all sales to under-18s.
 The number of NIPs consumed by under-18's will grow by 4% per year.
 NIP use will grow more slowly with declining tobacco prevalence amongst children.
 Retail profit margins will fall from 40% in year 1 to 10% in year 3, manufacturer margins from 18% to 11% - both more in line with returns from established and mature goods.
 Price and NPV base is 2020; Year 1 is 2021 when the policy will come into effect.
 Sensitivity analysis has been conducted to test the assumptions around: Number of 'regular' users; Retailer profit margins; and Cost of enforcement borne by retailers (Annex 2). The choice of preferred option has not changed as a result of this sensitivity analysis.

| | | | |
|-----------------------------|-----------------------------|----------------------------------|---|
| Price Base Year 2020 | Time Period Years 10 | Net Benefit Range (NPV) £ | NET BENEFIT (NPV Best estimate) £ -475,147 |
|-----------------------------|-----------------------------|----------------------------------|---|

| | |
|--|---|
| What is the geographic coverage of the policy/option? | Northern Ireland |
| On what date will the policy be implemented? | February 2022 |
| Which organisation(s) will enforce the policy? | District Councils - The work will be included in contract for Tobacco Control Officers which is overseen by the PHA |

| | | | | |
|---|---|-------|--------|-------|
| What is the total annual cost of enforcement for these organisations? | £19,138 in year one and an ongoing cost of £2,550 from year 2 (to be subsumed into current tobacco control programme of enforcement). | | | |
| Will implementation go beyond minimum EU requirements? | Yes | | | |
| What is the value of the proposed offsetting measure per year? | £ N/A | | | |
| What is the value of changes in greenhouse gas emissions? | £ N/A | | | |
| Will the proposal have a significant impact on competition? | No | | | |
| Annual cost (£-£) per organisation (excluding one-off) | Micro | Small | Medium | Large |
| Are any of these organisations exempt? | N/A | N/A | N/A | N/A |

| | | | |
|---|---------------|--|---------------------|
| Impact on Admin Burdens Baseline (2005 Prices) | | (Increase - Decrease) | |
| Increase of £ | Decrease of £ | Net Impact | £ |
| Key: | | Annual costs and benefits: Constant Prices | (Net) Present Value |

Scope of the paper

1. This paper seeks to establish the economic impact of the draft regulations on restricting the sale of nicotine inhaling products to adults and introducing an offence of proxy purchasing for these products by adults for children, under the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016.

Purpose and intended effect of the measure

2. To reduce access by children and young people to nicotine inhaling products by restricting their sale to persons over the age of 18. The intended effect is to reduce nicotine addiction amongst young people and prevent NIPs being used as a gateway into tobacco smoking.

Legislative background

3. The increasing popularity of NIPs, the most common form of which are e-cigarettes, has led to concerns expressed about their use among children and young people. In 2014, England and Wales included regulation-making powers in the Children and Families Act to allow them to restrict the age of sale for these products to persons over the age of 18. The powers also extended to making it an offence to proxy purchase NIPs. Regulations in both jurisdictions were commenced in October 2015. Similar measures were introduced in Scotland from 1 April 2017 under the Health (Tobacco, Nicotine etc. and Care) (Scotland) Act. The Scottish Government also introduced a requirement for all retailers of e-cigarettes to register on a central public-facing website.
4. In order to ensure that young people in Northern Ireland are offered the same level of protection as those in the rest of the UK, the Department of Health took the opportunity offered by the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016 to include regulation-making powers around the age of sale for NIPs as well as an offence of proxy purchasing. The proposed powers were consulted on in 2015 as part of the wider measures in the Act and no specific objections were raised by respondents. The Department did however also consult on the detailed regulations in 2017 and a [consultation report](#) was published in 2018. The majority of respondents supported the policy aim of restricting the sale of nicotine inhaling products to over eighteens and agreed with the proposals set out in the draft regulations. This support came from across the board and included representation from all sectors

Detail of the regulations

5. In line with England and Wales, the Department of Health in Northern Ireland proposes to introduce an age of sale requirement for nicotine inhaling products, which would include nicotine inhaling devices such as electronic cigarettes. Given that e-cigarettes are by far the most popular type of NIP, this term is used throughout the impact assessment and is intended to encompass all NIPs. The age of sale requirement will apply to disposable and rechargeable devices and their refills (such as pre-filled refill cartridges and nicotine liquids). The device will still be covered by the regulations even if the user intends it for the purposes of inhaling non-nicotine containing e-liquids.
6. The draft regulations, made under the Health (Miscellaneous Provisions) Act (Northern Ireland) 2016, make it an offence for a retailer to sell NIPs (and related products) as defined by the draft regulations to a person under the age of 18. This brings NIPs into line with other age-restricted products such as alcohol and tobacco.
7. An exception is made for NIPs which are licensed by the UK-wide Medicines and Healthcare Products Regulatory Agency (MHRA). These products would only be made available to children either on prescription or if the product's medicine marketing authorisation provides that it is indicated for use by under 18s.
8. A retailer convicted of selling a nicotine inhaling product to a person under the age of 18 years would be liable on summary conviction to a fine not exceeding level 5 on the standard scale (currently up to £5,000). This level of fine is consistent with the corresponding tobacco age of sale offence. In addition, Restricted Sales Orders and Restricted Premises Orders (which came into force in Northern Ireland in July 2016), will be extended to include offences in relation to underage sales of NIPs. Such an Order, if granted by the court, could prohibit a named individual, or a named premises, from selling NIPs or tobacco or both for a period of up to 3 years.
9. The draft regulations also amend Article 4A of the Health and Personal Social Services (Northern Ireland) Order 1978 (purchase of tobacco on behalf of persons under 18) so as to apply it to nicotine inhaling products.

Policy background

10. Electronic cigarettes have been available in Europe since 2005 and are becoming increasingly popular as they can be used in many areas where tobacco smoking is banned. E-cigarettes are battery powered devices which work by heating a nicotine-containing liquid into a vapour which can then be inhaled. In addition to nicotine, the liquid will usually contain water, propylene glycol and glycerine and may also contain flavourings such as vanilla or chocolate.

