

**Explanatory Memorandum to The Environmental Protection (Single-use Vapes) (Wales) Regulations 2024**

This Explanatory Memorandum has been prepared by the Local Government, Housing, Climate Change and Rural Affairs Group and is laid before Senedd Cymru in conjunction with the above subordinate legislation and in accordance with Standing Order 27.1.

**Minister's Declaration**

In my view, this Explanatory Memorandum gives a fair and reasonable view of the expected impact of the Environmental Protection (Single-use Vapes) (Wales) Regulations 2024. I am satisfied that the benefits justify the likely costs.

**Huw Irranca-Davies MS**  
**DEPUTY FIRST MINISTER AND CABINET SECRETARY FOR CLIMATE**  
**CHANGE AND RURAL AFFAIRS**

**19 November 2024**

## **PART 1 – EXPLANATORY MEMORANDUM**

### **1. Description**

- 1.1 The Environmental Protection (Single-use Vapes) (Wales) Regulations 2024 (“the Regulations”) prohibit the supply (including for free) of single-use vapes in Wales.
- 1.2 The Regulations aim to address the significant environmental damage caused by the inappropriate disposal of single-use vapes in Wales. The Regulations are intended to accelerate the shift in consumer behaviour away from single-use vaping products towards re-usable and more sustainable alternatives.

### **2. Matters of special interest to the Legislation, Justice and Constitution Committee**

- 2.1 To address several drafting discrepancies identified following the laying of the Regulations on 22 October, the Regulations were withdrawn and replaced with an amended version on 19 November.

### **3. Legislative background**

- 3.1. The Regulations are made under powers conferred by section 140(1), (c) and (d), (3)(a), (c) and (d) and (9) of the Environmental Protection Act 1990 (“the 1990 Act”) and section 62(2) of the Regulatory Enforcement and Sanctions Act 2008 (“the 2008 Act”).
- 3.2. The 1990 Act allows the Welsh Ministers to prohibit the supply, and storage of specified articles to prevent them from causing pollution of the environment and harm to the health of animals. It also allows them to confer powers corresponding to those under section 108 of the Environment Act 1995 on authorised persons, including powers of entry, examination, and investigation, for taking photographs and samples, and the search and seizure of documents.
- 3.3. The 2008 Act allows the Welsh Ministers, when making secondary legislation creating a criminal offence, to make any provision which could be made under Part 3 of the 2008 Act. This includes the imposition of the following civil sanctions: fixed monetary penalties, variable monetary penalties, compliance notices, non-compliance penalties, stop notices and enforcement undertakings.

3.4. The Regulations are made under the affirmative procedure.

## 4. Purpose and intended effect of the legislation

4.1 The policy objectives of the proposals are to:

- Rapidly reduce environmental harm caused by the consumption of critical raw materials and incorrect disposal of single-use vapes in residual waste streams and being littered.
- Encourage wider and more sustainable behaviour change around the consumption of single-use products to tackle the throw-away culture.
- Encourage a shift towards reusable alternatives.

4.2 This policy is also part of the wider government agenda to tackle youth vaping.

4.3 Vapes (also known as e-cigarettes) have increased in popularity in recent years, becoming more mainstream products. In Wales, [the proportion of adults currently using vapes](#) rose from 6% in 2020-2021 to 8% in 2022-2023. The market has grown rapidly, with the [UK vaping industry](#) estimated to be responsible for a turnover of £1.325 billion in 2021.

4.4 Vapes are battery-powered devices that heat a liquid (usually nicotine, although non-nicotine liquids are also available) to produce an aerosol that is inhaled. They are sold in both reusable and single-use form, with the latter being classified as being neither rechargeable nor refillable and are then discarded (in most cases littered or placed in general waste) when they run out of charge or e-liquid. They should not be placed in a general waste bin or littered and should instead be returned to participating stores or to household waste and recycling centres (HWRCs). It is [estimated that 14 million single use vapes are bought each month](#) in the UK, 1.3 million of which are unsafely discarded in rubbish bins or on the streets every week.

### Litter

4.5 When single-use vapes are littered, they introduce plastic, nicotine salts, heavy metals, lead, mercury and flammable lithium-ion batteries into the [natural environment](#). These chemicals can end up contaminating waterways and soil and can also be toxic and damaging to wildlife. Some

materials can persist for hundreds of years causing damage to ecosystems. Chemicals added during the manufacture of plastics can enhance durability, act as a colorant, plasticizer, stabilizer or increase flame retardancy. Some of these chemicals are classified as persistent organic pollutants (POPs) and endocrine disruptor chemicals (EDCs) and will further harm [terrestrial and marine life](#) if ingested as [microplastics](#). The electronics and critical raw materials (lithium-ion batteries, copper, cobalt etc.) can also pose their own risk to human and ecosystem health.

- 4.6 When littered the plastic casing can grind down into harmful microplastics. Annual street cleanliness surveys undertaken by [Keep Wales Tidy](#) (KWT) found a sharp rise in the presence of single-use vapes in our environment. Between 2023/24, single-use vapes were found on 10.2% of streets across Wales, with an estimated 6700 vapes littered on our streets at any one time. However, it should be noted these surveys do not include roadside verges, parks, green spaces or beaches and, therefore, likely underestimates the scale of vape litter across Wales. Single-use vapes are now a separate category in KWT's surveys, following an increase in anecdotal reporting by the public and local authority cleansing teams.
- 4.7 Vapes were added to inland litter picking forms collected by the Marine Conservation Society (MCS) as part of the [Source to Sea Litter Quest for Beach watch 2023](#), and were reported to be found on 14% of the cleans which took place across Wales.
- 4.8 In 2023, research by [Material Focus](#) estimated that over 5 million single-use vapes were either littered or thrown away in general waste every week in the UK, almost four times as much as the previous year. Single-use vapes are primarily littered in public spaces and this generates clean-up costs to local authorities (LAs).
- 4.9 Tackling poor local environment quality issues ensures that people live and work in cleaner, safer, healthier and more attractive communities. It tackles the blight that discourages investment in local area economic development. Poor local environmental quality can also have a negative impact on people's mental health and wellbeing, with such anti-social behaviour often resulting in an area appearing run-down and neglected. This can result in further anti-social behaviour or even more serious crimes. These types of offences often disproportionately affect economically disadvantaged communities.
- 4.10 There is an information failure with the majority of users of disposable vapes lacking awareness about the environmental impacts of incorrectly

discarding vapes, also lacking knowledge about the correct forms of disposal.

## Disposal

- 4.11 When disposed of single-use vapes become [Waste Electrical and Electronic Equipment \(WEEE\)](#) and require specific treatment in the waste stream. [The Waste Electrical and Electronic Equipment Regulations 2013](#) aim to encourage the reuse and recycling of these items by placing financial responsibilities on producers and distributors of electrical and electronic equipment (EEE) to pay for collection and disposal schemes for WEEE. This means that all producers who place EEE on the UK market, including producers of single-use vapes, are responsible for financing the costs of the collection, treatment, recovery and environmentally sound disposal of WEEE.
- 4.12 Under the [WEEE regulations](#), EEE products are grouped into 14 categories. Vapes fall within category 7, which covers toys, leisure and sports equipment. This creates a high probability that all producers within that category (whether vapes or otherwise) share in meeting the cost of recycling vapes. However, the [costs of recycling vapes](#) are significantly higher than other category 7 products, with estimates of the cost of recycling a single vape to be £0.40-£1, and with costs by weight to be £5-£10 per kilogram. This categorisation means it is likely vapes' producers will not cover the full cost of vapes collected for recycling, reducing the incentive for them to ensure their products are easily recyclable.
- 4.13 Until recently, retailers that sold over £100,000 worth of vapes per year were obliged to offer take-back services for recycling (i.e. they must provide a vape disposal bin in store). There are low levels of awareness amongst store owners and distributors for takeback schemes, as well as low levels of customer [participation reported](#). In January 2024, these thresholds changed, it is now a [requirement for all retailers](#) of vape products (irrespective of value sold) to provide take-back for recycling of used vape products on a one-for-one, like-for-like basis.
- 4.14 Plans to reform the producer responsibility system for waste electrical and electronic equipment have recently been [consulted on](#). Proposals under review include the provision of collection infrastructure for household WEEE financed by producers of electrical and electronic equipment; reforms to the take-back obligations that currently apply to distributors; obligations on online marketplaces; and creating a new separate categorisation for vapes to ensure producers of vapes properly

finance recycling costs when they become waste. The reported low awareness of producer obligations should be addressed by the implementation of these producer responsibility reforms. These reforms and their interaction with our regulations are discussed further in the Regulatory Impact Assessment (RIA) section below.

## Recycling

- 4.15 Single-use vapes are [difficult and expensive to recycle](#). The only recycling process available in the UK is manual dismantling which is costly and time consuming since most single-use vapes are [not designed to be taken apart easily](#). They are designed as one unit and require specific tools to remove the lithium-ion battery for recycling and careful handling of components to avoid operator exposure to the remaining e-liquid.
- 4.16 Of the single-use vapes that are returned to a shop or recycling centre across the UK, it is estimated [only 1% are recycled due to limited recycling capacity](#). The remainder of vapes collected for recycling are likely to be sent to landfill given [Environment Agency's guidance](#) (applicable across the UK) that single-use vapes should not be incinerated.
- 4.17 Compaction during the collection process increases the chances of puncture and combustion of their lithium-ion batteries, setting fire to dry and flammable waste or household recycling around them. This endangers the public and staff working on lorries and waste plants if fires are caused on the streets and waste centres across the UK and can damage public and private property. [Senedd Research](#) highlighted it is estimated lithium-ion batteries are responsible for approximately 48% (over 200) of all [waste fires](#) occurring in the UK each year. These waste fires also contribute to a high level of greenhouse gas emissions. In 2023 the insurer Zurich Municipal reported a [62% rise in bin lorry blazes and a 108% increase in house fires](#) sparked by vapes in the preceding two years. Its research also showed that:
- Three single-use vapes are disposed of incorrectly in the UK each second;
  - Three out of four users are unaware of how to dispose of the vapes correctly; and
  - A similar proportion is unaware vapes contain lithium batteries.

## Circular economy

- 4.18 The Welsh Government is committed to moving towards a circular economy, where we move from a "take, make and dispose" model to one where we value materials and keep them in use. Reusable vapes are a readily available alternative to single-use vapes and have a much longer lifespan. They are made from more durable materials and are built to last longer. Although they are initially more expensive, reusable vapes are more cost-effective in the long term. Reusable vapes are considered to be less environmentally damaging, as the same vape can be used for an extended period of time compared to single-use vapes.
- 4.19 The introduction of a ban on the availability of these unnecessary problematic products forms part of a package of wider measures to reduce the negative impact of littering, plastic pollution and climate change on our environment. The ban will contribute towards other public health action to protect children and young people from exposure to the harms of nicotine addiction, toxic substances, and environmental waste from single use vapes. The policy also aims to prevent the normalisation of vaping and smoking among children and young people.
- 4.20 This aligns with the [Programme for Government 2021-2026](#) commitment to protect our future generations by ensuring we “embed our response to the climate and nature emergency in everything we do”. Under this encompassing pledge, there is a specific commitment to “Legislate to abolish the use of more commonly littered, single use plastics”.

## Manufacturing

- 4.21 Environmental impacts from manufacturing single-use vapes are also of concern. A typical single-use vape contains plastic, copper, cobalt and a lithium battery. Lithium and cobalt are critical raw materials as noted in the [UK's Critical Raw Materials Strategy](#) which is essential to the production of electronic devices, batteries and energy generation. The increased demand for single-use vapes leads to an increased demand for these critical raw materials. It is estimated the total amount of single-use vapes purchased every year contain enough lithium to provide batteries for [5,000 electric vehicles](#).
- 4.22 This is a waste of valuable resources in a product with a short lifespan, that is poorly recycled and has a reusable alternative readily available. As well as a loss of resources in the economy, there are also environmental

impacts with raw material extraction, single-use vapes production and manufacturing. Most notably, this includes [greenhouse gas emissions](#) and water consumption generated in their manufacture.

### **Alignment with other objectives - Youth Vaping**

- 4.23 Vapes can be an effective tool to support smokers to quit, with the NHS actively encouraging current [smokers to switch to vaping](#). They are considered less harmful than cigarettes due to the absence of tobacco, however they usually still [contain nicotine and other chemicals](#). This means they are not risk free and the long-term effects are not known.
- 4.24 Although it is also an offence to sell vapes to anyone under the age of 18 in the UK, single-use vapes are understood to be driving recent increases in youth vaping with data showing the number of [children and young people using vapes has tripled](#) in the past three years. In May 2024, [ASH Wales](#) published data from their national [Youth Vaping Survey](#) of 12000 secondary school pupils and showed that 24% of the 11-16 year olds surveyed had vaped. The survey also reported that of the young people who vape on a regular basis;
- 40% use only disposable vapes
  - 46% use both disposable and refillable/ rechargeable vapes
  - 10% use only refillable/rechargeable vapes
- 4.25 Purchasing directly from shops is the most common source for this user group. Evidence from [Trading Standards Wales](#) suggests underage persons can buy vapes in 15% of attempted purchases. Products are available in a variety of flavours (e.g. various fruit flavours, sweet flavours, soft drinks, etc.) with attractive packaging which potentially increases the risk for children to be exposed to these products. This implies there is poor compliance with the restriction of vape sales to those who are underage, thereby leading to underage and illegal vape use.
- 4.26 Due to their nicotine content and the unknown long-term harms, vaping carries a risk of harm and addiction for children. In Wales, it is [estimated that 5% of secondary-aged learners](#) use vapes on a weekly basis with single-use vapes the most [common type of device](#) used by children and young people. Recent investigations undertaken by [Public Health Wales](#) and partner organisations suggest the prevalence of vaping has remained high and probably increased further since the 2021/22 School Health



Research Network (SHRN) Student Health and Wellbeing [Survey](#) was undertaken.

- 4.27 The Chief Medical Officer for Wales Annual Report, [Shaping Our Health](#), published November 2023, highlights that *“whilst it is true that vapes are still relatively new and the long-term impact of their use is still developing, it is clear that caution must be taken in order to protect children and young people and non-smokers as we face a real danger in the UK of creating a new generation of nicotine-addicted young people unless we take urgent action. We must therefore make sure that we learn from our experience with tobacco and ensure we work as hard as possible to prevent the use and uptake of vapes by children and young people”*.
- 4.28 The introduction of our legislation to ban single-use vapes (both the nicotine and non-nicotine versions) will address the significant environmental impact of the inappropriate disposal of these products as well as the rise in youth vaping. It will also encourage businesses to move towards making more reusable, more easily recyclable and less environmentally harmful alternatives.

### **Enforcement**

- 4.29 The legislation will be enforced by local authorities and their trading standards officers in accordance with future published guidance. The legislation provides for fixed monetary penalties, compliance notices and stop notices as well as non-compliance penalties. Criminal sanctions are also provided for where an enforcement undertaking has not been complied with. Guidance will be published by local authorities in advance of the legislation coming into force. The guidance will assist manufacturers, suppliers, retailers and the public in understanding how to comply with these regulations.

### **Implementation**

- 4.30 We will work closely with businesses, manufacturers and public sector groups, to develop guidance to support the implementation of the legislation. This will include communication material to help raise awareness of products no longer available.

## 5. Consultation

### UK Wide Consultation

- 5.1 A consultation on the proposals to restrict the sale and supply of disposable vapes was published on 12 October 2023. Almost 28,000 responses were received. The four nations' consultation response, published on 29 January, showed clear support for restrictions on the sale and supply of single-use vapes. Of the responses received in Wales, 60.4% agreed the restrictions on single-use vapes should take the form of prohibiting their sale and supply. Common themes for those who agreed with this approach included concerns over the increase in plastic waste, harmful chemicals leaching into the environment and the risk from the fires due to the incorrect disposal of single-use vapes.
- 5.2 The importance of single-use vapes was highlighted for certain groups, including older users, people with dexterity issues, those in in-patient mental health settings, prisons and the homeless in relation to smoking cessation. Also, the impact on children and young people who may already be nicotine dependent. These concerns have been fully considered in our impact assessments, discussed further in the RIA section below.
- 5.3 54% of respondents considered at least six months transition time was appropriate to allow adequate time for manufacturers, businesses, retailers and consumers to adjust to the changes.
- 5.4 The full consultation response can be found here: [Creating a smokefree generation and tackling youth vaping consultation: government response - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/creating-a-smokefree-generation-and-tackling-youth-vaping-consultation-government-response)

### Consultation on draft SI

- 5.5 The Environmental Protection (Single-use Vapes) (Wales) Regulations 2024 draft regulations were published on the 12 July inviting comments on our policy proposals. The consultation closed on the 26 July with 21 responses. The responses broadly echoed those received in the 2023 consultation, detailed above. This resulted in a minor amendment to the Regulations to provide clarity on what constituted 'premises'. This is now defined as including any vehicle, vessel or mobile plant and mirrors the definition in s.109N(1) of the Environment Act 1995 ("the 1995 Act").

- 5.6 Building on the evidence gathered in the 2023 consultation, we undertook additional targeted stakeholder engagement over several months in 2024. This engagement, focused on impacts across different population groups, including children and young people, the potential positive, negative or unintended consequences and mitigating actions. Further details of this engagement can be found in the relevant Impact Assessment overviews in the RIA section of this document.
- 5.7 Initiatives across Wales support young people to take action to respond to various environmental concerns, including issues such as the climate crisis. The [Eco-Schools programme](#) is a platform the Welsh Government has to engage directly with children and young people to develop sustainable behaviours and deliver climate change and natural resource priorities. We also support children and young people's participation through grant funding Children in Wales to run Young Wales, Welsh Government's primary participation model to bring the views of children and young people into policies, programme and legislation development.
- 5.8 The Welsh Government produced an online survey regarding the proposed ban on problematic single use plastic products, including vapes. An online survey was shared with [Eco Schools](#) for children and young people to complete via social media, aimed at High School students. The policy background and questionnaire were also shared, in hard copy format, with 14–18-year-old children and young people at the '[Our Earth, Our Future](#)' conference in July.