11. The devices have evolved and become more efficient as they have gained in popularity. The first generation devices were disposable and resembled cigarettes in design. These were followed by e-cigarettes which could be recharged and refilled with liquid cartridges. The more recent devices have moved away from the “cig-alike” type design and, in addition to being fitted with more powerful, rechargeable batteries, they contain replaceable plastic pods or large tank-like containers which can be refilled with nicotine liquid. These devices allow for a more effective delivery of nicotine and are now more popular amongst users than the first generation devices. An ASH survey carried out in 2020 showed that the tank type device is the most popular choice of e-cigarette by both smokers and ex-smokers.
12. E-cigarettes are available for sale in a number of retail outlets including newsagents, petrol stations, supermarkets, chemists and standalone shops. While the Department does not have any concrete data in terms of the number of outlets where e-cigarettes are sold, there are around 2,600 registered tobacco retailers in Northern Ireland¹. It is estimated that the majority of these also sell e-cigarettes. This figure only includes those that sell tobacco and does not include specialist e-cig retailers. There is currently limited data on the number of specialist NIP retailers.

Current regulation of e-cigarettes

13. From 20 May 2016, all e-cigarette products containing under 20mg/ml of nicotine are regulated by the revised EU Tobacco Products Directive² (TPD) and Northern Ireland continues to be required to comply with those provisions following EU Exit. The Directive prohibits cross-border advertising of e-cigarettes and makes provision for a number of requirements in order to provide the consumer with assurances around the quality and safety of these products. In summary, under the TPD:
- e-cigarettes and their refills should be supplied in child and tamper-proof packaging;
 - instructions for use as well as health warnings are to be provided;
 - packaging should also display information on ingredients and nicotine content;
 - there are limits imposed on the size of refill containers and disposable cartridges; and
 - manufacturers and importers of e-cigarettes are required to notify MHRA of any products which they intend to place on the market and to provide an annual report on their products.

¹ The Tobacco Register NI (<https://www.tobaccoregisterni.gov.uk/>)

² Tobacco Products Directive (2014/40/EU)

14. E-cigarette manufacturers of products containing more than 20mg/ml of nicotine, or those wishing to make health claims in relation to their products can apply to the MHRA for medicines' licensing. While costly and time-consuming, medicines' licensing can offer benefits to both manufacturers and users. The level of testing involved offers reassurances to users in relation to the quality, safety and effectiveness of the products, while being a medicine allows the manufacturer to make claims around smoking cessation and removes many of the restrictions imposed by the EU TPD including the ban on cross-border advertising and the limit on the strength of the liquid.

E-cigarette use amongst adults

15. Available survey evidence shows that e-cigarette use remains very popular, with the Office for National Statistics reporting that there are approximately 3 million adult vapers (5.7%) in Great Britain. This proportion is significantly higher than that observed in 2014, when only 3.7% vaped³. Use continues to be almost exclusively limited to either current or ex-smokers with very few non-smokers appearing to adopt the habit.

16. In Northern Ireland, results from the Health Survey Northern Ireland 2019/20⁴ showed that approximately 19% of respondents (aged 16 and over) have used an e-cigarette at some point, which equates to around 285,000 people.

17. In terms of current e-cigarette use, the survey showed that figure to be much lower at 6% with the vast majority of these users being either current (33%) or ex-smokers (57%). E-cigarette use in the most deprived areas of Northern Ireland (8%) is more than in the least deprived areas (5%). The survey also attempted to determine intentions regarding long-term use of these products and revealed that of those who are currently using e-cigarettes, 38% had no plans to stop vaping, while 63% intended to quit, including 17% in the next 6 months.

E-cigarette use amongst children and young people

18. The main source of information on *smoking* prevalence amongst young people in Northern Ireland is the Young Persons Behaviour and Attitudes Survey⁵. This is a school-based survey conducted amongst 11-16 year olds every three years. The 2016 survey included questions on e-cigarette use for the first time and the 2019 survey found that 95% of children had heard of e-cigarettes and, of these, 20% had used them at some stage. 3% of 11-16 year olds in Northern Ireland

³ Office for National Statistics - Adult smoking habits in the UK: 2019

⁴ Health Survey Northern Ireland – 2019/20 – Department of Health

⁵ [Young Persons' Behaviour & Attitudes Survey | Northern Ireland Statistics and Research Agency \(nisra.gov.uk\)](https://www.nisra.gov.uk/young-persons-behaviour-attitudes-survey)

(approximately 4,300⁶) use e-cigarettes at least once a week. The majority of these users indicated that they had already smoked tobacco at some stage (this ranges from current to ever smokers) though it should be noted that the proportion of these users in the sample is small (110 respondents).

19. ASH UK has commissioned YouGov to carry out an annual survey to collect information on tobacco use by 11-18 year olds in Great Britain since 2013. This survey also includes questions on e-cigarettes. The key findings show that regular use of e-cigarettes among children remains rare and, as is the case with adults, is most common amongst current and previous smokers⁷.

20. In terms of the percentage of young people using e-cigarette products, the ASH survey found that 16.4% of 11-18 year olds reported having ever used an e-cigarette, up from 12.7% in 2015. There has also been an increase in current e-cigarette use since 2015, from 2.4% to 4.8%, although use more than once a week is much lower at 1.8%. The prevalence of use increases with age, 91.4% of 11-15 year olds have never used or are unaware of e-cigarettes, compared to 66.5% of 18 year olds. Only 0.8% of 11-15 year olds use e-cigarettes more than weekly compared to 3.5% of 16-18 year olds.

21. Higher levels of ever use of e-cigarettes were reported in a survey carried out in England in 2018⁸ among 11-15 year olds (25%) but this did not translate into corresponding higher rates of regular use with only 2% of respondents claiming to use them at least once a week. Similar high levels of ever use were reported in a study carried out among 13 and 15 year old school children in Scotland in 2018 (17% of 13 year olds and 35% of 15 year olds)⁹. The Scottish study revealed that, from 2015 to 2018, there was a rise in the proportion of boys who had tried e-cigarettes across both age groups. However, regular use of e-cigarettes has not changed.

Rationale for government intervention

22. E-cigarettes are relatively new products, and while an evidence review by Public Health England estimated that they are 95% less harmful than tobacco¹⁰, it will be many years before the long-term effects of e-cigarette use can be quantified. In addition to nicotine, a number of ingredients are added to e-cigarettes, such as formaldehyde, glycerine and flavourings. Many of these ingredients will be

⁶ <https://www.nisra.gov.uk/publications/2019-mid-year-population-estimates-northern-ireland>

⁷ ASH – January 2021 – *Use of e-cigarettes among young people in Great Britain*

⁸ Health and Social Care Information Centre – *Smoking, drinking and drug use among young people in England in 2018*.