### **Future engagement with children & young people**

- 5.9 Following the concerns raised on the impacts of the bans on children and young people during the 2023 consultation and responses received from Eco-Schools, the Welsh Government determined further engagement with children and young children was required to share policy information on the bans and to provide information to children and young children regarding the smoking cessation support available to them.
- 5.10 The Welsh Government commissioned [Youth Friendly](#) to produce 'youth friendly' versions of our policy proposals and questionnaires to continue to engage with children and young people through 2024/25. This will ensure the views of children are considered and reflected in the final design and implementation of the ban. This includes when the ban is reviewed and evaluated to assess its impact and effectiveness. Involving children and young people early in our future thinking will influence positive behaviour change and creative thinking amongst our next generation. A revised Children's Rights Impact Assessment will be published in May 2025 to include these findings.

5.11 The impacts identified have been summarised in the 'Impact Assessment Summary' at Section 9 below.

### **Engagement with Tobacco Industry**

5.12 All engagement with the tobacco industry adhered to our commitments under the World Health Organisation Framework Convention on Tobacco Control (FCTC) Article 5.3. This ensures our tobacco control policies are protected from commercial and other vested interests of the tobacco industry.

### **Approach elsewhere in the UK**

5.13 To address the range of environmental issues associated with single-use vapes, the Welsh Government has agreed with the UK Government (legislating for England), the Scottish Government and the Northern Ireland Executive to prohibit the supply of single-use vapes, with an expected joint coming into force date of 1 June 2025. This includes agreement to ensure a minimum of six months transition period to allow businesses time to adapt.

## PART 2 – REGULATORY IMPACT ASSESSMENT

### 6. Options

6.1. The policy objective is to prohibit the sale and supply of single-use vapes in Wales to reduce the environmental harm of these products. The rationale for this is set out in the Explanatory Memorandum above.

6.2. A number of alternative policy options alongside the ‘business as usual’ and ‘preferred’ option’ (i.e., a prohibition on the sale and supply of single-use vapes) were given consideration. However, these were filtered out when considered against policy success criteria.

6.3. Details of the [policy](#) criteria and screening process followed those set out in the UK Government’s IA and can be viewed in full on Defra’s website. For ease of reference, we have provided a summary below:

- **Reduced harm and risk to the environment:** refers to the extent to which significant negative impacts to the environment are avoided or reduced, in order to achieve the policy objectives.
- **Implementation timeline:** refers to the extent to which the policy delivers the stated objectives in a timely manner to address the problem under consideration.
- **Feasibility/achievability:** refers to the extent to which the option can be delivered with existing resources and skills available, and with minimal logistical or implementation issues.
- **Value for money:** refers to the extent to which the policy option is likely to deliver social value in terms of costs, benefits and risks.
- **Supportive strategic fit with wider policies:** refers to the extent to which the policy option aligns with wider government objectives targeting youth vaping.

6.4. A summary of these considerations are provided below:

- **Keep the status quo (i.e. business as usual):**
  - Under the business-as-usual option, there would be no restrictions on the sale and supply of single-use vapes. This is the baseline against which all other options are assessed.

Market failures related to the negative externalities of environmental impacts associated with incorrect disposal as well as inefficient use of resources would persist. Although, with no changes implemented, no deliverability or implementation issues would arise with this option.

- **A ban on the sale and supply of single-use vapes (preferred):**
  - This option would address the issue at source, whereby single-use vapes would not be available for sale and would encourage a reduction in the usage of them. A ban can be implemented quicker than the other options considered and would be more effective in preventing the waste of critical raw materials. This in turn would have greater benefits in reducing greenhouse gas emissions. It would also help to promote reusable alternatives which provide a more efficient use of resources. Communications supporting a ban would also help highlight the environmental impacts of incorrect vape disposal.
  - This option also aligns with wider Welsh Government objectives. This option also follows what other countries have either already done or are planning to do to tackle the environmental problems around single-use vapes.
- **Implementation of a Deposit Return Scheme (DRS) for single-use vapes:**
  - This option would place deposits on single-use vapes to incentivise people to return and recycle them. Though this could help with increasing recycling of single-use vapes and thereby reduce negative impacts on the environment, it would also have cost implications for vape producers and enforcement costs for monitoring compliance.
  - This option would be less likely to promote the use of reusable alternatives and would also take several years to implement, when the problem under consideration is growing rapidly. Further, the country currently lacks suitable facilities to recycle these products and so this option is less likely to be feasible.
- **Request-only option:**
  - This option would involve single-use vapes being available by request-only in all settings and not readily on display (i.e. only made available if a consumer specifically asks for one). This would be similar to the current approach with tobacco products whereby retailers make temporary, limited size displays and only sell a tobacco product to a customer aged 18 or over on request. It should be noted specialist tobacconists are still able to display tobacco in

designated tobacco areas (i.e. specialist tobacconists can display and advertise tobacco products inside their shops provided they are not visible from the outside).

- Unlike tobacco products, there are no measures to regulate the display of vaping products in shops in Wales. [Vaping products are openly and prominently displayed](#) on countertops, at till points and in eye-catching display towers on shop floors. [Concern has been expressed](#) about children seeing and easily picking up vapes being displayed in aisles, close to sweets and confectionary products and on accessible shelves.
- There is uncertainty over the effectiveness of this approach. Whilst it is likely to act as a barrier for children and prevent them easily accessing vapes, it would not necessarily influence adult vapers. This may not fully reduce the current environmental impacts and so does not specifically target the policy objectives. This would be more difficult for enforcement bodies to monitor business compliance and would likely have no effect on online consumption.

- **Wider take-back scheme:**

- This option would build on existing WEEE regulations. This will increase accessible take-back and recycling solutions through the introduction of additional retailer collection points or designated vape bins in more retailers and places like schools/universities and other public spaces.
- [Responses to the DHSC Call for Evidence](#) frequently mentioned that schools should have designated 'vape bins' where children could safely dispose of vapes, both to decrease littering and to take away opportunities for children to pick up discarded vapes to use or sell, which is an issue in schools.
- This option would make responsible disposal easier. However, this option is likely to be very costly to stores and schools and may not result in increased recycling due to lack of recycling infrastructure in the UK. Given the prevalence in use by children (including being sold illegally to those underage), these consumers may not want to return to stores.

- **Creating recycling infrastructure to deal with single-use vapes:**
  - A key challenge in dealing with single-use vapes is the lack of a well-established recycling infrastructure in the UK. Currently, the Environment Agency advises that manual dismantling is the only form of treatment for recycling vapes. To increase capacity for vape recycling, it could move towards a more mechanical treatment process, with potential procedures including the use of a nitrogen blanketing system to mitigate fire risk or a wet shredding system to suppress fires.
  - This would require significant investment over several years for the infrastructure to be established and delay action to address the immediate environmental damage being caused. Given these timescales and uncertainties over future treatment options, this approach was discounted.
- **Improved product design of single-use vapes for easier recyclability:**
  - Standardisation of the design and recycling of single-use vapes could ease the burden on recyclers and enable automation of the recycling process, as opposed to current manual dismantling. However, any product standard would take time to develop, implement and enforce. This option also fails to promote the use of reusable alternatives to single-use vapes. Due to concerns over feasibility, this option was not considered a reasonable alternative to banning the sale and supply of single-use vapes.
- **Tax on single-use vapes (per device)**
  - Several countries, including Italy and Sweden, have introduced various forms of tax on vapes, however many base the tax on the volume of liquid consumed rather than a tax per device. The tax also covers all vapes rather than specifically targeting single-use devices.
  - In the March 2024 Spring Budget, the previous UK Government announced a UK-wide Vaping Products Duty which is expected to be implemented in October 2026. This is to be targeted at nicotine strength of liquid in vaping products more generally, and not targeted specifically at single-use devices. The implementation of a tax on single-use vapes (per device), rather than – or in addition to - a general vaping duty that also covers reusable vapes, would reduce the affordability of single-use vapes and would be effective in reducing consumption, potentially reducing the absolute number of



those incorrectly disposed of and the associated environmental impacts. It would also generate tax revenue for the government.

- Depending on the tax amount, the price of single-use vapes could rise to parity with reusable vapes, thereby discouraging the use of single-use vapes. However, it is more likely that an increase in the price of single-use vapes would dissuade the younger age groups as it is currently argued that vapes are more accessible due to their affordability. High taxes for single-use vapes could encourage switching to reusable vapes, for those that can afford them. It is unlikely that an increase in price of single-use vapes would encourage a switch to cigarettes due to their cost.
- A further risk with a tax is the effectiveness is likely to reduce over time without further intervention and so the desired impacts may not be sustained. This is because, similarly to cigarettes, vapes contain the addictive substance nicotine, which may mean that vape consumers will seek them out whatever the tax burden to satisfy the nicotine cravings. Additionally, a tax would not necessarily address the littering behaviour or remove the environmental impacts altogether since it would not boost, or ease recycling of single-use vapes. A tax could be used to help fund other options - such as creating recycling infrastructure to recycle single-use vapes – however, ring-fencing tax revenues is a very uncommon practice in the UK.
- **Information campaign to increase the number of single-use vapes being recycled (non-regulatory option):**
  - Evidence indicates that 75% of vapers think producers and retailers should provide more information that vapes can be recycled and the word [“single-use” should no longer be used in any marketing and promotion](#). An information campaign specifically targeted at single-use vapes, making the instructions of the safe disposal of them more readily available (i.e. consumers knowing that they should always recycle rather than bin or litter their vapes) would raise public awareness of how to safely recycle single-use vapes.
  - However, this could come with complications due to limited recycling capacity in Wales and across the UK. Additionally, this approach would be unlikely to achieve the policy objectives of accelerating the reduction in environmental harm over time nor would it address the wider lifecycle impacts of single-use vapes or promote reusable alternatives.

## Short list of options

6.5 Table 1 shows a summary RAG-rating of the qualitative assessment of each of the options in longlist against the policy success criteria and the key for the ratings is provided in Table 2.

**Table 1: Summary qualitative assessment of longlist options**

Option	Reduced harm and risk to the environment	Delivered/ implemented in a timely manner	Feasibility/ achievability	VfM	Supportive strategic fit with wider public policies
Do nothing	Red	Green	Green	Red	Red
Ban on the sale and supply of disposable vapes	Green	Green	Green	Amber / Green	Green
Implementation of a DRS for disposable vapes	Amber	Red	Red	Amber	Red
Request-only option	Red	Green	Green	Amber	Amber
Wider take-back scheme	Amber	Red	Amber	Amber	Red
Creating recycling infrastructure to deal with disposable vapes	Amber	Red	Red	Red	Red
Improved product design of disposable vapes for easier recyclability	Amber	Red	Amber	Amber	Red
Tax on disposable vapes (per device)	Amber	Amber	Amber	Amber	Amber
Information campaign (non-regulatory option)	Amber	Amber	Green	Amber	Red

**Table 2: Key for assessment against success criteria**

Key	Description
Red	Does not meet success criteria
Amber	Partially meets success criteria
Green	Meets/delivers success criteria

6.6 After scoring the options against the success criteria, we have deemed the most likely option was a ban on the sale and supply of single-use vapes. Therefore, we have considered the following two options in this RIA:

**Option 1: Keep the status quo (i.e. business as usual).**

6.7 This is the option against which the preferred option is assessed against, and as such the costs and benefits are zero. In the absence of government intervention, single-use vapes would continue to be produced, imported and sold in Wales with no additional costs to businesses. It is predicted that sales will continue increasing in Wales, but at a declining rate. As such, the environmental impacts caused by the incorrect single-use of single-use vapes (e.g. risk of battery-related waste fires) will persist.

**Option 2: Implement a ban on the sale and supply of single-use vapes (preferred option).**

6.8 This is the preferred option. A ban on the sale and supply of single-use vapes will reduce the environmental and social costs caused by their production and incorrect disposal, as outlined earlier in this RIA. This intervention applies the precautionary principle and will quickly secure the change and associated environmental benefits, ensuring these are sustained into the future. The intention of the ban is to prevent environmental harms caused by incorrect disposal of single-use vapes.

6.9 Single-use vapes are inherently unsustainable products, meaning an outright ban remains the most effective solution to this problem and would support the policy objectives. A ban would go much further than other options to reduce the number of single-use vapes in circulation. It would also further help to send the signal to consumers that there is a reusable alternative and raise awareness of recycling (i.e. making it the norm for vapers to purchase reusable vapes and recycle them properly when the product reaches end-of-life). The intervention is expected to reduce the number of vapes being produced and subsequently littered, landfilled and incinerated. It will thereby encourage the reuse rates of reusable alternatives, ensuring the single-use product (i.e. single-use vapes) is out of circulation, thereby correcting the failures in the current market and addressing the issue at source.

- 6.10 A ban would also support the wider proposed reforms to the WEEE regulations which would increase an uptake of recycling of reusable products and ensure they will be recycled in an appropriate way at their end-of-life. Further, the reforms to the WEEE regulations will ensure that producers of reusable vapes alone are covering the cost of recycling vapes collected under the regulations.
- 6.11 Additionally, legislating to end the sale of single-use vapes, would create a level playing field for businesses and create consistency, helping to ensure that children are not able to purchase them and contribute towards tackling youth vaping. Unlike other options in the long list which were more targeted towards increasing recycling, the policy option of a ban aligns more with related public policies, including the wider package of measures to tackle youth vaping.
- 6.12 No exemptions are proposed under this ban. Further detail on this is discussed in the 'Impact Assessment Summary' at Section 9 below.
- 6.13 As previously noted in the Explanatory Memorandum section of this document, there was widespread support for a ban in responses to the ['Creating a smokefree generation and tackling youth vaping'](#) consultation. In relation to the question on whether people supported the restriction of the supply and sale of single-use vaping products, 79.6% of respondents from Wales agreed with this approach. When asked whether this should be in the form of a ban, 69.4% of Welsh respondents agreed and cited concerns around environmental harm (including the need to reduce plastic) in their response.

## 7. Costs and benefits

### Assumptions

7.1. The following section outlines a series of assumptions and approaches used to underpin the cost-benefit analysis conducted.

#### Modelling the policy options, assumptions and Welsh weighting

7.2. The cost-benefit analysis adopts the same modelling approach as has been used by Defra and the Scottish Government. This is in line with the coordinated approach that has been taken to implementing the policy across the UK. A wide range of evidence has been used in this RIA and where possible we have utilised Welsh specific research and datasets to calculate our figures. If Welsh datasets did not exist, we either extrapolated a Welsh figure using UK wide data (gathered through externally commissioned research, ONS datasets etc) or if this was not feasible, a UK-wide figure was used instead.

7.3. This approach is considered appropriate because consumption habits are believed to be broadly similar across the UK and, in the absence of a domestic industry for the manufacture of single-use vapes, the supply chains (importers, distributors and wholesalers) serving Wales and the rest of the UK are likely to be closely linked. As a result, impacts on consumers and businesses are likely to be broadly proportionate to relative population and market size.

7.4. Defra's cost-benefit modelling approach itself uses a standardised methodology consistent across the whole of the UK for the appraisal of the impacts of policy interventions. The overarching guidance which informs all similar impact assessments across the UK is the HM Treasury's Green Book, which provides guidance on how to appraise and evaluate policies, projects, and programmes.

#### Counterfactual

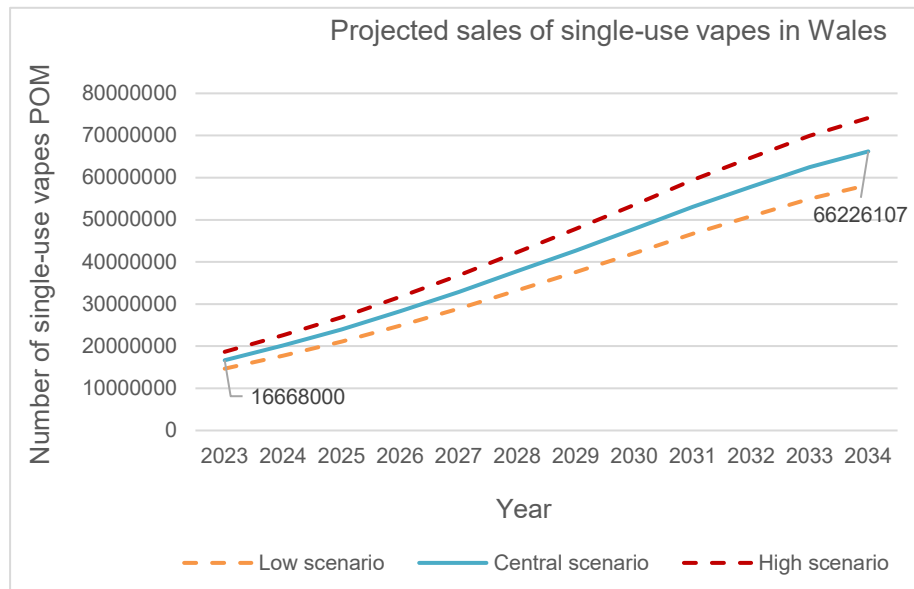
7.5. To explore the current trends in the single-use vapes market, [sales data from a Defra-commissioned report by Eunomia](#) has been used. Their research was conducted in 2023 to specifically enhance the evidence base on the single-use vapes market and its environmental impacts in the UK. This included an evidence review, engagement with key stakeholders and preliminary impact modelling analysing the environmental impact of single-use vapes. The costs and benefits of the preferred option are

assessed against the counterfactual where there is the absence of a ban (i.e. in the ‘do-nothing’/ status quo scenario).