⁹ Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) – Smoking Report 2018. November 2019.

¹⁰ Public Health England – *E-cigarettes: an evidence update*. August 2015

relatively harmless when ingested, however, there may be health consequences of regular inhalation over a period of time.

23. Nicotine is a highly addictive substance, and while it is not a carcinogen, it is accepted that it may possibly promote cancerous tumours once initiated. The Department accepts that there may be a harm reduction role for e-cigarettes in relation to supporting adult smokers to quit or at least reduce their tobacco consumption. However, there are concerns that the promotion of e-cigarettes and the variety of flavours available may lead children and young people into nicotine addiction before they are old enough to make an informed decision.
24. A report by the World Health Organisation expressed particular concern about the potential for adolescent nicotine exposure to have long-term consequences for brain development¹¹. The report goes on to say that e-cigarette use “poses serious threats to adolescents...” and recommends that retailers should be prohibited from selling e-cigarettes to minors.
25. Furthermore, while evidence available to date suggests that e-cigarette use amongst children is largely restricted to those who have already experimented with tobacco, the Department is keen to ensure that it does not act as a gateway into smoking. The Department has made considerable inroads into reducing smoking prevalence amongst 11-16 year olds from 9% in 2007 to 4% since 2016¹² and does not wish to see this trend reversed as a result of young people having easy access to e-cigarette products.

Options

26. The options identified are:

Option 1 – Do nothing – continue to allow all nicotine inhaling products to be available for sale to under 18s

27. Under option 1, no legislative changes are required and young people will continue to be allowed to legally purchase nicotine inhaling products.

Option 2 – Introduce a minimum age of sale of 18 years for nicotine inhaling products together with an offence of proxy purchasing for such products

28. This option would bring nicotine inhaling products into line with other age-restricted products such as alcohol and tobacco. Retailers would no longer be legally able

¹¹ WHO – *Electronic Nicotine Delivery Systems* – September 2014

¹² Young Persons’ Behaviour & Attitudes Survey (2007, 2016, 2019), Northern Ireland Statistics and Research Agency

to sell NIPs to persons under the age of 18 and it would also make it an offence for an adult to purchase such a product on behalf of a minor.

Option 3 - Introduce a voluntary agreement with retailers that they will not sell nicotine inhaling products to persons under the age of 18.

29. Option 3 is non-regulatory and would involve the Department seeking the agreement of retailers that they will voluntarily opt out of selling NIPs to children and young people.

Detailed quantification of the preferred option – Option 2

Costs

In the Young Persons' Behaviour & Attitudes Survey (YPBAS) for 2016,¹³ questions relating to e-cigarettes were included for the first time. This survey was carried out by 11-16 year olds in Northern Ireland. Assumptions from this survey will be used to help Estimate how many under-18s use Nicotine Inhaling Products (NIPS) in Northern Ireland.

As well as the YPBAS survey, in order to calculate the direct costs of the preferred option, Option 2 - Introduce a minimum age of sale of 18 years for nicotine inhaling products - a number of assumptions, based on previous Regulatory Impact Assessments (RIAs) completed for England and Wales¹⁴ as well as Scotland¹⁵ have been used. There is no equivalent assessment and hence no equivalent data for e-cigarettes use for the Republic of Ireland.

Using the results from the YPBAS survey and the assumptions, based on previous Regulatory Impact Assessments (RIAs) completed for England and Wales as well as Scotland, We Will:

- Estimate how many under-18s use NIPs
- Estimate how many NIPs these under-18s use in any one year
- Estimate how the above values will change over the next 10 years
- Estimate the profits that are generated by NIPs to firms in the supply chain
- Calculate what proportion of these profits are made by UK-based businesses

¹³ YPBAS is a school-based survey conducted among 11-16 year-olds, *Young Persons' Behaviour & Attitudes Survey 2019*
<https://www.health-ni.gov.uk/articles/young-persons-behaviour-attitudes-survey>

¹⁴ http://www.legislation.gov.uk/ukia/2015/107/pdfs/ukia_20150107_en.pdf

¹⁵ <http://www.gov.scot/Resource/0048/00482985.pdf>

It must be noted that there is a large degree of estimation within the figures included in this document and a number of figures are based on very small sample sizes and insofar as possible central estimates have been presented throughout this document.

Market Estimation (Number of Users)

The YPBAS survey 2016 undertaken across Northern Ireland by NISRA included questions on e-cigarettes for the first time. The DoH commissioned analysis on substance use which featured in the most recent YPBAS survey in 2019 questioned a sample of 4,184 young people aged 11-16 years on their knowledge and use of e-cigarettes¹⁶. The survey noted that 95% of the young people surveyed had heard of e-cigarettes while 20% (842 people) of those young people surveyed had tried an e-cigarette.

Of those surveyed, 1.4% (60 people) used e-cigarettes every day, 1.6% (66 people) used e-cigarettes at least once a week but not every day, 2.7% (114 people) used e-cigarettes less than once a week and 14.4% (601 people) no longer currently used e-cigarettes.¹⁷

A survey undertaken across Great Britain by YouGov for ASH¹⁸ in March and April 2016 questioned a sample young people on their knowledge and use of e-cigarettes, those claiming to have used e-cigarettes were designated into one of three usage categories: Regular; Occasional; and Experimental¹⁹. The findings of this survey were used to inform the development of the England/Wales RIA. For the basis of the current analysis and to align as much as possible with the categories developed as part of the analysis conducted in Great Britain, the responses from the YPBAS survey have been categorised as below:

- 'Regular' (Every day)
- 'Occasional' (At least once a week but not every day / Less than once a week)
- 'Experimental' (Have used e-cigarettes but no longer use them)

Using these groupings and the results from the YPBAS, it can be assumed that of the 4,184 respondents aged 11-16 years, 1.4% currently used NIPs regularly i.e. "every day", 4.3% used them occasionally i.e. "at least once a week or less than once a week", and 14.4% had been experimental i.e. "tried NIPs but do not use them now".

¹⁶ Sample figure of 4,184 is based on the number of respondents to the e-cigarette section of the YPBAS survey. Table 10 YPBAS 2019 – Substance Use - <https://www.health-ni.gov.uk/publications/young-persons-behaviour-attitudes-survey-2019-substance-use>

¹⁷ Note that this figure, relating to use of e cigarettes, is slightly different to the 842 who noted that they had tried e cigarettes above due to some respondents not answering this question

¹⁸ <http://casaa.org/wp-content/uploads/FS34Oct2016-ASH-UK-youth-use-stats.pdf>

¹⁹ The YouGov/ASH survey defined 'Regular' as "more than once a week"; 'Occasional' as "more than once a month"; and 'Experimental' as "once or twice".

As individuals aged 17 years would be excluded from purchasing NIPs under the proposed regulation they will be included in the analysis.

The latest mid-year population statistics relating to the Northern Ireland 11-17 year old population are from 2019.²⁰ While there are no confirmed figures for 2020 onwards population estimates are provided.²¹

For 2021 it is estimated that there will be 173,791 people in Northern Ireland aged 11-17. This population estimate was applied to the proportions noted from the 2019 YPBAS, giving an estimated number of users in the 2021 population of:

- 2,433 Regular users
- 7,473 Occasional users
- 25,026 Experimental users

It should also be noted that the estimated number of regular NIPs users under the age of 18 in Northern Ireland is based on a very small proportion of those surveyed who claimed to use NIPs more than once a week, thus there is a high degree of uncertainty within this estimate.

The impact assessments carried out elsewhere in the UK, which use the ASH/YouGov survey, note that it does not distinguish between nicotine and non-nicotine containing e-cigarettes. As with the other impact assessments it is assumed all responses relate to nicotine containing products and consequently may overestimate NIP use.

Market Estimation (Number of NIPs)

As noted above while there is evidence on the number of people who use e-cigarettes in Northern Ireland, there is currently no data on the number of e-cigarettes consumed by 11-17 year olds in Northern Ireland. So whilst 1.4% of those surveyed (11-16 year olds in NI) use e-cigarettes every day, it is not known if this means 1 puff or 100 puffs. Therefore as per the English and Welsh impact assessment; adult data has been used to infer an estimate of quantity.

The Regulatory Impact Assessment carried out in England and Wales used data on NIP consumption among adults taken from the University College London Smoking Toolkit Study.²² (Using the same assumptions as the England and Wales RIA it is assumed 1 NIP is the equivalent of 30 tobacco cigarettes). From this study they calculated adult consumption of NIPs relative to tobacco cigarettes, split by smoking status (current smoker, former smoker). They then applied this ratio to tobacco

²⁰ <https://www.nisra.gov.uk/publications/2019-mid-year-population-estimates-northern-ireland>

²¹ <https://www.nisra.gov.uk/publications/2018-based-population-projections-northern-ireland>

²² West R, et al. (2014). Trends in electronic cigarette use in England, Smoking Toolkit Study.

consumption by 11-17-year-olds, weighted by age, to produce an estimated average consumption of NIPs among under-18 regular NIP users, of approximately 21 NIPs per user per year.

Using the same rates for Northern Ireland results in an estimate that regular users (under-18s) consume around 51,095 NIPs per year (approx. 2,433 users multiplied by 21 NIPs per user).

The assumptions used in the England and Wales RIA, regarding the relative use of other usage categories ('occasional' and 'experimental' use), can also be applied.

The ASH survey does not estimate consumption rates within each grouping, and so it is assumed that 'occasional' users consume at a rate of approximately one quarter that of 'regular' users. Occasional users are thus estimated to consume 39,233 NIPs per year²³.

It is assumed that each 'experimental' user consumes the NIP equivalent of one full tobacco cigarette per year. Experimental users may not fully exhaust a device, but rather share with others who join together to purchase, or may try a smaller amount from a friend or relative who already uses a NIP. As it is assumed 1 NIP is the equivalent of 30 tobacco cigarettes, this means that each experimental user consumes 1/30th of a NIP per year. Given this assumption, consumption by this 'experimental' group of 25,026 users is estimated to be around 834 NIPs per year.

As referenced in the English and Welsh RIA there are difficulties with comparing NIP and tobacco-cigarette consumption and equivalence; however this approach gives a credible estimate of usage.

The above usage estimates combine to a total of approximately 91,000 NIPs per year, mainly from 'regular' users. These calculations are shown in Table 1, below.

Table 1 – Estimated Number of Users in Population and Number of NIPs likely to be Consumed in 2021

| Usage | Proportion | Estimated Numbers | Numbers of NIPs consumed per year |
|--------------------|------------|-------------------|-----------------------------------|
| Regular | 1.4% | 2,433 | 51,095 |
| Occasional | 4.3% | 7,473 | 39,233 |
| Experimental Users | 14.4% | 25,026 | 834 |
| Total | | | 91,162 |

²³ ((21 Nips per user divided by 4), multiplied by approx. 7,473 occasional users).

Market Growth Projections (Number of Users, Number of NIPs)

To calculate the impact of the policy, the costs and benefits arising over a 10 year period are assessed. To do this, the number of NIP users are forecasted and from this the number of NIPs affected by the policy is estimated.

The market for NIPs is relatively new and constantly changing. Given the limited information available for Northern Ireland around the number of NIPS consumed, once again, the assumptions applied in the RIA for England and Wales will be used.

It is noted that surveys of the adult and under 18s population have found that e-cigarette use is mostly concentrated among smokers and ex-smokers of tobacco. Use by non-smokers is relatively small. Therefore, three main factors will determine the number of under-18 NIP users in the future:

- The number of new NIP users who are also tobacco smokers (since most NIP users are also tobacco users)
- The number of new NIP users who have never smoked tobacco
- Population growth

Latest data from the Smoking Toolkit Study shows that the proportion of adult smokers and recent ex-smokers who use e-cigarettes has remained constant from Quarter 3 2013²⁴.

The findings from the England and Wales RIA showed that overall, after taking into account population growth and that there will be fewer tobacco smokers (who are more likely to be frequent users), the estimated number of NIPs consumed by 11 to 17 year olds will grow at an average annual rate of 4.0%.