### Projected single-use vape sales

- 7.6. [Material Focus estimates](#) 360 million single-use vapes were placed on the market (POM) in the UK in 2023. This figure has been projected forward by Eunomia in their [research report](#), showing that around 1 billion single-use vapes could be placed on the UK market by 2030. This assumes consumption will continue to increase at a declining rate relative to the rapid growth seen prior to 2023 and in the absence of any policy interventions. This also takes into account that some of the more [regular single-use vape users would transition to reusable vapes](#) given these are significantly cheaper over the long term. We have adjusted this figure based on the proportion of the UK population accounted for by Wales (4.6%) and have extrapolated the data further to reach 66.2 million single-use vapes in 2034 to cover the 10-year appraisal period.
- 7.7. The modelled scenario in the absence of a ban can be seen in **Figure 1** below, with estimates for years 1, 5 and 10 on the appraisal period in **Table 3**.

**Figure 1: Chart of projected single-use vape sales in Wales**



**Table 3: Baseline single-use vape sales projection in Wales**

	Low scenario	Central scenario	High scenario
<b>2025</b>	21,120,223	24,000,253	26,880,284
<b>2029</b>	37,567,715	42,690,585	47,813,455
<b>2034</b>	58,278,974	66,226,107	74,173,239

7.8. An overview of how these scenarios have been used to calculate costs are outlined in Section 7 below.

7.9. The year-on-year growth rate of sales is summarised in **Table 4**, with values to the nearest percent.

**Table 4: Year-on-year growth rate for single-use vapes POM**

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Year-on-year growth rate (%)</b>	21%	19%	18%	16%	15%	13%	12%	11%	9%	8%	6%

7.10 Eunomia’s projection is based on the year-on-year growth rate in single-use vapes consumption forecast by [Zero Waste Scotland](#), for the period 2022 to 2027. This growth trend is assumed to continue between 2027 and 2030 and has been extrapolated further assuming it will continue until 2034. In the absence of any intervention, key changes are expected to be continued growth in the uptake of vapes across the population along with a rising share of single-use vape users (and share of sales revenue) among the growing number who use vapes.

7.11 Forecasts undertaken by Zero Waste Scotland took into consideration the following:

- The evolution in the proportion of adults using vapes (all types, not only single-use vapes) appears to be growing at roughly 0.55 percentage points per annum at the Great Britain level, based on data from the yearly Great Britain survey by Action on Smoking and Health (ASH). In addition to the latest figures for the proportion of adults using vapes in Scotland being around 13.2% in October 2022.
- The radical shift reported in sales and the increased use of single-use vapes as a main vaping device indicates a direction of travel, however the pace of change that was observed in 2021-2022 will not be sustained.
- Across a 10-year time period from 2012 to 2022, various ‘uptake’ surveys (including from the ONS, ASH and the Smoking Toolkit Study) suggested that further increases in user numbers for vapes are likely in the coming years in addition to there being a decline in smoking prevalence across the same period. This suggests a further decline is likely in the future (i.e., since vapes are a smoking-cessation tool, some

of the uptake can be attributed to the decline in smoking as smokers quit).

7.12 As such, it was deemed reasonable to consider that, in the absence of any intervention, key changes to be expected are:

- A continued growth in the uptake of vapes across the population;
- Alongside this growth, a rising share of single-use vape users among the number of those who use vapes (irrespective of some users switching to reusables).

7.13 More specifically, [Zero Waste Scotland's projection](#) was based on the following assumptions using current trends:

- Uptake of vapes in the under 16s increasing by 2 percentage points per annum;
- Uptake of vapes in the population aged 16 and over increasing by 1.5 percentage points per annum (i.e. 1.5% of the population are added to the number of vape users each year);
- Increase in the proportion of vape users whose main device is single-use vapes of 4% per annum (of e-cigarette users in the age-bracket) across the under 16s, the 16-24 age bracket and the 25-34 age bracket;
- Increase in the proportion of vape users whose main device is single-use vapes of 2% per annum (of e-cigarette users in the age-bracket) across those aged 35 and upwards;
- The number of single-use vape units purchased per annum, expressed per person for whom single-use vapes are the main device used, remains constant (139 to 177 single-use vape units per annum per user for the low and high scenarios).

7.14 The forecasts are recognised as being uncertain. Therefore, sensitivity analysis around the central scenario has been undertaken to explore this risk. This is based on the high and low scenarios in single-use-vape consumption forecast in Zero Waste Scotland, [Scoping policy options for Scotland focusing on understanding and managing the environmental impact of single use e-cigarette for the period 2022 to 2027](#) as Eunomia used the same growth rate for this period. This works out to 12% (to the

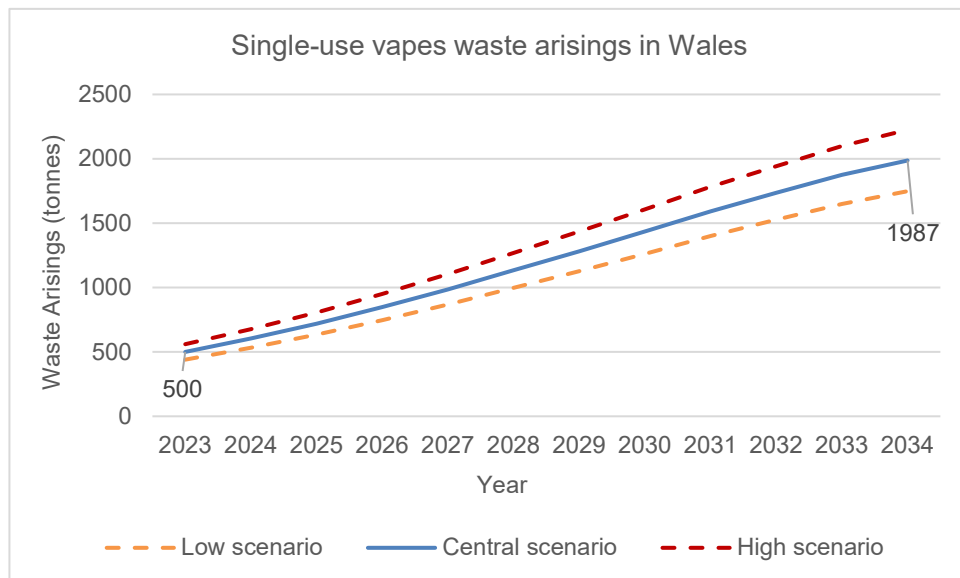


nearest percent) above and below the average/central scenario for single-use vapes POM, whilst keeping the year-on-year growth rate the same.

### Projected waste arisings

7.15 The growth rate and high/low sensitivity have also been applied to single-use vape waste arisings (measured in tonnes of waste as opposed to number of items). This has also been adjusted based on the proportion of the UK population accounted for by Wales and extrapolated further to cover the appraisal period. For each single-use vape contributing to this, it is assumed that most of the vape liquid is used during the vape’s lifetime and so the average weight of a single-use vape when it becomes waste is around 30g (the average weight when the disposable vape is full is 32.2g and the reduction in weight is based on 2ml of liquid estimated to be 50:50 propylene glycol and glycerin with 20mg of dissolved nicotine salts, but with 0.25g remaining at end of life) **Figure 2** shows the projection of waste arisings from single-use vapes, with figures for years 1, 5 and 10 of the appraisal period in **Table 5** using the same growth rate from **Table 4**.

**Figure 2: Chart of projected Welsh single-use vape waste arisings**



**Table 5: Baseline single-use vapes waste arisings projection in Wales (tonnes)**

	Low scenario	Central scenario	High scenario
<b>2025</b>	634	720	806
<b>2029</b>	1,127	1,281	1,434
<b>2034</b>	1,748	1,987	2,225

## Potential interaction with other policies

### Reforms to the WEEE Regulations

- 7.16 Some of the proposed reforms to the WEEE regulations set out earlier in this document are expected to be implemented in 2025, will not have any impact on the counterfactual scenario meaning there is no need to adjust the baseline estimates as a result.
- 7.17 The proposal to create a new category for vapes to ensure producers of vapes properly finance recycling costs when they become waste, could result in vape producers paying more for recycling, potentially passing some of these costs onto consumers. If these were passed onto consumers, it could lower the demand for vaping products. However, the impact on demand is unlikely to be significant for it not to be covered in our sensitivity analysis for single-use vapes POM data.
- 7.18 Furthermore, the existing [WEEE Regulations](#) provides powers for the Secretary of State to set annual WEEE collection targets. A decision to create a new category for vapes would require the Secretary of State to set a weight-based collection target. The size of that target is entirely at their discretion; hence it is not possible to quantify the likely cost impacts of future targets on vape producers (or indeed any other type of producer) in future years. Indeed, to do so would require a presumption of future targets which could prejudice the discretion of the Secretary of State. However, the existing regulations already ensure costs arising from vapes arising at HWRCs and distributors are captured in the system. Any future target would take into account those volumes and future available data on the impacts of the ban on single-use vapes on waste arisings.
- 7.19 The creation of this new category will unlikely impact what consumers do with their vapes when they become waste, whether they choose to discard in a bin, litter or recycle them. Consequently, it will not result in increased tonnage of vapes entering the UK or Welsh recycling system. Instead, it would mean where vapes are being recycled, the vape producer is paying for them as opposed to other electrical producers.
- 7.20 Though there are wider reforms that were opposed in the consultation (including communication campaigns and collections from households) that may lead to an increase in the number of single-use vapes being collected for recycling, it is not expected these quantities will be large enough to address the problem presented in this RIA. It will require time to

build the necessary infrastructure to ensure all vapes are eventually recycled and, ideally, limited infrastructure is used for reusable products that are increasing economic efficiency.

- 7.21 Based on the above, the issues of low recycling rates and consequently negative environmental impacts of the incorrect disposal of single-use vapes would persist in the counterfactual scenario (i.e., no ban scenario), irrespective of the latest WEEE proposals.

### **Smokefree generation policies**

- 7.22 The Tobacco and Vapes Bill aims to make it an offence to sell tobacco products to those born on or after 1 January 2009. This is designed to phase out the sale of tobacco products, while not stopping anyone who currently legally smokes from being able to do so, contributing to the wider government objective of creating a smokefree generation. This means that anyone who turns 15 or younger in 2024 will never legally be sold tobacco products from January 2027, when this policy takes effect and when those born in 2009 start turning 18 years old.

- 7.23 [The latest data from the ONS Smoking Habits in the UK](#) shows that 14% of those in the 18-24 age group in Wales currently smoke (from 2022). Assuming there is a uniform distribution across this age group (as the data is not split by single year of age) and applying it to the latest [ONS population estimates](#), this suggests that there are approximately 4900 18-year-olds who currently smoke in Wales. Though it should be noted that the proportion of people in this age group who currently smoke does seem to have been gradually decreasing year-on-year, and so there is potential for this to fall further in future years.

- 7.24 Although vapes are a smoking-cessation tool, a significant proportion of them are used by people who have never smoked tobacco before. As a result of individuals born on or after 1 January 2009 not being able to purchase cigarettes or other tobacco products, there is a potential for them to take up vaping (i.e., those that would have become smokers in the absence of the policy, end up becoming vapers). This could mean that there is potential upward increase in demand for vaping products overall, and likely single-use vapes too. It is anticipated that the proportion of 18-year-olds each year who would have taken up smoking in the absence of this policy intervention, may end up taking up vaping and that could be in the form of single-use vapes. If this were to be the case, this could result in increasing the projected vape sales in the current counterfactual outlined above. However, there is no evidence to support whether this is likely as well as there being no further information about other variables

(e.g., how many of these users would have been dual users, thereby using both tobacco and vapes), and so it has not been factored into the counterfactual.

### Vaping Products Duty

7.25 In March 2024, the previous UK Government announced at the [Spring Budget](#) that it would introduce a new Vaping Products Duty from October 2026. The duty is intended to discourage non-smokers from taking up vaping, while maintaining the financial incentive to choose vaping over smoking. In addition to this, tobacco duty will also be increased from October 2026 to further maintain the financial incentive to choose vaping over smoking.

7.26 The vaping duty will be based on the levels of nicotine contained in products. The proposed rates are currently as follows (nothing they can be pro-rated):

- £1.00 per 10ml for nicotine free liquids.
- £2.00 per 10ml on liquids that contain 0.1-10.9 mg of nicotine per ml; and
- £3.00 per 10ml on liquids that contain 11mg or more nicotine per ml.

7.27 At the time of writing this RIA, the details of this policy have not been finalised (May 2024). A [consultation on this duty](#), led by the HM Treasury and HM Revenue and Customs (HMRC) was open for views on the proposals for the design and implementation of this UK-wide duty until May 29 2024, meaning potential for timelines and implementation of the tax to change post-consultation.

7.28 Furthermore, the structure of the duty means that single-use vapes would not be captured. This is because the ban had already been accounted for in the baseline to inform the tax base due to being published prior to the UK Government's Spring Budget announcement and due to being implemented before the vaping duty comes into force. The Office for Budget Responsibility (OBR) estimated the vaping duty will raise £0.5 billion by 2028-29 with several uncertainties in the costings, including the impact of the ban on single-use vapes. [In their analysis](#), it was assumed 40% of existing users of single-use vapes would switch to alternative vaping products and would, therefore, be liable for the duty. As a result, this duty was not accounted for in our counterfactual scenario to avoid

double counting impacts, whilst ensuring consistency across government analyses.

7.29 In a scenario where there is the absence of a ban on single-use vapes, one could expect the duty would decrease the project volume of single-use vape sales. However, the magnitude of change would depend on several factors, including a response from the supply chain that could potentially try to lower the impact of the duty, for example via reduced profit margins, suggesting the overall impact to industry could be lower if the duty was factors into our counterfactual.

### **End-of-life and treatment route assumptions**

7.30 Most of the costs and benefits considered in this RIA are based on how single-use vapes are disposed of. To assess this, assumptions have had to be made around how they are managed at end-of-life and how they are treated.

### **Split of end-of-life management routes**

7.31 At end of life, disposal and recycling behaviours determine the environmental impacts associated with resource recovery and waste management. Eunomia has estimated, based on data from Zero Waste Scotland, the following shares end-of-life management routes for single-use vapes (to the nearest percent), outlined in Table 6:

**Table 6. Share of single-use vapes waste arisings by end-of-life management route**

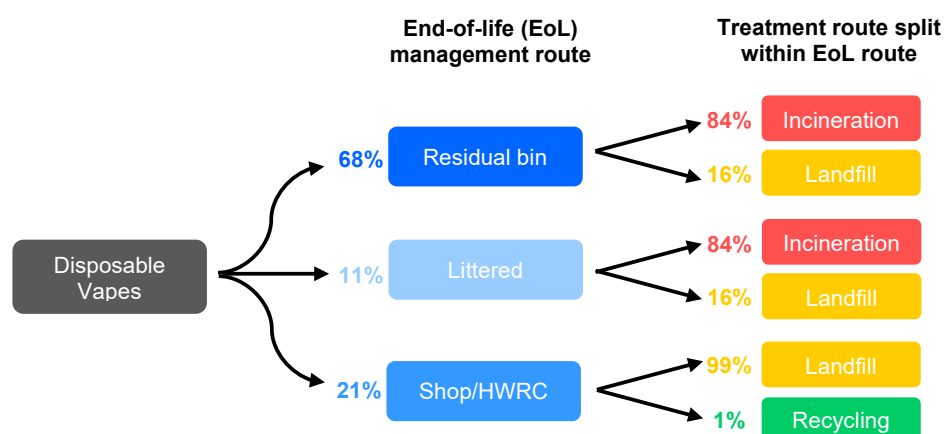
<b>End-of-Life Management Routes</b>	<b>Share of waste arisings</b>
Recycled in a shop or HWRC	21%
Discarded into a bin	68%
Littered/other (‘other’ captures categories with a very small share, including being given away or flushed down a toilet, and so are combined with litter)	11%

### **Split of final treatment routes**

7.32 Based on stakeholder interviews and Defra Waste Statistics, Defra’s RIA assumed single-use vapes would be treated in each of collection routes as outlined in Figure 3.

7.33 It should be noted that in Wales, [unlike other parts of the UK a much smaller proportion of municipal waste is sent to landfill](#). However, in the absence of a detailed breakdown of the disposal routes for single-use vapes in Wales and in light of the neutral costs associated with the Landfill Disposal Tax calculations used in this RIA, we have chosen to adopt the collection route model include in both the English and Scottish IAs.

**Figure 3. Flow chart of single-use vapes route at end-of-life**



7.34 The overall proportions for the final treatment routes based on Figure 3, are summarised in Table 7 (to 1 decimal place).

**Table 7. Share of single-use vapes waste arisings by final treatment route**

Treatment route	Share of waste arisings
Recycled	0.1%
Incinerated	66.3%
Landfill	33.6%

7.35 The final treatment routes for single-use vapes waste arisings have significant environmental impacts. It is assumed these proportions will remain constant over the appraisal period for the counterfactual. Without any policy intervention, their environmental impact will continue to increase, given the higher levels of consumption projected over the appraisal period.

7.36 The proportions being sent via the treatment routes in the absence of a ban are also the same proportions of single-use vape waste arisings diverted from the treatment routes as a result of the ban. This is discussed when calculating certain impacts in the cost-benefit analysis. The breakdown of this for residual waste (i.e., landfill and incineration) for the appraisal period can be seen in Table 8 using the proportions from Table 7 applied to Figure 2 in a central scenario.