Applying the same growth projections as used in the English and Welsh RIA, Table 2 below determines the projected number of NIPS consumed by 11-17 year olds over a ten year period up to 2030²⁵

Table 2 – Projected Number of NIPs Consumed by 11 to 17 year olds

| Year | Total NIPs consumed by 11-17 year olds. |
|------|---|
| 2021 | 91,162 |
| 2022 | 94,809 |
| 2023 | 98,601 |

²⁴ <http://www.smokinginengland.info/latest-statistics/>

²⁵ These projections are based on the growth projections used in the England and Wales RIA and will help determine the direct costs of any policy implication to ban sales of e-cigarettes to under 18's.

| | |
|------|---------|
| 2024 | 102,545 |
| 2025 | 106,647 |
| 2026 | 110,913 |
| 2027 | 115,349 |
| 2028 | 119,963 |
| 2029 | 124,762 |
| 2030 | 129,752 |

Profits Generated by NIPs

Any restriction on age of sale may have impacts on those making profits from NIP sales. To estimate the profits generated by NIPs, and consequently the potential profits lost of the introduction of a minimum age of sale, the price of NIPs and the profit margins achieved by those in the supply chain, including manufacturers, distributors, and retailers must be considered.

NIP Types and Pricing

The proposed regulations would apply to any device that can be used for inhaling nicotine, as well as to refill cartridges and nicotine liquids for those devices. These devices can cost various amounts. The RIA for England and Wales notes that disposable NIP's are priced between £1- £8 each, and are thought to be the equivalent of approximately 30 tobacco cigarettes.

The Scottish paper²⁶ on e-cigarettes notes that by using a range of the estimations of the value of the retail market for Nicotine Vapour Products (NVPs) in Scotland supplied by Ecig Intelligence, it is suggested that this loss to retailers could be between £232,000 and £324,500 in the first year. These estimations have a number of caveats. The market and the estimation of its value covers a diverse range of products with a very wide range of prices: from single cigalikes which retail for as little as £1, starter kits costing under £20, to sophisticated, refillable customisable tank systems which cost many times more. It is not known whether younger users would be more likely to use cheaper devices than other age groups. There is however an expectation that competition will have an impact on profit margins in the future as retailers increasingly compete on price.

The English and Welsh RIA also notes that refillable NIP packages (with a charger and nicotine cartridges) are priced between £30 and £50, with refill cartridges £2 - £17. As disposable NIPs are estimated to be the equivalent of 30 tobacco cigarettes in terms of number of puffs they are approximately one-third as expensive as tobacco

²⁶ Health (Tobacco, Nicotine etc. And care) (Scotland) Bill Business and regulatory Impact assessment August 2015

cigarettes. It is therefore assumed that younger users will be more likely to purchase disposable NIPs than cigarettes as they are less expensive and more readily accessible.

Retailer Profit Margins

The RIA's in England & Wales and Scotland assume retailers have a profit margin of around 40%. This paper will also adopt this assumption.

In projecting impacts over a ten year horizon, the England and Wales assumptions will be applied. It is assumed that increased competition will place downward pressure on retail prices and consequently on profit margins, such that retailers achieve a 40% margin in year 1, halving to 20% in year 2, and halving again to a 10% margin for year 3. The retail profit margin is held at 10% from year three onwards.

Distributor Profit Margins

The impact assessment carried out for England and Wales used evidence from ECigIntelligence²⁷ to help with the understanding of the distribution network. From this it is likely that the smaller retailers who are selling NIPs to under-18s will use a mix of distribution and delivery services, including parcel delivery companies, wholesalers, and direct distribution. An estimate of a profit margin for distributors of 3% was assumed which will be retained for the Northern Ireland RIA.

Manufacturer Profit Margins

In terms of the manufacturing affect there is only a very small number of e-cigarette manufacturers located in Northern Ireland. The English and Welsh RIA note that while the impact on manufacturers is similar to retailers, only 8% of this production is located within the UK and so the total UK loss would be relatively small. Based on this the impact on Northern Ireland will be even smaller. The impact on the manufacturers was not recorded in the Scottish model.

The impact on manufacturers is therefore considered to be negligible in the Northern Ireland RIA.

Lost Profits

The RIA produced for England and Wales is again used as the basis for assumptions to calculate the direct impact on NI business of the new policy. The profits margins for

²⁷ ECigIntelligence, 'In depth: e-cigs in the UK – market and regulatory analysis'. 26 October 2015. Currently available at; <http://ecigintelligence.com/in-depth-e-cigs-in-the-uk-market-and-regulatory-analysis/>

retailers and distributors are used as the basis to calculate the total profits foregone by removing under 18s from the NIP market.

The average profit per NIP for each sector as noted in the England and Wales RIA is shown in Table 3.

Table 3 – Profit per NIP by Sector from 2021 to 2030

| Year | Retail Profit Loss per NIP (£) | Distributor Profit Loss per NIP (£) |
|------|--------------------------------|-------------------------------------|
| 2021 | 1.60 | 0.07 |
| 2022 | 0.60 | 0.07 |
| 2023 | 0.25 | 0.07 |
| 2024 | 0.25 | 0.07 |
| 2025 | 0.25 | 0.07 |
| 2026 | 0.25 | 0.07 |
| 2027 | 0.25 | 0.07 |
| 2028 | 0.25 | 0.07 |
| 2029 | 0.25 | 0.07 |
| 2030 | 0.25 | 0.07 |

Combining these estimates with the projected number of NIPs consumed by 11 to 17 year olds in Northern Ireland, the estimated total lost profits are as given in Table 4.

Table 4 – Lost profits due to lower sales of NIPs by sector 2021-2030

| Year | Total NIPs consumed by 11-17 year olds. | Retail Profit Loss (£) | Distributor Profit Loss (£) |
|------|---|------------------------|-----------------------------|
| 2021 | 91,162 | 145,859 | 6,381 |
| 2022 | 94,809 | 56,885 | 6,637 |
| 2023 | 98,601 | 24,650 | 6,902 |
| 2024 | 102,545 | 25,636 | 7,178 |
| 2025 | 106,647 | 26,662 | 7,465 |
| 2026 | 110,913 | 27,728 | 7,764 |
| 2027 | 115,349 | 28,837 | 8,074 |
| 2028 | 119,963 | 29,991 | 8,397 |
| 2029 | 124,762 | 31,190 | 8,733 |
| 2030 | 129,752 | 32,438 | 9,083 |

Lost profits are anticipated to be felt most by retailers, which enjoy the highest profit margin of the sectors. Distributors are making a low margin (as they operate a high volume, low margin business, in a sector with very low barriers to entry and high levels of competition) and would be expected to lose less profits than retailers.

Cost of Enforcement borne by Retailers (the costs of Identification Document (ID) checks)

This option may cause an increase in the average time for retailers to serve customers, since more customers are likely to have to prove their age.

Based on the assumptions used for England and Wales it is assumed that all those under-18s who would have obtained a NIP under Option 1 (do nothing option) try to buy one under Option 2 (minimum age of sale option). It is assumed that they have to prove their age, and are denied purchase. No other effects on retailers are taken into account.

Assuming it takes an average of 15 seconds per transaction to provide proof of age and taking the number of NIP sales to under-18s of around 91,000 it is estimated around 379 hours of retailer time per year would be spent proving customer's age.

There is uncertainty when assessing the value to retailers of any small amounts of extra time spent on tasks such as proof of age. On the one hand there is an argument that most of these extra seconds are not likely to result in any extra costs, since the retailer could not have made productive use of these extra seconds of time. However, on the other hand there is the chance that this extra time may have a disproportionate effect, since it may feed into wider step change decisions, such as employing another member of staff.

To illustrate this retail enforcement cost, a cost to retailers of £10 per hour is applied, the same as that used in the England and Wales RIA. Taking the values above gives an illustrative cost to retailers of £3,790 in year one.

As per the England and Wales RIA it must be noted that this estimate may be an overestimate for the following reasons:

- Once the law is changed the number of children trying to buy NIPs may decrease.
- Many retailers already do not sell to children and these children may already be getting NIPs from adult friends and family.
- It may take less than 15 seconds on average if a child cannot prove they are an adult, since they do not need to look for documentation that does not exist.
- Children may dual purchase e-cigarettes with other age restricted products which are already being challenged.

Similarly it is noted that this estimate may be an underestimate for the following reasons:

- More adults may be asked for proof of age when buying NIPs.
- Children may be asked for proof of age, and be denied sale at more than one retailer.

- It may take more than 15 seconds on average if a child cannot prove they are an adult, since they may argue over misleading documents or ‘fakes’ to falsely ‘prove’ they are adults.
- If children falsely ‘prove’ they are adults, they may not be asked for proof of age for their next purchase.
- Compliance of retailers may not reach 100%.

Cost of Staff Training and Awareness

It is anticipated that there will be a one-off cost for retailers in terms of training staff and raising awareness of the new age of sale restriction and the product range to which it applies. It is expected that there will be a low ongoing cost in terms of staff training and replacement especially as retailers are already familiar with the concept of age of sale across a range of products. These costs take into account the costs to retailers of the additional time spent to make them aware of the new legislation.

The Scottish RIA noted that while *‘It is anticipated that there will be some small one-off costs to retailers in relation to staff training and awareness for an age of sale restriction along with small on-going costs in relation to staff churn. Tobacco retailers are already familiar with age-restricted products and some private sector stakeholders confirmed during consultation that they do not foresee substantial costs in relation to this legislation. It is not possible to accurately quantify costs to businesses’*.

The English and Welsh RIA estimated there would be a one off cost of £3,000 for advisory visits to retailers in relation to staff training and awareness. Based on this information the England and Wales model assumed a cost in year 1 of £99,675. Applying a NI population pro rata of 3.2%²⁸ would give an estimate of £3,200 for staff training and awareness costs (for retailers) in Northern Ireland.

Direct effects and net costs of the policy

Table 5 – Direct effects and net costs of the policy

²⁸ Pro rata rate based on population data. Northern Ireland population is 3.2% of the England and Wales population based on Mid point 2019 statistics.
<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalescotlandandnorthernireland>

| Year | Distributor Profit Loss (£) | Retail Profit Loss (£) | Retail Familiarity Costs (£) | Retailer costs of lost time (ID checks) (£) | Total (£) |
|--------------|-----------------------------|------------------------|------------------------------|---|----------------|
| 2021 | 6,381 | 145,859 | 3,200 | 3,798 | 159,239 |
| 2022 | 6,637 | 56,885 | - | 3,950 | 67,472 |
| 2023 | 6,902 | 24,650 | - | 4,108 | 35,661 |
| 2024 | 7,178 | 25,636 | - | 4,273 | 37,087 |
| 2025 | 7,465 | 26,662 | - | 4,444 | 38,571 |
| 2026 | 7,764 | 27,728 | - | 4,621 | 40,113 |
| 2027 | 8,074 | 28,837 | - | 4,806 | 41,718 |
| 2028 | 8,397 | 29,991 | - | 4,998 | 43,387 |
| 2029 | 8,733 | 31,190 | - | 5,198 | 45,122 |
| 2030 | 9,083 | 32,438 | - | 5,406 | 46,927 |
| Total | 76,615 | 429,877 | 3,200 | 45,604 | 555,297 |

Other (Non-business) Costs

Cost of Enforcement by District Councils

The RIA for England and Wales as well as the Scottish Impact Assessment noted additional enforcement costs for Local Authority Trading Standards. In Northern Ireland there will be costs to District Councils as monitoring and enforcement is likely to fall to Tobacco Control Officers (TCOs) in Environmental Health teams. Although the proposal for NIPs is similar to existing legislation on tobacco, the preferred option will add to the work of the Environmental Health service. In terms of the cost of enforcement in relation to Northern Ireland there is little information presently available.

The TCOs are currently funded by the Public Health Agency (PHA). An annual plan of activity is agreed between the councils and PHA as part of contractual arrangements associated with this funding. The costs of enforcement of the new legislation will be subsumed into current tobacco control programme of enforcement.

The NIP market is still maturing and there is not enough robust data to determine an accurate figure on these costs. As a result we will use a pro rata of the costs noted in the England and Wales RIA. It assumed a cost in year 1 of £598,051 and an ongoing cost of enforcement falling on Trading Standards of £79,740 per year. Based on this the cost for Northern Ireland would be £19,138 in year one with an ongoing cost of

enforcement of £2,552 per year²⁹ - as noted above these costs will be subsumed into current tobacco control programme of enforcement.

Cost of communication

In terms of communicating the changes to retailers it is assumed that TCOs/EHOs will raise awareness with retailers on routine visits in advance of the legislation being introduced to let them know that the law will be changing and when. There may be a flyer and an accompanying letter from the Department which would be posted out to each of the retailers for which there are details. The Department will also issue press releases around the time the legislation is due to be introduced. It is estimated that this would cost in the region of £3,000 - £3,500. Therefore a cost of £3,500 will be included in year one of this RIA.

Cost falling to Department of Justice

The English and Welsh RIA estimated that there would be a small impact of around £5,000 per year falling on HM Courts & Tribunals Service (HMCTS), due to an increase in court cases following non-adherence to the proposed policies. Based on a pro rata basis, the judicial costs for Northern Ireland would be in the region of £160 per annum. As a result these are determined to be negligible and have been excluded from the analysis.