**Table 8. Single-use vapes waste arisings diverted from residual waste (tonnes)**

	<b>2025</b>	<b>2029</b>	<b>2034</b>
<b>Incineration</b>	477	849	1317
<b>Landfill</b>	242	430	668

**Greenhouse gas emissions associated with end-of-life treatment routes**

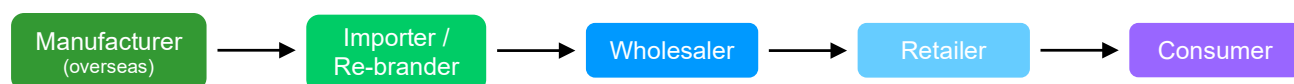
- 7.37 As almost all materials in vapes are inert materials, when placed in landfill they will not degrade or release greenhouse gas (GHG) emissions. Therefore, the GHG emissions associated with landfilling of vapes would be negligible.
- 7.38 During incineration, there is power generated by turbines as a result of the combustion of the waste (i.e. Energy from Waste (EfW)) and, therefore, any emissions arising in Wales from this process will count towards our statutory GHG targets. Incinerating vapes to generate power can replace other fuel sources, such as gas. By accounting for this (Eunomia’s modelling accounts for this and gives a credit for the energy produced that would otherwise need to be generated elsewhere (for instance by coal or wind turbine power sources), 0.21 tonnes of CO<sub>2</sub> net are released upon incineration per tonne of single-use vape waste arisings. Although, this is likely to be a conservative estimate as this is accounting for the energy offset, when the energy sector will [decarbonise by 2035](#) and so the impact could be bigger towards that timeframe. Therefore, for avoided emissions from EfW we are technically underestimating the benefit.
- 7.39 There are both process emissions and avoided emissions associated with the recycling of single-use vapes. The net recycling emissions are negative, implying the credits from recycling of vapes outweigh the processing burdens. The credits achieved by recycling are higher than burdens, as the GHG emissions associated with the production of primary materials (e.g., copper and aluminium) are high. Therefore, by recycling these materials there is a high level of avoided GHG emissions, by assuming the recyclate offsets emissions from primary production. For the battery and non-battery components of single-use vapes, [Eunomia’s research calculates](#) that -0.58 tonnes of CO<sub>2</sub> are released upon each tonne of recycled single-use vape waste arisings.

## Supply chain and route to consumers

7.40 [UK Government guidance](#) uses the term ‘producer’ to refer to anyone who manufactures or imports vape products or who re-brands any vape product as their own. For the purposes of our cost-benefit analysis, we have considered these categories of ‘producer’ separately as they would not incur the same impacts as the result of the ban.

7.41 The supply chain for single-use vapes is complex, given the diversity of companies involved in the important and distribution and ambiguity over which actor is ‘first’ to place products on the market. For the purposes of our cost-benefit analysis we have assumed the supply chain employed in the [Defra IA](#) which was created following engagement with stakeholders. The typical route to market for single-use vapes is outlined in Figure 4, which depicts the most common route to consumers and aides in avoiding double-counting impacts.

**Figure 4: Flow chart of the typical route to market for single-use vapes**



7.42 Stakeholder engagement conducted for the Defra single-use vapes IA, indicated very little to no domestic manufacture of single-use vapes. This is the same assumption as applied in the [Scottish Government Business and Regulatory Impact Assessment \(BRIA\)](#). Engagement also suggested that wholesalers are unlikely to directly import single-use vapes and instead would source from an importer/re-brander. There was also evidence that in some cases products may go straight from an importer, who may also have their own retail channels, rather than via a traditional wholesaler. On this basis the same approach has been taken in Wales.

## Manufacturer impacts

7.43 Although difficult to ascertain the exact market share of domestically produced single-use vapes, it is likely to be very little to none. [The vast majority of single-use vapes are manufactured in China](#), with estimates of over 80% of the entire market between 5 to 6 major producers.

7.44 In the UK, vapes must be notified to the Medicine and Healthcare products Regulatory Agency (MHRA) before being legal to place on the UK market. Based on the vape product notification data provided by the MHRA to Defra, there are 323 manufacturer accounts (394 accounts including importers) in the UK. This reflects how submitters are identifying



themselves and many of them would not be considered manufacturers in the traditional sense, nor for the purposes of this analysis (e.g. some of them are likely to be re-branders). Additionally, this figure is not exclusive to single-use vapes and includes all e-cigarette products (e.g. all other vapes, e-liquids, cartridges etc.).

7.45 As part of Defra's IA engagement with stakeholders with knowledge of the vaping industry, they were unaware of any manufacturers of single-use vapes in England. Similar to the assumptions made in the Scottish Government BRIA, we have taken this to mean there is no domestic production in Wales. If there is, then we believe it would likely be a very low volume and not make up a meaningful proportion of the single-use vapes placed on the market. Therefore, given the absence of robust evidence of domestic production, we have not quantified any impacts to manufacturers as overseas products would be out of scope of our assessment.

### **Number of retailers**

7.46 The route to consumers is characterised by a diverse range of distribution channels including convenience, retail and specialist vape stores and a growing online presence. Therefore, it is difficult to establish the exact size of the retail sector. To determine the number of retailers of single-use vapes that would be affected by the ban, it is important to consider the most common routes of purchase.

7.47 [Eunomia's Analysis of the Market for Vapes](#), highlighted that unlike tobacco, vapes can be sold easily in any retailer in Wales. For tobacco products, retailers must have an economic operator ID for their business and facility IDs for each premise used [to sell or store tobacco products](#). This means there are a range of potential unconventional retail routes, including market stalls, phone shops, hairdressers and other independent retailers that can sell vapes. However, it is difficult to ascertain the exact numbers of these sellers as it is unlikely all of them will be selling single-use vapes.

7.48 [The UK Standard Industrialisation Classification \(SIC\) 2007](#) classification of industrial activities does not include specific categories for the vaping industry. Instead, vaping businesses classify their activities under a range of codes, most of which include some tobacco related codes. It is more appropriate to use the number of outlets (local units) rather than the number of businesses (enterprises) as certain costs (e.g., familiarisation) are more likely to fall at a premise level rather than a business level.

- 7.49 Engagement with stakeholders undertaken for the Defra IA highlighted a level of uncertainty regarding the number of retailers of single-use vapes. Responses ranged from either not holding data on the overall number of retailers, only holding data for particular retailer types and an estimate of there being up to 200,000 retailers of single-use vapes in the UK if accounting for the unconventional routes (e.g. petrol stations, bars, pubs, nightclubs, second hand mobile phone stores, barbers etc). One stakeholder with knowledge of the vaping industry suggested an estimate of ~50,000 vape retailers in the UK would be broadly correct, if including typical routes (i.e. convenience stores, specialist vape stores).
- 7.50 Data identified by DHSC as part of the [IA for the Tobacco and Vapes Bill proposed](#) by the previous Conservative UK Government suggests there are an estimated 58,982 vape retailers in the UK. Adjusting this based on the proportion of the UK population accounted for by Wales (~5%), yields an estimate of 2731 vape retailers in Wales ([Eunomia's Analysis of the Market for Vapes](#)), comprised of:
- 2287 convenience stores,
  - 275 supermarkets,
  - 169 specialist vape stores.
- 7.51 Information received for this RIA through stakeholder engagement suggested the number of convenience stores in Wales was an underestimate, [as Wales has more shops per head than any other part of mainland UK](#). This evidence suggests there are 3076 convenience stores in Wales, however there is some uncertainty as to how many of these stores will supply single-use vapes.
- 7.52 It is estimated that 30-35% of vape sales occur online, though this mostly applies to other vaping products rather than single-uses. Defra engaged with stakeholders who estimated from general industry knowledge there could be around 200 online vape retailers that solely operate online (i.e. excluding physical stores with an online presence and major e-commerce platforms) in England, with only a fraction of such businesses having greater scale than micro-enterprises. We have been unable to determine the number of online operators supplying customers in Wales, however given online sellers in England will also likely sell to vape users in Wales we have included Defra's estimated IA figure (200) in our assessment.
- 7.53 As the retail landscape is very broad, and there is some uncertainty, we feel it is reasonable to undertake sensitivity analysis around the estimates and to combine some of the sources. We have used the estimates in the Defra IA for England (which estimated 49,391 retailers) adjusted based on

the proportion of the English population accounted for by Wales (5.48%), which yields an estimate of 2890 vape retailers selling single-use vapes in Wales for a central scenario. A breakdown of justifications for the sources we have used are outlined in Table 9. This figure is similar to the estimate suggested by DHSC (adjusted for Wales), though it incorporates more up-to-date numbers for some categories.

**Table 9: Number of retailers selling single-use vapes in Wales (central scenario)**

Source	Justification for using source	Number of retailers in Wales
SIC code 4711 (Retail sale in non-specialised stores with food; beverages or tobacco predominating)	Stakeholder engagement confirmed this SIC code is most likely to cover convenience stores, and will also cover supermarkets.	2337
SIC code 4730 (Retail sale of automotive fuel in specialised stores)	Stakeholder engagement highlighted that petrol forecourt operators, most of which operate under a convenience store model, will also be impacted by the single-use vapes ban and they fall under this SIC code.	188
Specialist vape shops – number from Local Data Company (3,573 in the UK)	Stakeholder engagement confirmed this is likely to be a more accurate number and is more up-to-date, and so we use this instead of SIC code '4726: Retail sale of tobacco products in specialised stores' (101 in Wales). Additionally, though stakeholder engagement it was indicated that some specialist vape shops would use SIC codes other than 4726.	165
Online vape retailers	Highlighted through stakeholder engagement. It would not be appropriate to use SIC code '4791: Retail sale via mail order houses or via Internet' which online businesses tend to use, since this would be too much of an overestimate with there being 1900 local units in Wales using this SIC code. Figure based on data used in English IA.	200
<b>Total</b>		<b>2890</b>

7.54 As employed in the Defra IA, we have decided not to use a low scenario sensitivity analysis as it felt unlikely there would be a significantly lower number of retailers than indicated in the central scenario. However, for a high scenario sensitivity analysis we account for most of the potential routes which, therefore, represents an “extreme” scenario. We estimate there are 7621 retailers of single-use vapes in Wales. The breakdown of

this with a justification of sources used is outlined in Table 10. As with the central scenario, we have used estimates employed in the Defra IA for England adjusting for the proportion of the English population accounted for by Wales (5.48%). While we consider the number of retailers in the high scenario to be an ‘extreme’ estimate, it does go some way to address the concerns outlined in paragraph 7.52 that the number of convenience stores in our central estimate is too low. As can be seen from Table 15, the difference between retailer familiarisation costs (which is based on the number of retailers) in the central and worst-case scenarios is relatively small and does not have a material impact on the analysis.

7.55 It should be noted the number of retailers estimated in the high scenario reflects the capability to sell single-use vapes, however not all of them will do so. At some point, they will need to familiarise themselves with the new regulations, however it is not proportionate for us to obtain a more accurate number of retailers with the unconventional routes of retailers of single-use vapes.

**Table 10: Number of retailers selling single-use vapes in Wales (high scenario)**

Source	Justification for using source	Number of retailers in Wales
SIC code 4711 (Retail sale in non-specialised stores with food; beverages or tobacco predominating)	As in central scenario	2337
SIC code 4730 (Retail sale of automotive fuel in specialised stores)	As in central scenario	188
Specialist vape shops number from Local Data Company	As in central scenario	165
Online vape retailers	As in central scenario	200
SIC code 4742 (Retail sale of telecommunications equipment in specialised stores)	To account for an unconventional route (i.e. phone shops)	116
SIC code 5630 (Beverage serving activities)	To account for an unconventional route (i.e. pubs, bars and nightclubs)	2033
SIC code 6190 (Other telecommunications activities)	To account for an unconventional route (i.e. phone shops)	361
SIC code 9602 (Hairdressing and other beauty treatment)	To account for an unconventional route (i.e. barbers and hairdressers)	2337
<b>Total</b>		<b>7621</b>

### **Substitution by consumers (switching behaviour)**

7.56 There are [studies](#) that have shown single-use vapes appear to be a substitute for reusable vapes, as well as vapes more generally being substitutes for cigarettes ([prices and vapes demand evidence from the European Union](#)). However, it is difficult to quantify the number of people switching either between different device types (single-use to reusable), from vaping to smoking cigarettes/tobacco, or stopping vaping/smoking altogether because of a ban on single-use vapes. This makes it difficult to predict what the consumption of banned single-use vapes will be replaced by.

7.57 Through stakeholder engagement undertaken for this RIA, we were made aware of evidence from [commissioned consumer polling](#) of 2000 adults in the UK which suggests 44% of those currently using single-use vapes will move to reusable vapes, 8% said they would switch to cigarettes and 24% said they would continue to use single-use vapes. However, we have elected to use the approach followed in the Defra IA for consistency in estimates of impact across the UK.

7.58 [The Smoking Toolkit Study run by University College London](#) consists of monthly surveys of the adult population across the UK, which includes detailed questions on smoking and smoking cessation. A [recent study](#) using data from this survey was published in 2024 looking at which groups would be affected by a ban on single-use vapes. The findings from this study have largely influenced our analysis for potential consumer switching behaviours.

7.59 By looking at single-use vape usage proportions split amongst smoking status, we can try to make assumptions around consumer switching behaviour. A brief description of these categories of vapers by smoking status are as follows:

- **Never smokers:** those who never smoked tobacco regularly, but currently vape.
- **Current smokers:** those who are dual users, and so smoke tobacco and vape.
- **Recent ex-smokers:** those who currently vape but have stopped smoking tobacco in the past year.
- **Previous smokers:** those who currently vape but stopped smoking over a year ago.

7.60 By using this information, we arrive at the following split in Table 11. We also use this to apportion the number of sales, although we recognise this

is a very simplifying assumption as not all users necessarily purchase the same number of products. Therefore, it is difficult to predict whether there will be any volume effects (e.g. current single-use vape users switching to reusable vapes and vaping less altogether).

**Table 11: Share of single-use vape users by smoking status.**

<b>Single-use vape user category by smoking status</b>	<b>Proportion of single-use vape users</b> <i>Total does not sum to 100% due to rounding</i>
Never smokers	20%
Current smokers	49%
Recent ex-smokers	10%
Previous smokers	20%

7.61 We have assumed those who have never smoked regularly will end up quitting vaping/smoking altogether as the ban is likely to discourage an uptake of vaping amongst these users, particularly as a significant proportion of this sub-group are aged 18-24 and have driven the rapid rise in vaping among young never-smokers. We also assume those who are long-term previous smokers are more likely to transition to reusables given they are likely to have been longer-term users of vapes.

7.62 There is more uncertainty with those who are current smokers and recent ex-smokers, as there is potential for part of them to revert back to only smoking tobacco or re-lapse to smoking. Therefore, we use [data from ASH](#), around satisfaction levels for vapes compared with cigarettes and apply these percentages to the proportions in Table 9. This indicates that 52% of current smokers and 28% of ex-smokers are less satisfied with vapes compared with cigarettes. Therefore, we assume these proportions are likely to revert back to smoking or use alternative non-vaping products, with the remainder likely to switch to reusable vaping alternatives. A summary of these proportions by smoking status and our assumptions for switching behaviour can be seen in Table 12.

**Table 12: Share of single-use vape users by assumed switching behaviour.**

<b>Single-use vape user category by smoking status</b>	<b>Switching behaviour assumption</b>	<b>Proportion of single-use vape users</b>
--	---------------------------------------	--

Never smokers	Quit vaping/smoking altogether	20%
Current smokers	Revert back to smoking or alternative non-vaping product	26%
	Transition to reusable vapes	24%
Recent ex-smokers	Revert back to smoking or alternative non-vaping product	3%
	Transition to reusable vapes	7%
Previous smokers	Transition to reusable vapes	20%
<b>Total</b>		<b>100%</b>

7.63 Based on Table 12, it is expected that 51% of current single-use vape users will switch to using reusable vapes because of the ban. Our calculations for switching behaviours by consumers will only focus on alternative vaping products in the main cost-benefit analysis, however we do discuss the other categories (e.g. smoking tobacco or alternative non-vaping products) qualitatively as there is more uncertainty.

7.64 Given there will be some uncertainty with predicting future consumer switching to alternative vaping products, we have conducted some sensitivity analysis around this. In the central scenario, 51% of current users of single-use vapes will switch to alternative vaping products; in the low scenario, we assume 40% will switch based on research conducted by HMRC as part of the vaping products duty; and in the high scenario, we assume 100% of users will switch to reusable alternatives. This is outlined in Table 13.

**Table 13: Proportions of users switching to alternative vaping products - sensitivity**

	<b>Low scenario</b>	<b>Central scenario</b>	<b>High scenario</b>
<b>Proportion of current disposable vape users switching to alternative vaping products</b>	40%	51%	100%

7.65 It should also be noted this does not capture those who use single-use vapes as a secondary product, for example people who usually use other e-cigarette devices and purchase a single-use vape if they forget their normal device.

7.66 Given there are different types of vape, we have decided to limit it to the two most popular reusable vapes: 'rechargeable with pre-filled cartridges' and 'rechargeable with tank to refill'. Given the characteristics of these vary, and there is uncertainty as to which will be more popular as a result

of the ban, we have assumed there will be a 50/50 split between these categories.