Second-round Business Impacts

The RIA for England and Wales noted that the direct costs relating to loss of profits to retailers, distributors, and manufacturers from removing under 18s from the NIP market are likely to be partially offset by increased profits from redirected spending on goods and services elsewhere in the economy (although these are classes as indirect).

In the long run it is expected that the profit margins and returns on capital equalise throughout the economy, and the long run effects of switching spending between goods and services would lead to no loss of output for the economy as a whole. NIPs presently attract a high profit margin, of around 40% to retailers, owing in part to them being a relatively new and novel product. Initially, any spending redirected to other goods and services would be likely deliver lower profit margins.

²⁹ Pro rata rate based on population data. Northern Ireland population is 3.2% of the England and Wales population based on Mid point 2019 statistics.

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

The money not being spent on NIPs is assumed to be spent on other goods and services. The England and Wales RIA assumed that these goods attract a profit margin of 10%, equal to the rate NIPs might be expected to generate from year 3 (2023) onwards. In Net Present Value (NPV) terms, there is therefore a net cost to retailers in the first two years of the policy. Similarly, these extra goods need to be delivered to retailers, or pass through a distribution network. It was therefore assumed the direct cost on distributors of not delivering NIPs will be offset by the profits of delivering and distributing other goods and services. In NPV terms there is therefore no effect on distributors.

As the NIP industry matures, it is assumed the profit margin made by manufacturers will reduce to a level commensurate with an economy wide average return on capital employed. It is likely however, that the loss of profits made by manufacturers in the early years of this policy will not be redistributed as in the short run this capital is likely to be tied up in the NIP industry.

As a result it is assumed these same assumptions are applicable to Northern Ireland. For the Indirect benefits of redirected spend the figures noted in the England and Wales RIA have been pro rated (3.2%) for Northern Ireland.

Table 6 – Direct and Indirect Effects and Net Costs of the Policy

| | Direct Costs | Enforcement costs (£) | Communication costs (£) | Indirect benefits of redirected spend (£) | Net costs (£) | Discounted Net costs (£) |
|--------------|---------------------|------------------------------|--------------------------------|--|----------------------|---------------------------------|
| 2021 | 159,239 | 19,138 | £3,500 | 5,954 | 175,923 | 169,974 |
| 2022 | 67,472 | 2,552 | 0 | 4,792 | 65,232 | 60,895 |
| 2023 | 35,661 | 2,552 | 0 | 4,379 | 33,834 | 30,516 |
| 2024 | 37,087 | 2,552 | 0 | 4,727 | 34,912 | 30,424 |
| 2025 | 38,571 | 2,552 | 0 | 4,948 | 36,175 | 30,458 |
| 2026 | 40,113 | 2,552 | 0 | 5,189 | 37,476 | 30,487 |
| 2027 | 41,718 | 2,552 | 0 | 5,438 | 38,832 | 30,522 |
| 2028 | 43,387 | 2,552 | 0 | 5,691 | 40,248 | 30,565 |
| 2029 | 45,122 | 2,552 | 0 | 5,956 | 41,718 | 30,610 |
| 2030 | 46,927 | 2,552 | 0 | 6,178 | 43,301 | 30,697 |
| Total | 555,297 | 42,106 | £3,500 | 53,252 | 547,651 | 475,147 |

The base year for the purpose of the NPV's (Year 0) is 2020 and a 3.5% discount rate has been used

The discounted net cost of the policy over the 10 year appraisal period is £475,147. This is detailed in the Net Present Cost (NPC) table at Annex 1 and is made up from a total cost (direct costs, enforcement costs and communication costs) in present value terms of approximately £519,000 and a total benefit in present terms of approximately £44,000.

Other Benefits

As well as the benefits highlighted above additional benefit areas must be considered.

Benefits to young people, to the Northern Ireland Government and the HSC

The Scottish RIA examines the benefits introducing a minimum age of sale of 18 years for nicotine inhaling products will have on young people and the NHS. It notes that the Scottish Government believes there is no reason for children to use NIPs and it is therefore acting to minimise the impact of several unknown consequences of the use of NIPs. The analysis within the Scottish RIA concludes that there are health benefits and benefits to young people in general of a minimum age of sale of e-cigarettes but that there is insufficient evidence to quantify these at this point in time.

However it is assumed the introduction of a minimum age of sale will reduce the possible negative health consequences of young people using NIPs containing nicotine and will reduce the possibility of young non-smokers becoming addicted to nicotine. It is thought that similar benefits will be realised, proportionately, in Northern Ireland.

Impact on Small Businesses

These proposals will apply to all businesses including small retailers and newsagents, however it is envisaged costs to these businesses will not be significant and it is assumed that the proposals will not have a disproportionate impact on small businesses.

Rural Proofing

It is anticipated that raising the age of sale will have no disproportionate effects on the rural economy.

Equality

Equality screening has been carried out for the purposes of compliance with Section 75 of the Northern Ireland Act 1998 and the Department has decided on the basis of this exercise that an Equality Impact Assessment is not necessary.