7.67 As the average number of charge cycles for a reusable vape is around 300, we assume that one new device will be purchased for every 300 single-use vapes ([The Electronic Cigarette Company, The Ultimate Guide to E-cig Batteries](#)). Refill cartridges are normally sold in packs of two, and so one pack will be purchased for every two single-use vapes. Refillable tank devices are filled with separate e-liquid and this is normally sold in 10ml bottles. This is five times as much as the e-liquid capacity of a single-use vape (2ml) and the tank container for a reusable vape – and so one 10ml bottle of e-liquid will be purchased for every five single-use vapes.

### **Expected costs and benefits of the preferred option**

7.68 As part of our policy development process we are required to assess the costs of introducing these Regulations on business and local authorities (as regulators of the bans).

7.69 All indicative estimates used in this analysis are in 2023 prices unless stated otherwise. Figures are modelled over a 10-year appraisal period (covering years 2025 – 2034) at a discount rate of 3.5%.

### **Summary of expected impacts**

7.70 Impacts grouped based on affected group are summarised in Table 14 and discussed in the following sections.



**Table 14: Summary of expected impacts as a result of the policy**

<b>Group Affected</b>	<b>Impact</b>	<b>Cost / Benefit</b>	<b>One-off / Ongoing</b>	<b>Monetised?</b>	<b>Direct / indirect to business</b>
<b>Manufacturers</b> <i>No manufacturer impacts are monetised as part of the main cost-benefit analysis as there is no evidence of there being any domestic manufacturers of single-use vapes and foreign based manufacturers are outside the scope of this analysis.</i>	Familiarisation costs	Cost	One-off	No	Direct
	Loss of profit from sales of single-use vapes	Cost	Ongoing	No	Direct
	Capital investment cost for production of alternative items	Cost	One-off	No	Direct
	Alternative material costs for production of alternative items	Cost	Ongoing	No	Indirect
	Profit gained through sale of alternative vaping products	Benefit	Ongoing	No	Indirect
<b>Importers and Re-branders</b>	Familiarisation costs	Cost	One-off	Yes	Direct
	Loss of profit from sales of single-use vapes	Cost	Ongoing	Yes	Direct
	Profit gained through sale of alternative vaping products	Benefit	Ongoing	Yes	Indirect
<b>Wholesalers</b>	Familiarisation costs	Cost	One-off	Yes	Direct
	Loss of profit from sales of single-use vapes	Cost	Ongoing	Yes	Direct
	Profit gained through sale of alternative vaping products	Benefit	Ongoing	Yes	Indirect
<b>Retailers</b>	Familiarisation costs	Cost	One-off	Yes	Direct
	Loss of profit from sales of single-use vapes	Cost	Ongoing	Yes	Direct
	Excess stock costs	Cost	One-off	No	Direct
	Profit gained through sales of alternative vaping products	Benefit	Ongoing	Yes	Indirect
	Profit gained through sales of tobacco and other nicotine products	Benefit	Ongoing	No	Indirect
	Profit gained through sales of non-tobacco products	Benefit	Ongoing	No	Indirect
	Reduction in fuel costs	Benefit	Ongoing	No	Direct
<b>Other sectors</b>	Increased profit for current manufacturers of alternative vaping products	Benefit	Ongoing	No	Indirect

	Reduced costs to waste site operators from waste fires	Benefit	Ongoing	No	Indirect
<b>Consumers</b>	Disutility through loss of enjoyment, convenience or reduced choice	Cost	Ongoing	No	Not applicable
	Impact on health	Cost	Ongoing	No	
	Impact on health	Benefit	Ongoing	No	
<b>Government</b>	Loss of Landfill Disposals Tax revenue	Cost	Ongoing	Yes	
	Communication and Guidance development	Cost	One-off	Yes	
<b>Local Authorities (LAs)</b>	Enforcement costs	Cost	Ongoing	Yes	
	Reduced clean-up costs	Benefit	Ongoing	No	
	Landfill Disposals Tax savings	Benefit	Ongoing	Yes	
	Landfill gate fee savings	Benefit	Ongoing	Yes	
	EfW gate fee savings	Benefit	Ongoing	Yes	
	Reduced cost from waste fires	Benefit	Ongoing	No	
<b>Society (third parties)</b>	Reduced litter (amenity) benefit	Benefit	Ongoing	Yes	
	Production emission savings	Benefit	Ongoing	No	
	Raw material extraction emission savings	Benefit	Ongoing	No	
	Disposal incineration emission benefit (reduced GHG emissions)	Benefit	Ongoing	Yes	
	Reduced waste fires resulting in reduced GHG emissions	Benefit	Ongoing	Yes	
	Reduction in fuel emissions	Benefit	Ongoing	No	

### Net Present Value estimates

7.71 The monetised costs and benefits form the total Net Present Value (NPV) estimates for the preferred option, estimated over the ten-year appraisal

period. We have presented three different scenarios (low, central and high) to enable sensitivity analysis. All values in Table 15 are in 2023 prices with 2025 present value.

**Table 15: 10-year NPV estimates in £millions (2023 prices, 2025 present value) (to 1 decimal place)**

<b>Impact</b>	<b>Low (best case)</b>	<b>Central</b>	<b>High (worse case)</b>
<b>Costs</b>			
Importers/re-branders – Familiarisation costs	£0.00	£0.00	£0.00
Importers/re-branders – Loss of profit from sales of single-use vapes	£110.23	£167.89	£248.27
Wholesalers – Familiarisation costs	£0.00	£0.00	£0.00
Wholesalers – Loss of profit from sales of single-use vapes	£100.19	£152.68	£225.65
Retailers – Familiarisation costs	£0.02	£0.02	£0.05
Retailers – Loss of profit from sales of single-use vapes	£683.91	£1042.78	£1540.32
Government – Loss of Landfill Disposals Tax revenue	£0.48	£0.54	£0.61
LAs – Enforcement costs	£0.15	£0.15	£0.15
Welsh Government	£0.30	£0.30	£0.30
<b>Total Costs</b>	<b>£895.28</b>	<b>£1364.36</b>	<b>£2015.35</b>
Importers/re-branders – Profit gained through sale of alternative vaping products	£23.40	£33.90	£74.44
Wholesalers – Profit gained through sale of alternative vaping products	£21.26	£30.81	£67.66
Retailers – Profit gained through sales of alternative vaping products	£144.98	£210.05	£461.29
LAs – Landfill Disposals Tax savings	£0.48	£0.54	£0.61
LAs – Landfill gate fee savings	£0.12	£0.13	£0.15
LAs – EfW gate fee savings	£0.84	£0.96	£1.07
Society – Reduced litter (amenity) benefit	£0.08	£0.18	£0.26
Society – Disposal incineration emission benefit	£0.51	£0.58	£0.65
Society – Reduced waste fires resulting in reduced GHG emissions (combustion-related)	£0.72	£0.82	£0.92
Society – Reduced waste fires resulting in reduced GHG emissions (black carbon)	£3.67	£4.17	£4.67
<b>Total Benefits</b>	<b>£196.05</b>	<b>£282.13</b>	<b>£611.71</b>

<b>NPV</b>	£-1818.97	£-1081.90	£-283.24
------------	-----------	-----------	----------

7.72 The loss of profits experienced along the supply chain as a result of the ban on the sale and supply of single-use vapes is the primary reason the final NPV is negative. The ban remains the preferred option due to the non-monetised factors excluded from the NPV estimates. There are several key benefits that have not been monetised, however they are analysed qualitatively as non-monetised benefits. These are outlined below. A ban on the sale and supply of single-use vapes will reduce the environmental and social costs caused by the production and incorrect disposal of them. Given that single-use vapes are inherently unsustainable products, an outright ban is the most effective solution.

## Summary of monetised costs

### Familiarisation costs to businesses

7.73 Familiarisation costs are the one-off costs that businesses face upon implementation of the ban so will only occur in the first year of the appraisal period. Those supplying single-use vapes (i.e. retailers, wholesalers, importers and re-branders) will be required to spend time reviewing any new guidance to ensure that they are selling legal products.

7.74 Guidance for businesses supplying single-use vapes is currently in development but it is anticipated that it will not exceed 2000 words. The time taken to review this guidance is based on a typical technical text reading speed of 75 words per minute, as set out in the Department for Business, Energy & Industrial Strategy's [Appraisal of guidance](#)). Therefore, we would expect it to take each person needing to read the guidance around 27 minutes, and we have rounded this up to 30 minutes in our analysis (i.e. 0.5 hours). This familiarisation time was tested with stakeholders who mostly agreed with this approach.

7.75 As there is more uncertainty around the number of businesses impacted as opposed to the time to familiarise, sensitivity analysis has been carried out on the former for the relevant affected groups.

### Retailers

7.76 To monetise the familiarisation costs to retailers, for our central scenario the categories and number of premises likely to be affected by the ban

have been identified using a mix of SIC codes and other sources to improve accuracy, as outlined earlier in the RIA. It has been estimated that 2890 retailers will be affected by familiarisation costs in total, most likely to include convenience stores, supermarkets and specialist vape retailers.

7.77 It is assumed the guidance would only be read by the shopkeeper and owners in each shop selling single-use vapes, as supported by stakeholder engagement undertaken by Defra. We do not expect that employees would be required to familiarise themselves with the guidance, as it is the shopkeepers and owners that are most likely to be responsible for ensuring products in their stores are compliant with the new regulations. The [ONS Annual Survey of Hours and Earnings \(ASHE\)](#) provides a median hourly wage for shopkeepers and owners (retail and wholesale) of £11.15 using Standard Occupational Classification (SOC) code 7131. This hourly wage was then [uplifted with a 22% non-wage labour cost uplift](#).

7.78 The calculation methodology for this is as follows, based on familiarisation being undertaken by one full-time equivalent (FTE) employee:

$$\begin{aligned} & \text{Familiarisation cost per retailer} \\ & = \text{time taken (in hours)} \times \text{hourly wage} \times (1 + 22\%) \end{aligned}$$

$$\text{Familiarisation cost per retailer} = 0.5 \times £11.15 \times 1.22$$

7.79 This equates to a familiarisation cost of £6.80 for each retailer.

7.80 By multiplying the familiarisation cost for each retailer by all the number of stores/premises, the total familiarisation costs expected to be incurred by single-use vape retailers in Wales is £19,652.

7.81 To account for the uncertainty surrounding the number of retailers, sensitivity analysis has been conducted, with our high estimate outlined earlier in the RIA. The number of retailers in each scenario is summarised in Table 16 along with the total familiarisation cost.

**Table 16: Retailer familiarisation costs - sensitivity analysis**

	<b>Low scenario</b> <i>The central scenario is also used for the low scenario to</i>	<b>Central scenario</b>	<b>High scenario</b>

	<i>calculate NPV estimates</i>		
<b>Number of retailers</b>	2890	2890	7621
<b>Total familiarisation cost (£)</b>	£19,652	£19,652	£51,823

## Wholesalers

7.82 As with retailers, wholesalers of single-use vapes are also likely to face one-off familiarisation costs with the implementation of a ban. We had initially used ONS SIC codes to identify the number of single-use vape wholesalers. Wholesalers classify their activities under a range of codes which include some tobacco related codes and other codes related to the sale of non-tobacco goods. We were uncertain of the proportion of these wholesalers selling single-use vapes so we assumed all of those in these categories did. [Defra's impact assessment](#) estimated there were 6,860 wholesalers of single-use vapes in the UK across the following four SIC codes:

- 4617: Agents involved in the sale of food; beverages and tobacco
- 4635: Wholesale of tobacco products
- 4639: Non-specialised wholesale of food; beverages and tobacco
- 4676: Wholesale of other intermediate products

7.83 By adjusting this for Wales, this would equate to 318 wholesalers.

7.84 Data identified by DHSC as part of the work undertaken for the previous UK [Government's Tobacco and Vapes Bill IA](#) suggested there are 17,294 food, beverage, and tobacco wholesalers in the UK using data from [ONS' Annual Business Survey](#) (ABS). Due to a lack of specific data to determine which of these wholesalers would sell vapes, DHSC has used this figure as a proxy for the number of vape wholesalers in England. Adjusting this for Wales we estimate there are 801 food, beverage, and tobacco wholesalers in Wales.

7.85 Both our initial estimate and DHSC's overall estimate for vape wholesalers are overestimates for the number of wholesalers selling single-use vapes in Wales. During stakeholder engagement for the Defra IA, stakeholders were not able to state a precise number of wholesalers of single-use vapes in England since many come and go opportunistically depending on supply and demand from retailers. On this basis they estimated there are between 50-100 wholesalers of single-use vapes in England. Adjusting this estimate for the proportion of the English population accounted for by Wales (5.48%), would yield an estimate of three to five wholesalers in Wales. To account for wholesalers based in England supplying to businesses in Wales understanding the regulations

operating in Wales, we have included the low scenario (50), central scenario figure (75) and high scenario (100) figures used in the Defra IA to account for any familiarisation costs incurred. However, as our regulations will be broadly similar to those operating in England, we anticipate these costs will likely be negligible in practice.

7.86 Again, it is assumed the guidance would only be read by the owners of each wholesaler supplying single-use vapes (i.e. familiarisation will be undertaken by one FTE employee), as supported by views from stakeholders for the Defra IA. We do not expect staff in the store/warehouse would be required to familiarise themselves with the guidance, as it is the owners that are most likely to be responsible for ensuring that products in their stores are compliant with the new regulations. The [ONS ASHE](#) provides a median hourly wage for shopkeepers and owners (retail and wholesale) of £11.15 using SOC code 7131. This hourly wage was uplifted with a 22% non-wage labour cost uplift.

7.87 The calculation methodology for this is the same as for retailers, also resulting in a familiarisation cost of £6.80 for each wholesaler. For our central scenario we take the mid-point of the range and assume there are a total of four wholesalers of single-use vapes in Wales. By multiplying this by the familiarisation cost for each wholesaler, the total familiarisation costs expected to be incurred by single-use vape wholesalers is £537 (when taking into account those based in England).

**Table 17: Wholesaler familiarisation costs - sensitivity analysis**

	Low scenario	Central scenario	High scenario
<b>Number of wholesalers</b>	53	79	105
<b>Total familiarisation cost (£)</b>	£360	£537	£714

### Importers and /re-branders

7.88 Importers and re-branders will also face familiarisation costs. As with wholesalers, there is uncertainty around an exact number. Stakeholder engagement undertaken for the Defra IA suggested there are under 10 main importers (stakeholders estimate it is likely to be circa seven) and potentially an additional 20 or more that are less specialised. There are also around 10 re-branders of single-use vapes in England of sufficient scale to be noticeable on the market.

7.89 Based on information provided by MHRA from their vape product notification data for the Defra IA, there are around 80 submitters of single-use vapes defining their status as manufacturers and importers in England. As submitters are responsible for defining their status, it is highly unlikely these would be considered manufacturers in the traditional sense (i.e. with production facilities), and are more likely to be importers, distributors or re-branders, still in line with what is considered a “producer” under UK law.

7.90 Therefore, using this information we work to an assumption there are between 20 to 80 importers/re-branders of single-use vapes in England which, with Welsh adjustment, suggests there are between one to four importers/re-branders of single-use vapes in Wales. The lower bound of this range of one would account only for the main importers and re-branders and would form our low scenario. For a central scenario, we add on the additional one importer that are less specialised bringing this to a total of two. For a high scenario, we use the upper bound of the range of four.

7.91 As with our assumptions for online sellers and wholesalers, we have taken account the costs which could potentially be incurred by importers/branders based in England supplying Welsh businesses. The Defra IA identified a low scenario (20 importers/ re-branders at a cost of £304), central scenario (40 importers/ re-branders at a cost of £609) and high scenario (80 importers/ re-branders at a cost of £1,218). We have included the central scenario cost in our final calculation.

7.92 Stakeholders suggested that it would most likely be a technical director/manager reviewing the guidance. The [ONS ASHE](#) provides a median hourly wage for ‘production managers and directors in manufacturing’ of £24.95 using SOC code 1121 (the most similar SOC code based on occupation description, [Warwick Institute for Employment Research](#)). [This hourly wage was uplifted with a 22% non-wage labour cost uplift](#). The calculation methodology for this is as follows, based on familiarisation being undertaken by one FTE employee:

$$\text{Familiarisation cost per importer/re – brander} = 0.5 \times £24.95 \times 1.22$$

7.93 This equates to a familiarisation cost of £15.22 for each importer/re-brander.



7.94 For our central scenario we assume there are a total of two importers and re-branders of single-use vapes in Wales, thereby equating to a total familiarisation cost of £30. This increases to £639 when we take account the central scenario costs calculated by Defra’s IA. To account for the uncertainty in numbers, sensitivity analysis has been conducted, using the upper and lower bounds of the range. The number of importers and re-branders in each scenario is summarised in Table 18 along with the total familiarisation cost:

**Table 18: Importer and re-brander familiarisation costs - sensitivity analysis**

	Low scenario	Central scenario	High scenario
Number of importers/re-branders	21	42	84
Total familiarisation cost (£)	£320	£639	£1,278

## Loss of profit to businesses from sales of single-use vapes

### Retailer profit loss

7.95 Initial estimates for approximate profit margins for single-use vapes in the retail market employed in the [draft Defra IA](#) and [Scottish Government IAs](#) were based on data from the [Annual Business Survey](#) (ABS). This was calculated as the gross value added (GVA) divided by turnover for broad SIC codes within which those selling single-use vapes would likely fall in (4711, 4719, 4726) to arrive at a figure of 24% (to the nearest whole number). Subsequent engagement with stakeholders for the Defra IA, and undertaken for the draft of this RIA, has indicated this is an underestimate.

7.96 The average profit margin for single-use vapes for retail businesses is suggested by stakeholders to mostly fall between 40% and 50%. For the purposes of this analysis the mid-point of this range has been taken, and so the average profit margin is assumed to be 45%.

7.97 Retail price estimates for single-use vapes were informed by Defra’s desk-based research, in 2023. An average price of £5.30 was estimated based on a sample (a compiled list of approximately 40 products that were deemed to be disposable vapes based on the definition given in paragraph 80) of products for sale from both online and in-store retailers. This included specialist vape stores, newsagents and supermarkets. Stakeholder engagement undertaken for the Defra IA confirmed this estimate. Sensitivity analysis on this figure has also been carried out,

using the lowest and highest price identified within the desk-based research. This can be seen in Table 19.

**Table 19: Retail price estimates for single-use vapes**

	<b>Price</b>
Low	£3.95
Central	£5.30
High	£6.99

7.98 To calculate profit loss to retailers, the average price of a single-use vape has been multiplied by projected single-use vape sales in the absence of intervention (as outlined in the 'Assumptions' section) for each year in the appraisal period (to calculate revenue), and this is then multiplied by the average profit margin. The calculation methodology for this for each year of the appraisal period is as follows:

*Total profit loss to retailers*

*= price × number of sales × profit margin*

*Total profit loss to retailers = £5.30 × number of sales × 45%*

7.99 For the central scenario, this results in a present value cost of £1,042.8m over the appraisal period.

### **Wholesaler profit loss**

7.100 Through engagement with stakeholders, the Defra IA estimated the average profit margin for single-use vapes for wholesalers mostly falls between 10% to 14%. For the purposes of our analysis, we have taken the mid-point of this range and so the average profit margin is assumed to be 12%.

7.101 By deducting the profit margin of 45% from the retail prices in Table 19, we can calculate approximate wholesale prices as outlined in Table 20.

**Table 20: Wholesale price estimates for single-use vapes**

	<b>Price</b>
Low	£2.17
Central	£2.91
High	£3.84

7.102 Similarly to the calculation for profit loss to retailers, to calculate the profit loss to wholesalers, the average wholesale price of a single-use vape has been multiplied by projected single-use vape sales in the absence of intervention for each year in the appraisal period and this is then multiplied by the average profit margin. The calculation methodology for this for each year of the appraisal period is as follows:

$$\begin{aligned} \text{Total profit loss to wholesalers} &= \text{price} \times \text{number of sales} \times \text{profit margin} \\ \text{Total profit loss to wholesalers} &= \text{£2.91} \times \text{number of sales} \times 12\% \end{aligned}$$

7.103 For the central scenario, this results in a present value cost of £152.7m over the appraisal period.

### Importer/re-brander profit loss

7.104 Stakeholder engagement undertaken for the Defra IA confirmed that importers and re-branders are likely to operate on slightly higher profit margins than wholesalers, in the range of 10-20%. We have taken the mid-point of this range and so the average profit margin is assumed to be 15%.

7.105 By deducting the profit margin of 12% from the wholesale prices in Table 20, we can calculate approximate prices charged by importers and re-branders as outlined in Table 21.

**Table 21: Importer/re-brander price estimates for single-use vapes**

	<b>Price</b>
Low	£1.91
Central	£2.56
High	£3.38

7.106 Similarly to the preceding calculations for profit loss, to calculate the profit loss to importers and re-branders, the average price charged by of a single-use vape has been multiplied by projected single-use vape sales in the absence of intervention for each year in the appraisal period and this is then multiplied by the average profit margin. The calculation methodology for this for each year of the appraisal period is as follows:

$$\begin{aligned} \text{Total profit loss to importers/re – branders} &= \text{price} \times \text{number of sales} \times \text{profit margin} \\ \text{Total profit loss to importers/re – branders} &= \text{£2.56} \times \text{number of sales} \times 15\% \end{aligned}$$

7.107 For the central scenario, this results in a present value cost of £167.9m over the appraisal period.

### **Loss of Landfill Disposals Tax revenue to Government**

7.108 Landfill Disposals Tax (LDT) is a behavioural tax designed to reduce the amount of waste being sent to landfill in favour of more sustainable alternatives, such as recycling. LDT is paid by landfill site operators per tonne of waste they receive. The cost of LDT may be passed on by operators to businesses, LAs and other organisations who dispose of waste via landfill.

7.109 Banning single-use vapes supports LDT's aim of reducing waste to landfill, as they will no longer be disposed of via landfill. Any reduction in landfilling leads to a loss in LDT revenue to the Welsh Government. However, as LAs are responsible for municipal waste, including single-use vapes, any LDT loss in revenue to Welsh Government will represent a saving to LAs.

7.110 LDT rates normally increase each year in line with inflation based on forecast movement in the Retail Price Index (RPI). Since devolution in 2018, they have remained aligned with the rates of the equivalent landfill taxes across the UK. The standard rate of LDT from 1 April 2024 is £103.70 per tonne.

7.111 In the [2024 Spring Budget](#), UK Government announced their landfill tax rate for the year 2025-26 will increase to £126.15 per tonne. This change is designed to account for the significant recent difference between actual and forecast RPI and ensure the tax continues to incentivise investment in more sustainable waste management infrastructure. Given the ban is coming into force in 2025, it has been deemed appropriate to use this newer figure and adjust it to 2023 prices to be consistent with the cost-benefit analysis. By deflating £126.15 in 2025 prices to 2023 prices, we arrive at a figure of £122.81.

7.112 The LDT per tonne is multiplied by the estimated tonnes of single-use vape waste arisings expected to be diverted from landfill as a result of the ban for each year of the appraisal period (as outlined in the 'Assumptions' section of the IA). It is assumed that 33.6% of single-use vapes waste arisings end up in landfill each year and this proportion is assumed to remain constant across the appraisal period. The calculation methodology for this is as follows for each year of the appraisal period:

*Loss of Landfill Disposals Tax revenue*  
= *Landfill Disposals Tax per tonne*  
× *disposable vapes diverted from landfill (in tonnes)*

*Loss of Landfill Disposals Tax revenue*  
= £122.81  
× *disposable vapes diverted from landfill (in tonnes)*

7.113 For the central scenario this results in a present value cost of £0.5m over the appraisal period. Sensitivity analysis has also been undertaken around the tonnes of waste diverted from landfill in line with the tonnes of waste arisings (i.e. +/- 12%).

### **Enforcement costs to LAs**

7.114 There will be costs associated with inspection and law enforcement services to support the ban. Welsh LAs are best placed to enforce the ban, and work will be undertaken with LAs to establish the most effective and efficient way of enforcement.

7.115 Enforcement costs relate to the estimated additional burden to Welsh LAs to enforce the policy, using a reactive method (i.e. inspections only occur after a complaint). As the ban will be enforced using a reactive method, compliant businesses will not face any enforcement-related costs. Non-compliant businesses will incur costs associated with seized products if they are inspected but these have not been monetised as they are the result of a failure to comply with the law.

7.116 The assumptions and calculation of enforcement costs have been agreed with the Trading Standards Wales (TSW). It is expected enforcement costs will only be incurred in the first three years of the policy (i.e. only during the first three years of the appraisal period) as it is assumed that all businesses are compliant.

### **Training costs**

7.117 Welsh LAs will need to develop enforcement guidance for their authorised officers, provide staff training and develop suitable forms of enforcement notice.

7.118 We assume all 22 LAs in Wales will incur a one-off administration cost to familiarise themselves with the new powers. In 2022 the Association of Chief Trading Standards Officers carried out research to determine the full cost recovery rate for officers within Trading Standards. This was not a salary rate, however it was inclusive of employment and non-

employment on-costs. The figure for Wales was slightly lower than for England and calculated at £84.24 p/h.

7.119 Using a central assumption of 90 minutes per local authority the proposed changes could involve a one-off transitional familiarisation cost of £126.36 per officer, per local authority. We anticipate each LA will require on average eight officers to undergo training. This will result in cost of £1,011 per LA and £22,242 in total for all Welsh LAs.

### Inspection costs

7.120 The following costs for inspection incurred by LAs. Stakeholder engagement identified a range of costs associated with seizure of vapes (e.g. seizure events, storage and disposal costs, potential legal costs) which have not been monetised due to lack of robust data.

7.121 It was estimated in the Defra IA that of the premises selling single-use vapes, a total of 33,105 premises in England may require a visit to check compliance or carry out enforcement. With Welsh adjustment, this represents 1,814 premises in Wales. In Defra's IA, the Association of Chief Trading Standards Officers (ACTSO) stated it was unlikely there will be any visits to supermarkets, petrol station forecourt shops or convenience stores owned by reputable chains, hence this figure is lower than the total number of retailers. In discussions with TSW they confirmed this would be the case for Wales as well. Of these premises, it is estimated that 10% will be inspected (i.e. 181 premises). Inspecting premises selling these items in the first instance will, on average, occupy two hours of an officer's time per year at a rate of £82.97 per hour in 2023 prices (originally £84.24 in 2024 prices which has been deflated (using the GDP Deflator) to 2023 prices to align with our price base year). This equates to £30,480 and is calculated as follows:

$$\begin{aligned} \text{Cost of first inspection} \\ &= \text{number of premises inspected} \\ &\times \text{time taken (in hours)} \times \text{hourly cost} \end{aligned}$$

$$\text{Cost of first inspection} = 181 \times 2 \times £82.97$$

7.122 Assuming there is a 25% non-compliance rate following the initial visit (i.e. by 45 premises), inspecting premises selling these items in the second instance will occupy three hours of an officer's time per year at a rate of £82.97 per hour. This equates to £11,200 and is calculated as follows:

$$\begin{aligned}
& \text{Cost of second inspection} \\
& \quad = \text{number of premises inspected} \\
& \quad \quad \times \text{time taken (in hours)} \times \text{hourly cost} \\
& \text{Cost of second inspection} = 45 \times 3 \times \text{£82.97}
\end{aligned}$$

7.123 Therefore, the total annual enforcement cost to LAs attributed to inspection costs is £41,680. Enforcement costs are expected to only be incurred for the first three years of the policy. This results a present value cost of £125,040 over the appraisal period.

## Costs to Welsh Government

7.124 We anticipate there will be a one-off cost of £300,000 to the Welsh Government in developing bilingual guidance, communications to support the introduction of the regulations and staff costs associated with its implementation.

## Summary of monetised benefits

### Profit gained through sales of alternative vaping products

7.125 As a result of the ban on single-use vapes, businesses will face reduced profits. However, some of this impact could be partially offset by an increase in expenditure on alternative vaping products. There is also likely to be some profit gained through the sale of tobacco goods or other non-vaping products, however we have only monetised the profit gained from alternative vaping products. As this is an indirect impact to businesses, we have provided an illustrative scenario in our analysis and assume these products will have the same profit margins as single-use vapes.

### Retailers

7.126 Retailers could expect a proportion of their lost profit from single-use vapes to be recouped from sales of reusable vapes and refill liquid/cartridges. We assume in our central scenario that 51% of existing users of single-use vapes will switch to alternative vaping products. As outlined earlier in the RIA, we have also conducted some sensitivity analysis on this proportion with it being 40% of users switching in a low scenario and 100% of users switching in a high scenario.

7.127 We assume 50% of the switched products will go to cartridge devices and the remaining 50% will go to refillable tank devices. From Defra desk-based research, we estimate the average retail price of the components to be the following as outlined in Table 22.

**Table 22: Retail price estimates for alternative vaping products**

Reusable vape type	Component	Price
Cartridge vape	Rechargeable vape with pre-filled cartridge (i.e. device with no re-fills)	£9.00
	Refill cartridges (pack of 2)	£7.00
Refillable vape	Rechargeable vape with tank (i.e. device with no e-liquid)	£17.00
	Bottle of e-liquid (10ml)	£3.00

7.128 As outlined earlier in the ‘Assumptions’ section, we assume that based on the number of charge cycles of an average vape battery (300), a new device will be purchased for every 300 single-use vapes. Refill cartridges which are normally sold in packs of two will be purchased for every two single-use vapes, and a 10ml bottle of e-liquid will be purchased for every five single-use vapes.

7.129 Based on a 51% switch from single-use vapes to alternative vaping products, this means we can apportion 51% of single-use vapes POM from the baseline scenario (from Figure 1 and Table 3 in the ‘Assumptions’ section of the IA) to these users likely to switch to alternative vaping products. This is outlined in Table 23.

**Table 23: Number of single-use vapes from baseline scenario apportioned to users likely to switch to alternative vaping products**

	2025	2029	2034
<b>Number of single-use vapes apportioned to users likely to switch to alternative vaping products</b>	12,240,129	21,772,198	33,775,314

7.130 Based on a 50/50 split between these users switching to cartridge vapes and refillable vapes, the figures in Table 23 will be halved for each. And so, the number of new devices that will have to be purchased based on charge cycles will be the same for each and is calculated as follows for each year of the appraisal period:

$$\text{Number of reusable devices} = \frac{\text{number of disposable vape sales apportioned to consumers switching}}{\text{number of charge cycles per reusable vape (i.e. 300)}}$$



7.131 Splitting the total number out for each device type, we arrive at the following numbers in Table 24.

**Table 24: Number of reusable vaping devices purchased as a result of the ban**

	<b>2025</b>	<b>2029</b>	<b>2034</b>
<b>Number of cartridge vape device sales</b>	20,400	36,287	56,292
<b>Number of refillable vape device sales</b>	20,400	36,287	56,292
<b>Total reusable vape devices sold</b>	<b>40,800</b>	<b>72,574</b>	<b>112,584</b>

7.132 In addition to devices, there will also be sales from refills. For cartridge devices, based on refills coming in packs of two, sales will be based on 50% of single-use vape sales from consumers (in Table 23) switching divided by two. For refillable tank devices, based on bottles of e-liquid on average being equivalent to the liquid in five single-use vapes, this will be based on 50% of the single-use vape sales from consumers switching (in Table 20) divided by five. These are calculated as follows:

*Number of refill packs for cartridge vapes*

= 50%

$$\times \frac{\text{number of disposable vape sales apportioned to consumers switching}}{2}$$

*Number of e – liquid bottles for refillable vapes*

= 50%

$$\times \frac{\text{number of disposable vape sales apportioned to consumers switching}}{5}$$

7.133 And so, we arrive at the following numbers of sales for refills in Table 25.

**Table 25: Number of refills for reusable vaping devices purchased as a result of the ban**

	<b>2025</b>	<b>2029</b>	<b>2034</b>
<b>Number of refill cartridges sold (packs of 2)</b>	3,060,032	5,443,050	8,443,829
<b>Bottles of 10ml e-liquid sold</b>	1,224,013	2,177,220	3,377,531

7.134 We assume retailers will use the same profit margin (45%) for these alternative vaping products as single-use vapes. And so, the profit gained from sales of alternative items would be calculated as for each year of the appraisal period:

$$\begin{aligned}
 & \textit{Profit from sales of alternative vaping products} \\
 & = \textit{number of sales from product} \times \textit{retail price} \\
 & \times \textit{profit margin}
 \end{aligned}$$

7.135 Hence, this results in a present value benefit of £210.1m over the appraisal period for all the alternative vaping products together. Sensitivity analysis has also been undertaken on this based on the proportion of consumers switching.

### Wholesalers

7.136 The wholesale sector is likely to be able to continue to trade the alternative products replacing the banned products. Wholesalers could expect a proportion of their lost profit from single-use vapes to be recouped from the sales of reusable vapes and refill liquid/cartridges, based on the same proportions of consumers switching used to calculate increased profit for retailers.

7.137 By deducting the retail profit margin from the above four items, the average wholesale prices of them are as follows in Table 26.

**Table 26: Wholesale price estimates for alternative vaping products**

<b>Reusable vape type</b>	<b>Component</b>	<b>Price</b>
<b>Cartridge vape</b>	Rechargeable vape with pre-filled cartridge (i.e. device with no re-fills)	£4.95
	Refill cartridges (pack of 2)	£3.85
<b>Refillable vape</b>	Rechargeable vape with tank (i.e. device with no e-liquid)	£9.35
	Bottle of e-liquid (10ml)	£1.65

7.138 Calculations are undertaken similarly as with retail with only the price and profit margin differing. We also assume that wholesalers will have the same profit margin (12%) for these alternative vaping products as single-use vapes. Hence, this results in a present value benefit of £30.8m over the appraisal period. Sensitivity analysis has also been undertaken on this with the proportion of consumers switching.

### Importers/re-branders

7.139 Importers and re-branders could expect a proportion of their lost profit from single-use vapes to be recouped from the sales of reusable vapes

and refill liquid/cartridges, based on the same proportions of consumers switching used to calculate increased profit for retailers.

7.140 By deducting the retail profit margin from the above four items from wholesale prices, the average prices charged by importers and re-branders is as follows in Table 27.

**Table 27: Importer/re-brander price estimates for alternative vaping products**

<b>Reusable vape type</b>	<b>Component</b>	<b>Price</b>
<b>Cartridge vape</b>	Rechargeable vape with pre-filled cartridge (i.e. device with no re-fills)	£4.36
	Refill cartridges (pack of 2)	£3.39
<b>Refillable vape</b>	Rechargeable vape with tank (i.e. device with no e-liquid)	£8.23
	Bottle of e-liquid (10ml)	£1.45

7.141 Calculations are undertaken similarly as with retail and wholesale with only the price and profit margin differing. We also assume importers and re-branders will have the same profit margin (15%) for these alternative vaping products as with single-use vapes. Hence, this results in a present value benefit of £33.9m over the appraisal period. Sensitivity analysis has also been undertaken on this with the proportion of consumers switching.