Annex 1 – NPC table

| NPV @ 3.5% p.a. | | | | | | | | | | | | |
|--|--------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|
| APPRAISAL DATE: | | | | | | | | | | | | |
| OPTION NUMBER & TITLE: | | Option 2 | | | | | | | | | | |
| YEAR : | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | TOTAL |
| CAPITAL COSTS (£ 000s): | | | | | | | | | | | | |
| | | | | | | | | | | | | 0 |
| | | | | | | | | | | | | 0 |
| | | | | | | | | | | | | 0 |
| | | | | | | | | | | | | 0 |
| A. Total Capital Costs (Annual) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| B. Total Capital Costs (Cumulative) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REVENUE COSTS (£ 000s): | | | | | | | | | | | | |
| | | | | | | | | | | | | 0 |
| Direct Costs | | 159239 | 67472 | 35661 | 37087 | 38571 | 40113 | 41718 | 43387 | 45122 | 46927 | 555297 |
| Enforcement Costs | | 19138 | 2552 | 2552 | 2552 | 2552 | 2552 | 2552 | 2552 | 2552 | 2552 | 42106 |
| Communication Costs | | 3500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3500 |
| C. Total Revenue Costs (Annual) | 0 | 181877 | 70024 | 38213 | 39639 | 41123 | 42665 | 44270 | 45939 | 47674 | 49479 | 600903 |
| D. Total Revenue Costs (Cumulative) | 0 | 181877 | 251901 | 290114 | 329753 | 370875 | 413541 | 457811 | 503749 | 551424 | 600903 | |
| E. Total Costs (Annual) (=A+C) | 0 | 181877 | 70024 | 38213 | 39639 | 41123 | 42665 | 44270 | 45939 | 47674 | 49479 | 600903 |
| F. Total Costs (Cumulative) (=B+D) | 0 | 181877 | 251901 | 290114 | 329753 | 370875 | 413541 | 457811 | 503749 | 551424 | 600903 | |
| BENEFITS (£ 000s): | | | | | | | | | | | | |
| | | | | | | | | | | | | 0 |
| Indirect Benefits of redirected spend | | 5954 | 4792 | 4379 | 4727 | 4948 | 5189 | 5438 | 5691 | 5956 | 6178 | 53252 |
| | | | | | | | | | | | | 0 |
| G. Total Benefits (Annual) | 0 | 5954 | 4792 | 4379 | 4727 | 4948 | 5189 | 5438 | 5691 | 5956 | 6178 | 53252 |
| H. Total Benefits (Cumulative) | 0 | 5954 | 10746 | 15125 | 19852 | 24800 | 29989 | 35427 | 41118 | 47074 | 53252 | |
| NET UNDISCOUNTED COST* (=E-G) | 0 | 175923 | 65232 | 33834 | 34912 | 36175 | 37476 | 38832 | 40248 | 41718 | 43301 | 547651 |
| DISCOUNT FACTOR @ 3.5% p.a. | 1.0000 | 0.9662 | 0.9335 | 0.9019 | 0.8714 | 0.8420 | 0.8135 | 0.7860 | 0.7594 | 0.7337 | 0.7089 | |
| NET PRESENT COST* (Annual) | 0 | 169974 | 60895 | 30516 | 30424 | 30458 | 30487 | 30522 | 30565 | 30610 | 30697 | 475147 |
| NET PRESENT COST* (Cumulative) | 0 | 169974 | 230869 | 261385 | 291809 | 322267 | 352754 | 383275 | 413840 | 444450 | 475147 | |
| TOTAL NET PRESENT COST* = | | 475147 | | | | | | | | | | |
| * A minus sign in these rows denotes a Net Present Value rather than a Net Present Cost. | | | | | | | | | | | | |

Note Given the availability of sources and projections 2020 is the base year. 2021 is year 1.

Annex 2 – Sensitivity Analysis

Due to limitations in the data available there remains some uncertainty over the accuracy of the assumptions made. A sensitivity analysis has been conducted around some of the key assumptions and summary findings included below, the choice of preferred option has not changed as a result of this analysis.

Proportion of NIP users that are ‘Regular’ users

The RIA draws on survey data to categorise NIP users as: ‘regular’; ‘occasional’; or ‘experimental’ users. The RIA has categorised the response ‘At least once a week but not every day’ as an ‘Occasional’ user. For the purposes of this sensitivity analysis we have instead categorised these respondents as ‘Regular’ users.

Changing how the responses are categorised results in the percentage of regular users increasing from 1.4% to 3% and Occasional users decreasing from 4.3% to 2.7%.

A higher percentage of regular users results in a higher estimate of the number of NIPs consumed, leading to an increase in total costs from £600,903 to £866,136 (undiscounted) and an increase in Net Present Costs (NPC) from £475,147 to £703,559 as shown in the table below.

| | Preferred Option | Sensitivity Analysis |
|------------------------------|-------------------------|-----------------------------|
| Est. % of Regular users | 1.4% | 3% |
| Est. % of Occasional users | 4.3% | 2.7% |
| Est. % of Experimental users | 14.4% | 14.4% |
| | | |
| Total Costs | £600,903 | £866,136 |
| Total Benefits | £53,252 | £53,252 |
| Net Undiscounted Cost | £547,651 | £812,884 |
| Net Present Cost | £475,147 | £703,559 |

Retailer Profit Margins

This RIA has adopted the assumptions made as part of the England & Wales RIA around the costs of NIPs and the profit margins achieved by retailers. It was assumed that increased competition will place downward pressure on retail prices and consequently on profit margins, with retailers achieving a profit per NIP of £1.60 in year 1, decreasing to £0.60 in year 2 and £0.25 from year 3 onwards.

Considering the England/Wales RIA uses 2015 as a baseline year this sensitivity analysis assumes that the NIP sector in NI has matured and that competition has increased and retailers have already felt the effect of downward pressure on retail

prices and profit margins. Therefore this sensitivity analysis assumes a retail profit per NIP of £0.25 across the entire 10 year period as set out in the table below.

| | Preferred Option | Sensitivity Analysis |
|----------------------------|---|-----------------------------|
| Retail Profit Loss per NIP | Year 1: £1.60 Year 2: £0.60 Year 3 onwards: £0.25 | Year 1 onwards: £0.25 |
| Total Retail Profit Loss | £429,877 | £273,625 |
| | | |
| Total Costs | £600,903 | £444,651 |
| Total Benefits | £53,252 | £53,252 |
| Net Undiscounted Cost | £547,651 | £391,399 |
| Net Present Cost | £475,147 | £325,263 |

Cost of Enforcement borne by Retailers

The RIA assumes that it takes an average of 15 seconds per transaction to provide proof of age and uses the estimated number of NIPs sold to estimate the hours of retailer time per year that would be spent proving customer's age.

The RIA acknowledges the uncertainty of this estimate and the potential for this to have been overestimated or underestimated. To test this assumption a lower estimate of 10 seconds and higher estimate of 20 seconds have been considered as set out in the table below.

| | Sensitivity Analysis A (10s) | Preferred Option (15s) | Sensitivity Analysis B (20s) |
|-------------------------------------|-------------------------------------|-------------------------------|-------------------------------------|
| Time per ID check | 10 seconds | 15 seconds | 20 seconds |
| Retailer costs of lost time - Total | £30,403 | £45,604 | £60,806 |
| | | | |
| Total Costs | £585,701 | £600,903 | £616,104 |
| Total Benefits | £53,252 | £53,252 | £53,252 |
| Net Undiscounted Cost | £532,449 | £547,651 | £562,852 |
| Net Present Cost | £462,644 | £475,147 | £487,649 |