### **Reduction in waste management costs to LAs**

7.142 By banning single-use vapes, it is expected waste management costs to LAs will fall due to the LDT and landfill and incineration (EfW) site gate fees they have to pay falling. As with LDT, the gate fees are charged by weight. LDT is a transfer, however landfill and EfW gate fees are explicitly benefits to LAs. The gate fees are outlined in Table 28 and we have assumed these will remain constant in real terms over the 10-year appraisal period. It should also be noted the landfill gate fee excludes LDT, as they are calculated separately. The gate fees used were originally in 2022 prices ([Wrap GATE FEES REPORT 2022/23](#)), however these have been inflated (using the GDP deflator series) to 2023 prices to align with the price base year used in this cost-benefit analysis as outlined in Table 28. Gate fees are then multiplied by the

tonnages of waste expected to be diverted from landfill and incineration as a result of the ban to calculate savings.

**Table 28: Gate Fees (to the nearest £)**

	<b>Gate Fee (£/t)</b>
<b>EfW</b>	£110
<b>Landfill</b>	£30

**Landfill Disposals Tax savings**

7.143 As discussed previously, there will be savings in LDT for LAs but a loss for government as a result of the transfer of money. The calculation for this is outlined in ‘Loss of Landfill Disposals Tax revenue to Government’ section, noting that this will be a cost to government but a benefit to LAs.

7.144 This results in a present value benefit of £0.5m over the appraisal period, with sensitivity analysis undertaken around the tonnes of waste sent to landfill (also outlined above).

**Landfill gate fee savings**

7.145 Landfill gate fee savings are calculated as the landfill gate fee multiplied by the tonnes of waste diverted from landfill as a result of the ban. It is assumed that 33.6% of single-use vapes waste arisings end up in landfill each year and this proportion is assumed to remain constant for the appraisal period. The calculation methodology is as follows for each year in the appraisal period:

$$\begin{aligned}
 & \textit{Landfill gate fee savings} \\
 &= \textit{Landfill gate fee} \\
 &\times \textit{disposable vapes diverted from landfill (in tonnes)}
 \end{aligned}$$

$$\begin{aligned}
 & \textit{Landfill gate fee savings} \\
 &= \text{£30} \\
 &\times \textit{disposable vapes diverted from landfill (in tonnes)}
 \end{aligned}$$

7.146 This results in a present value benefit of £0.13m over the appraisal period. Sensitivity analysis has also been undertaken on this with regards to the tonnes of waste sent to landfill (+/- 12%).

**EfW gate fee savings**

7.147 EfW gate fee savings are calculated as the EfW gate fee multiplied by the tonnes of waste diverted from incineration. It is assumed 66.3% of

single-use vapes waste arisings end up being incinerated each year and this proportion is assumed to remain constant for the appraisal period. The calculation methodology is as follows for each year in the appraisal period:

$$\begin{aligned} & \text{EfW gate fee savings} \\ &= \text{EfW gate fee} \\ &\times \text{disposable vapes diverted from incineration (in tonnes)} \end{aligned}$$

$$\begin{aligned} & \text{EfW gate fee savings} \\ &= \text{£110} \times \text{disposable vapes diverted from incineration (in tonnes)} \end{aligned}$$

7.148 This results in a present value benefit of £0.96m over the appraisal period. As with landfill gate fee savings, sensitivity analysis has been undertaken with regards to the tonnes of waste sent to landfill (+/- 12%).

### **Emissions savings to society**

7.149 In order to monetise emissions savings for certain benefits to society as a result of the ban, the number of avoided emissions are multiplied by carbon values, which are priced per tonne of CO<sub>2</sub> ([Department for Business, Energy & Industrial Strategy, Valuation of greenhouse gas emissions: for policy appraisal and evaluation](#)). These were originally in 2020 prices, these have been inflated to 2023 prices to be consistent with the cost benefit analysis. A summary of these values are outlined in Table 29.

**Table 29: Carbon values in 2023 prices**

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Carbon value (£ per tonne of CO <sub>2</sub> )	£292	£296	£301	£305	£310	£314	£320	£324	£329	£335

### **Disposal incineration emission benefit**

7.150 Single-use vapes produce greenhouse gas emissions when incinerated, therefore, a ban will result in emissions savings as a result of the waste diverted from incineration. It is calculated that 66.3% of single-use vapes end up in incineration when they become waste, and this proportion is expected to remain constant during the appraisal period.

7.151 To calculate the incineration emission benefit, the tonnes of CO<sub>2e</sub> released upon incineration of single-use vapes (0.21 tonnes CO<sub>2e</sub> per tonne of single-use vape waste arisings multiplied by the tonnes of

waste diverted from incineration) are multiplied by the carbon values (as outlined in the 'Assumptions' section of the IA). The calculation methodology for this is as follows for each year in the appraisal period:

$$\begin{aligned} \text{Incineration emission benefit} = & \\ & \text{disposable vapes diverted from incineration (in tonnes)} \times \\ & \text{GHG emissions released per tonne (i.e. 0.21)} \times \text{carbon value} \end{aligned}$$

7.152 This results in a present value benefit of £0.58m over the appraisal period. Sensitivity analysis has been provided around this with +/- 12% on tonnes of waste incinerated.

### **Reduced emissions from a reduction in waste fires**

7.153 The lithium-ion batteries in single-use vapes have been reported to have caused fires. A ban on single-use vapes would significantly reduce the amount of lithium-ion batteries being incorrectly disposed in the waste stream and, therefore, reduce the risk of fires.

7.154 [Eunomia has modelled the emission impacts associated with waste fires caused by single-use vapes.](#) They estimated lithium-ion batteries cause 201 fires in landfill sites per year across the UK, and the share of those accounted for by single-use vapes was estimated to be 19%. This figure was projected forwards in line with the year-on-year consumption of single-use vapes. We have adjusted these figures for Wales-only and extrapolated to cover the appraisal period. The number of waste fires estimated to be attributable to single-use vapes per year in Wales during the appraisal period can be seen in Table 30 noting this uses the same growth rate from Table 4.

**Table 30: Number of waste fires attributed to single-use vapes in Wales**

	2025	2026	2027	2028	2029	2030	2031	2033	2034
<b>Number of waste fires</b>	3	3	3	4	5	5	6	7	7

7.155 The emissions associated with the burning of waste in landfill sites due to fires caused by single-use vapes consists of combustion-related GHG emissions and black carbon emissions. These have also been modelled by Eunomia and we have adjusted these figures for Wales-only and extrapolated to cover the appraisal period. As a result of the ban, there

will be a reduction in these emissions and these are outlined in Table 31 for years 1, 5 and 10 of the appraisal period.

**Table 31: Reduced emissions from waste fires caused by single-use vapes**

	2025	2029	2034
<b>Combustion-related GHG emissions (tCO<sub>2</sub>e)</b>	142	253	393
<b>Black carbon emissions (tCO<sub>2</sub>e)</b>	722	1,285	1,993

7.156 To monetise the emissions savings from avoided waste fires as a result of the ban, the total number of emissions for each year in Table 31 are multiplied by carbon values for the corresponding year in Table 29. The calculation methodology for this is as follows for each year of the appraisal period:

$$\begin{aligned} & \textit{Emission savings from avoided waste fires} \\ & = \textit{reduced emissions} \times \textit{carbon values} \end{aligned}$$

7.157 This results in present value benefits of £0.8m for the reduction in combustion-related GHG emissions and of £4.2m for the reduction in black carbon emissions. Sensitivity analysis has been undertaken both for combustion-related GHG emissions and black carbon emissions, which is +/- 12% for the number of emissions each year multiplied by the same carbon values.

### **Reduced litter (amenity) benefit to society**

7.158 A ban on single-use vapes is expected to have positive amenity benefits by reducing the amount of them in circulation as well as littered. The presence of litter can contribute to a fear of crime and injury, both of which have a negative well-being impact. Litter can also discourage the use of public spaces. Clean environments have a value to people who care for the welfare of wildlife and other people, and littered environments affect people's sense of safety, enjoyment and willingness to use public spaces. Therefore, there is a social disamenity cost associated with litter.

7.159 These impacts are difficult to monetise directly, so we have adapted a willingness to pay (WTP) method, as applied in the Defra IA. [The Economics for the Environment Consultancy \(Eftec\)](#) estimated that households' mean marginal willingness to pay for a 1 percentage point reduction in Local Authority area litter is £0.66 per year in 2020 prices.

By adjusting for inflation, this is equivalent to £0.74 per year in 2023 prices.

7.160 Based on there being 1,312,975 households in Wales ([ONS \(2023\), Families and households data](#)), we estimate the total WTP for a 1 percentage point improvement in terrestrial environment is £971,602 per annum. It is assumed a small proportion of this estimate can be attributed to a reduction in littered single-use vapes.

7.161 Our attribution is based on the approach taken in the Defra IA, which uses research undertaken by [Zero Waste Scotland](#). At least 15,000 tonnes of litter is discarded into the urban and rural environment and is subsequently cleared by LAs each year in Scotland which equates to approximately 250 million easily visible items each year. In 2022, the amount of single-use vapes littered equated to 0.1% - 0.5% of the tonnage of total litter, and between 0.3% and 1.1% of the count of total litter. In order to monetise the amenity benefit, the proportion of the count of litter attributable to single-use vapes has been used. The mid-point of the range constitutes a central scenario, and the ranges from a low and high scenario for sensitivity analysis. By projecting the proportion forward using the same growth rate in Table 4, we arrive at the following proportions across the appraisal period as outlined in Table 32.

**Table 32: Projection of proportion of litter attributable to single-use vapes**

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
<b>Proportion of litter made up by single-use vapes</b>	1.2%	1.5%	1.7%	2.0%	2.2%	2.5%	2.7%	3.0%	3.2%	3.4%

7.162 As a result of the ban, it is assumed that there will be a 100% reduction in single-use vapes litter. To calculate the reduction of disamenity of litter, the yearly proportion of litter outlined in Table 32 is multiplied by the total WTP estimate. The calculation methodology is as follows for each year of the appraisal period:

$$\begin{aligned} & \text{Reduced litter (amenity)benefit} \\ & = \text{proportion of litter made up by disposable vapes} \\ & \times \text{total WTP} \end{aligned}$$

$$\begin{aligned} & \text{Reduced litter (amenity)benefit} \\ & = \text{proportion of litter made up by disposable vapes} \times \text{£971,602} \end{aligned}$$



7.163 This amounts to a present value benefit of £0.2m over the appraisal period. Sensitivity analysis on the proportion of litter single-use vapes make up has also been undertaken based on the upper and lower bounds of the range provided for the proportion of count of litter.

## **Summary of non-monetised costs**

### **Manufacturer costs**

7.164 As stated earlier in the RIA, stakeholders we engaged with indicated there is no knowledge of domestic production of single-use vapes in the UK or Wales. Therefore, lost profit, familiarisation, capital investment, and alternative material costs have not been quantified.

### **Excess stock costs to retailers**

7.165 The transition period of at least six months between the anticipated making of the regulations and their coming into force will allow time for retailers to plan for selling residual stock.

7.166 Given the government response announcing the ban has been published over a year before implementation and there will be further communications on this prior to the implementation period, we believe adequate time has been given to prepare and adapt.

### **Disutility to consumers through loss of convenience of enjoyment**

7.167 A ban on single-use vapes will have a negative impact on those consumers with a preference for disposable vapes compared to the alternatives. There are a number of advantages to single-use vapes with many considering them to be more convenient when compared with reusable products. For example, users do not need to refill single-use vapes as they come pre-filled and no cleaning or maintenance is required (unlike reusable vapes).

7.168 A ban on single-use vapes restricts consumer choice and it follows that those consumers who currently purchase single-use vapes will experience a reduction in their utility as a result of a loss of convenience and being forced to shift to their 'second best' choice (be that switching to a reusable vape or stopping vaping altogether). The data is not available to monetise this loss in consumer utility. However, the balance

of consultation responses indicates any reductions in consumer convenience and choice through banning single-use vapes will be offset by the gains to wider society from addressing environmental and social externalities.

### **Health disbenefits**

- 7.169 Due to the lack of direct evidence on the impact of banning single use vapes on smoking cessation, no modelling of that potential impact has been conducted.
- 7.170 However, the Health Impact Assessment has identified several key areas where there are potentially differential impacts by population group which could incur a negative impact on smoking cessation. Importantly, these are groups where higher rates of smoking are typically observed (e.g. people on lower income, people with mental health conditions) and represent priority groups in the Welsh population for targeting inequalities caused by tobacco smoking as set out in '[A smoke-free Wales: Our long-term tobacco control strategy](#)'
- 7.171 In the short-term, this could contribute to an increase in the cost of living for individuals from lower income households in Wales and may contribute to a negative impact on [mental health, physical health and family relationships](#). However, in the longer-term, reusable devices are more cost-effective and can make a gradual reduction in nicotine strength easier than single-use devices. Encouraging current vapers, including those who experience socio-economic disadvantage, to switch to reusable devices may support either a modest reduction in expenditure on vaping products or a more significant reduction should they cease smoking altogether.
- 7.172 Single-use vapes are also not currently provided by the NHS Wales smoking cessation service ('Help me Quit'), so there will be minimal direct impact on provisions offered by these services who will continue to support smokers to quit via smoking cessation aids and nicotine replacement therapy.

## **Summary of non-monetised benefits**

### **Manufacturer benefits**

#### **Profit gained through sale of alternative vaping products**

7.173 As there is no indication of domestic manufacturing in Wales, increased profit from either manufacturers switching to selling reusable vapes instead or current manufacturers of reusable vapes have not been quantified.

#### **Increased profit for current manufacturers of alternative vaping products**

7.174 There could be increased market for current domestic manufacturers of refill components for reusable vapes. Stakeholder engagement undertaken by Defra confirmed that most e-liquid consumed in the UK is produced in the UK, hence confirming there is a considerably large e-liquid production market in the UK. Although we have been unable to identify whether there are domestic manufacturers of e-liquid in Wales.

7.175 The potential increase in profit to these businesses is dependent on changes in consumer behaviour caused by the ban. If consumers switch to refillable vapes (i.e. those with a tank to refill with e-liquid) as opposed to prefilled pod/cartridge devices, there will likely be increased profit for domestic manufacturers of e-liquid.

7.176 Though it should also be noted that through stakeholder engagement undertaken for the Defra IA it was indicated that if there is a significant shift to the use of refillable vapes, some capital expenditure may be required to expand production of bottled e-liquid to meet additional demand. Additionally, if there is a scenario where there is a more significant shift to prefilled pod devices, there is a chance the filling of prefilled cartridges/pods in the UK could become an economic requirement, leading to capital expenditure on pod-filling machinery

## **Retailers**

#### **Retailer profit gained through sales of tobacco products and other nicotine products**

7.177 In addition to retailers being able to partially offset the lost profit through sales of alternative vaping products, some are also likely to further offset this through sales of tobacco/cigarettes and other non-vaping products for nicotine replacement (e.g. in the form of chewing gum, skin patches, mouth sprays, etc.).

7.178 For tobacco products, it is difficult to predict the switching behaviour using the counterfactual for single-use vapes sales. As outlined earlier in the RIA, we assume 51% of current single-use vape users will switch to

alternative vaping products, and it is further assumed 29% of current users will either revert/re-lapse to smoking tobacco or use an alternative nicotine product. For tobacco products, it may not be completely accurate to assume this proportion of 29% will be constant over the appraisal period because of other policy proposals. As a result, it has not been possible to monetise any potential profit gained through sales of tobacco products as a result of the ban on single-use vapes.

- 7.179 Vapes are used for smoking cessation and it is possible some users will shift to other forms of smoking cessation using different products for nicotine replacement. However, as there is uncertainty with this and the variety of products, we have not attempted to quantify the potential profit gained through sales with these products.

### **Retailer profit gained through the sales of non-tobacco related products**

- 7.180 The analysis above shows a significant cost to retailers through the loss of the profit made on the sale of single use vapes. While an increase in profits to retailers from the sale of alternative vaping products has been estimated, this is calculated based on significantly lower levels of consumer expenditure and is, therefore, a fraction (a little over one fifth) of the profit lost from the sale of single use vapes.

- 7.181 A large proportion of the money consumers will no longer be spending on single use vapes is, therefore, not accounted for in this analysis. How that money is spent (or saved) will be down to individual preferences, however it is likely there will be some further retailer profit generated in the economy beyond that which has been calculated in this RIA. Depending on profit margins in the relevant sectors, that retailer profit might be lower, equal to or greater than the profit retailers lose by no longer being able to sell single use vapes. Given the uncertainties as to how any potential savings will be spent by individuals, we have not attempted to calculate this benefit to retailers.

- 7.182 We acknowledge some in the retail sector have also expressed concerns over the potential reduced footfall for convenience stores following the bans and there may be some redistribution of spend.

### **Reduction in fuel costs to retailers**

- 7.183 There is potential for there to be a reduction in transport fuel costs to businesses transporting vapes, assuming they switch to selling reusable vapes and their refill components once single-use vapes have been banned. Not all single-use vapes will be replaced by reusable vapes,

however a proportion of them will have refill components (i.e. refill pods/cartridges and bottles of e-liquid). This is likely to reduce deliveries as each vape lasts longer, and refillable components are lighter than single-use vapes, however there is uncertainty as to how retailers will purchase supplies and in what ratios for the various vaping products, which could differ between businesses. Any reduction in fuel costs (and associated emissions savings) from the ban is likely to be relatively small.

## **Further emissions savings to society**

### **Reduction in fuel emissions to society**

7.184 In addition to potentially lower fuel costs to businesses, the use of less fuel will result in lower greenhouse gas emissions. However, this has not been monetised as it is likely fuel savings to retailers will be small.

### **Production emission savings**

7.185 With fewer single-use vapes being produced as a result of the ban, production-related emissions savings will be delivered. These benefits have not been monetised in the main cost-benefit analysis as there is no knowledge of domestic single-use vape manufacture and so, production emissions savings will not accrue in Wales or the UK more broadly. [Research by Eunomia](#) has shown that production emissions account for around 26% of total GHG emissions in the single-use vape lifecycle, which is a much higher proportion than the monetised GHG emission impacts from incineration (around 2%) and waste fires (around 15%).

### **Raw material extraction emissions savings**

7.186 In addition to production emissions savings, there will also be emissions savings from the extraction of critical raw materials to produce single-use vapes. Research by Eunomia showed that raw material extraction accounts for the most significant share of GHG emissions associated with single-use vape lifecycle, almost 60% of total GHG emissions can be attributed to this stage.

7.187 In comparison to the monetised GHG emission savings in the RIA from avoided incineration and avoided waste fires (which make up around 2% and 15% of the total share of GHG emissions associated with the single-use vape lifecycle), if the avoided GHG emissions from raw material extraction were monetised there would be even more substantial

benefits. However, as these impacts would not accrue domestically in Wales they have not been monetised.

## **Reduced clean-up costs to LAs**

7.188 The implementation of the ban on single-use vapes may reduce clean-up costs to LAs for littered items. It is likely most littered single-use vapes would be collected and cleaned-up as part of existing, routine street cleansing services and so savings for this are likely to be very small. However, if consumers switch to reusable vapes then this will reduce the likelihood of the product being littered and result in a reduction of litter. Whilst there is the possibility that some single-use vape users will switch to cigarettes, we anticipate LAs will already have some form of existing enforcement activity to address this type of litter (for example the issuing of Fixed Penalty Notices).

## **Broader environmental impacts of littering that are avoided**

7.189 It is known that littering can lead to vapes entering land areas (e.g. city parks), and to a lesser extent, aquatic environments (e.g. vapes being disposed of in restroom facilities or littered in coastal/ riverine areas). It is difficult to quantify the impact that such littering may have on the environment since there is limited research around the rate of degradation of a vape placed in aquatic or land-based environments, in addition to what components of the vape will come into contact with the environment.

7.190 One potential avenue by which single-use vapes may damage the environment is the use of plastic in the vape casing. If littered, it is possible that over an undefined period of time, the plastic will degrade to form small microplastics in the environment. [Some data suggests](#) that microplastics can be toxic and cause inflammation if ingested by animals or humans, and there is a more general risk to animals with accidental ingestion of vapes which may lead to choking. The lithium-ion batteries which many single-use vapes contain may also be a source of damage to the environment as they could be classified as hazardous waste due to the metallic compounds they contain.

7.191 An overview of our separate Biodiversity Impact Assessment can be found in Section 9 below.

## **Reduced cost of fires to waste site operators, LAs and society**

- 7.192 Emissions savings from fires at landfill sites have been monetised earlier on in the RIA. However, this is likely to be a lower bound estimate for the total number of waste fires caused by single-use vapes, since fires may also be caused in waste collection vehicles, waste transfer sites and recycling facilities.
- 7.193 It is estimated that [200 waste fires were caused by lithium-ion batteries](#) in the UK in 2020, costing a total of approximately £158 million (in 2020 prices). Around 84.4% of these costs were incurred by waste site operators with many types of cost including in the form of material damage, business interruption, resources and stock. Around 7.2% of the costs were incurred by fire and rescue services in the form of resource costs, and the remainder of costs were mostly incurred by the environment and society in the form of GHG emissions and air pollution.
- 7.194 [A recent study](#) estimated that lithium-ion batteries cause 710 fires at wastes sites and waste trucks per year. As data is unavailable for the proportion of these fires attributable to the batteries in single-use vapes, it has not been possible to monetise the benefits associated with the reduced cost of fires.

## **Health benefits from reduction in vaping**

- 7.195 Although vaping may offer a safer alternative to cigarette smoking, it is not recommended for those who have never previously smoked (never smokers) as vaping is not risk free and the long-term health consequences are unclear. Prohibition on the supply of single-use vapes will reduce accessibility of e-cigarettes among never smokers, including children and young people who typically source vapes through shops or being given them.
- 7.196 Evidence on 'gateway' effect is unclear (i.e., vaping in never smokers leading to subsequent uptake of cigarette smoking), however preventing initiation of vaping among never smokers could reduce likelihood that these people go on to use other tobacco products, ultimately supporting the ambition for Wales to be smoke-free by 2030 (i.e., tobacco smoking prevalence in adults (age 16+) of 5% or less).
- 7.197 Encouraging users to switch to reusable/refillable devices, allows users to gradually reduce the strength of nicotine in the e-liquid and quit vaping which is not as easy with a single-use as there are not the same variety of nicotine strengths available. Whilst we have been unable to calculate the direct financial benefits to the NHS and wider society as result of the bans, it is recognised they present a non-monetised gain.

## **Wider Trade Impacts**

### **Intra-UK Trade**

7.198 We do not anticipate this measure will impact on intra-UK trade as all nations have plans to impose a similar sale and supply ban.

7.199 The term 'UK internal market' refers to the set of trading relationships in and across the four UK nations (i.e. England, Scotland, Wales and Northern Ireland). As the UK Government and Devolved Governments have agreed to a common commencement date, it is unlikely there will be an impact on the UK's internal market. In the event of there being any misalignment in the introduction of legislation, the four UK nations have agreed to work together through the Resources and Waste Common Framework process to minimise or mitigate any impact on the UK internal market. This could include joint consideration of an alternative coming into force date or taking steps to agree an exclusion to the United Kingdom Internal Market Act 2020 (IMA) through the agreed Common Frameworks process, to ensure the effect of Welsh legislation is not undermined by the IMA.

7.200 It should be noted that whilst each nation has undertaken an individual assessment of their regulations, we have sought to capture, where possible, any wider impacts on other nations in our assessment.

### **International Trade**

7.201 We anticipate our proposals will have an impact on international trade as it will reduce the number of single-use products imported into Wales. There is no evidence to suggest there is domestic manufacturing of single-use vapes and there is a large domestic market for single-use vapes, so it can be inferred the vast majority of single-use vapes are imported products. International trade will therefore be negatively impacted as there will no longer be a market for single-use vapes in Wales. Based on prior evidence, it can be reasonably assumed that the majority of these imports are coming from China.

## **8. Competition Assessment**

8.1. Three parts of the supply chain have been considered as part of the competition assessment:

- Importers and re-branders;



- Retailers; and
  - Wholesalers.
- 8.2. The policy would apply restrictions to manufacturers of single-use vapes. As set out in RIA above there is no direct evidence of any domestic production of single-use vapes in Wales, we have, therefore, excluded this part of the supply chain from our IA.
- 8.3. The proposal would also apply restrictions to importers, wholesalers and retailers of single-use vapes, however it is expected they will mostly switch to supplying alternative items or increase supplying them if they already do.
- 8.4. The regulation will control the characteristics of the products supplied and so there is likely to be a decrease in competition in the overall vape market. However, there could be positive competition impacts in alternative vaping products, such as reusable vapes or e-liquid, through increased demand for these products encouraging new entrants to the market. Stakeholder engagement indicated there are likely no UK-based manufacturers of devices (i.e. single-use or reusable), however there is of e-liquid; although it is unclear how many of these manufacturers are based in Wales. As we have assumed the majority of single-use vape users will switch to alternative vaping products, there is likely to be increased demand for e-liquid required for reusable vapes.
- 8.5. The policy would apply restrictions to all businesses (i.e. importers, retailers, wholesalers) equally, and will not limit businesses' ability to compete on quality, geographical location, price, advertisement or other grounds on which businesses frequently compete. However, businesses in the supply chain which solely import single-use vapes for domestic sale and/or those solely selling single-use vapes will no longer be able to do so.
- 8.6. Since the ban on the supply of single-use vapes is to be applied uniformly across the UK, it will create a level playing field for all businesses. Therefore, we do not expect competition issues with consumers switching to a different retailer to request these items. Businesses will also be on a level playing field as they will not be able to undercut each other by offering cheaper single-use vapes as those will be banned.
- 8.7. Although there could be barriers to entry to new businesses entering the market in the form of higher costs of the alternative material items, this is

expected to be short lived as these items become more popular and economies of scale form.

**Table 33. The Competition Filter Test**

<b>The competition filter test</b>	
<b>Question</b>	<b>Answer yes or no</b>
<b>Q1:</b> In the market(s) affected by the new regulation, does any firm have more than 10% market share?	No
<b>Q2:</b> In the market(s) affected by the new regulation, does any firm have more than 20% market share?	No
<b>Q3:</b> In the market(s) affected by the new regulation, do the largest three firms together have at least 50% market share?	No
<b>Q4:</b> Would the costs of the regulation affect some firms substantially more than others?	No
<b>Q5:</b> Is the regulation likely to affect the market structure, changing the number or size of businesses/organisation?	No
<b>Q6:</b> Would the regulation lead to higher set-up costs for new or potential suppliers that existing suppliers do not have to meet?	No
<b>Q7:</b> Would the regulation lead to higher ongoing costs for new or potential suppliers that existing suppliers do not have to meet?	No
<b>Q8:</b> Is the sector characterised by rapid technological change?	No
<b>Q9:</b> Would the regulation restrict the ability of suppliers to choose the price, quality, range or location of their products?	No

## 9. Impact Assessment Summary

- 9.1 A full Integrated Impact Assessment (IIA) has been undertaken to appraise the impacts – both positive and negative – of the introduction of our legislation. **Section 1** (What action is the Welsh Government

considering and why?) and **Section 8** (Conclusion) of the IIA, as well as a full **Children’s Rights Impact Assessment, and Equality Impact Assessments** will be published on the [Welsh Government website](#).

- 9.2 The Assessment has been determined through analysis of the information gathered through the UK-wide consultation ‘[Creating a smokefree generation and tackling youth vaping](#)’ in 2023 and subsequent and related targeted engagement in 2024. The information suggested the legislation could lead to impacts on children and young people (especially those who are already nicotine dependent), smoking cessation for individuals in closed settings and those who are homeless, as well as individuals with dexterity issues.
- 9.3 In undertaking the above engagement we adhered to our commitments under the World Health Organisation Framework Convention on Tobacco Control (FCTC) Article 5.3. This ensures our tobacco control policies are protected from commercial and other vested interests of the tobacco industry.

## **Impacts**

- 9.4 Specific impacts’ assessments were undertaken in the following topic areas, to identify the positive and negative impacts our proposals may have. These have been summarised in the following paragraphs.
- Biodiversity
  - Climate change
  - Children’s rights
  - Equality
  - Rural Proofing
  - Health
  - Data/Privacy
  - Socio-economic disadvantage
  - Welsh Language
  - Justice Impact Assessment

## **Biodiversity**

- 9.5 To demonstrate compliance with Section 6 of the Environment (Wales) Act 2016, a Biodiversity Impact Assessment has been completed. The [Nature Recovery Action Plan for Wales](#) identifies six objectives that will contribute to reversing the decline of biodiversity in Wales, one relates to

tackling key pressures on species and habitats. The production and inappropriate disposal of single-use, products (particularly those made of plastic) contributes to these pressures.

- 9.6 As noted in the RIA, single-use vapes are difficult to recycle which means they are often sent to landfill or incineration, rather than being recycled and reused. When single-use vapes are littered, they introduce plastic, nicotine salts, heavy metals, lead, mercury, and flammable lithium-ion batteries into the natural environment. These chemicals can end up contaminating waterways and soil and can also be toxic and damaging to wildlife. They also have adverse effects on plants, insects, and aquatic organisms, potentially disrupting food chains and ecosystem dynamics.
- 9.7 When single-use vapes which have a plastic casing are littered, the plastic can grind down into harmful microplastics, which are often more detrimental to marine biodiversity through consumption resulting in digestion blockages. As well as a loss of resources such as copper, cobalt, and a lithium, there are environmental impacts through raw material mining and other forms of extraction.
- 9.8 Therefore, banning single-use vapes will benefit biodiversity by reducing the damage to the natural environment that may result from single-use vape production, use and disposal.

### **Climate Change**

- 9.9 Climate change poses an ongoing national and global threat to our health, economy, infrastructure and natural environment. In recognition of this, in April 2019 the Welsh Government declared a climate emergency in Wales.
- 9.10 There are environmental impacts through the production, and manufacturing of single-use vapes. Most notably, greenhouse gas emissions, which contribute to climate change, and water consumption, as set out in [Zero Waste Scotland's technical report](#).
- 9.11 Information in the [National Library of Medicine](#) details how climate change can negatively affect species' ability to hunt, avoid predators and reproduce. This can result in deficiencies in a habitat's ability to host a variety of individual species and provide nesting sites. These impacts will influence the services the ecosystem can provide for human populations, such as food production and carbon sequestration.

- 9.12 The introduction of a ban on the availability of unnecessary problematic single-use vapes forms part of a package of wider measures to reduce the negative impact of littering, plastic pollution and climate change on our environment.
- 9.13 This aligns with the [Programme for Government 2021-2026](#) commitment to protect our future generations by ensuring we “embed our response to the climate and nature emergency in everything we do”. Under this encompassing pledge, there is a specific commitment to “Legislate to abolish the use of more commonly littered, single use plastics”.

### **Children’s Rights**

- 9.14 The ban on single-use vapes will have both positive and negative impacts on children's rights, as defined by the UNCRC. The Children’s Rights Impact Assessment (CRIA) has identified the ban on single-use vapes meets the requirement in [The United Nations Convention on the Rights of the Child](#), specifically **Articles 3, 6, 12, 13, 17, 24, 29, 31, 33 and 36**.
- 9.15 Our proposals will reduce the negative impact littering, plastic pollution and climate change have on our environment and our health and well-being. Climate change has been identified as one of the biggest threats facing our future generations; implementing these proposals will have a direct positive impact on protecting our environment, health and well-being in the short term and for future generations.
- 9.16 However, the ban on single-use vapes could also have some negative impacts on children's rights, especially on their right to expression, participation and leisure. Several mitigating actions are included in the CRIA.
- 9.17 To balance the impacts identified, and to ensure the best interests of the child are a priority, the Welsh Government is confident the mitigating actions detailed in the assessment of impacts will empower children and young people to make the right choices. By continuing to work with children and young people and those who represent them, we will continue to protect and improve the mental wellbeing of young people. This includes helping children and young people to build resilience and reduce engagement in risky behaviours. Following this engagement, a revised Children’s Rights Impact Assessment will be published in March 2025.

9.18 We can foresee no potential impacts on EU Citizens Rights (as referenced in the Equality Impact Assessment) relating to young people up to the age of 18, from the proposed legislation.

### **Equality**

9.19 The Equalities Act 2010 places a General Equality Duty on Welsh public authorities to have due regard to the need to eliminate unlawful discrimination, harassment and victimisation, as well as to advance equality of opportunity and to foster good relations between people who share a protected characteristic and those who do not.

9.20 Prohibiting the supply of single-use vapes will impact all current users of single-use vapes and require current and future users to purchase alternative options (for example re-usable vapes). Concerns were raised around the impact on disabled people, including those with long-standing illnesses which cause dexterity issues (e.g., Parkinson's Disease), older people and people with mental health conditions or learning difficulties. This may be particularly relevant where vapes are being used as a smoking cessation tool. The impact of our proposals on smoking cessation has been considered in our Health Impact Assessment.

9.21 Refillable and reusable devices have developed significantly towards increased convenience and ease-of-use and industry continue to develop them further— providing a convenient and accessible device for vulnerable groups. It is noted however, alternative devices may not be suitable to allow for current levels of independence and dignity for all affected. Smoking cessation aids, including nicotine replacement therapy will also be an alternative option.

9.22 We do not believe the proposal is discriminatory or otherwise unlawful under the Equality Act and it is unlikely the policy will have a discriminatory effect. Nevertheless, we will monitor the delivery of the proposals and remain alert to new evidence suggesting any negative impacts, discrimination or other prohibited conduct is, or could be, occurring and take appropriate action to prevent this happening.

### **Rural Proofing Screening**

9.23 Rural proofing is a Welsh Government commitment, underpinned by the principles of social justice, sustainability, equality and fairness, and includes action to improve the quality of life for those residing in our Welsh rural communities.

- 9.24 A Rural Proofing Screening Assessment has been undertaken, which has indicated limited impacts of the proposals on rural communities. These include the positive impact on the environment through reduced littering and environmental harm of inappropriately disposed single-use vapes. There may be negative impacts for older people, specifically if they use single-use vapes for smoking cessation. However, re-usable vapes and smoking cessation aids, including nicotine replacement therapy will remain available.
- 9.25 Small and micro size businesses (mostly convenience stores) will be most impacted by the ban on single-use vapes due to the loss of profit from the sale of these items, which have a high profit margin. However, some single-use vapers will either quit vaping or transfer to re-usable or alternative non-vaping products, potentially spending the money saved from this change in behaviour to other non-tobacco related products being sold in shops.

### **Health Impact Assessment**

- 9.26 The ban on the supply of single-use vapes in Wales has the potential to positively impact the population by reducing environmental damage (for example less littering) and reducing the prevalence of vaping in children and young people (i.e. by banning a product which is particularly accessible and appealing to youth).
- 9.27 In the absence of direct evidence on the impact a ban of single-use vapes would have on smoking cessation, no modelling was undertaken to inform this HIA. However, the HIA has identified several key areas where there are potentially differential impacts by population group which could incur a negative impact on smoking cessation. Importantly, these are groups where higher rates of smoking are typically observed (e.g., people on lower income, people with mental health conditions) and represent priority groups in the Welsh population for targeting inequalities caused by tobacco smoking as set out in '[A smoke-free Wales; Our long-term tobacco control strategy](#)' (Welsh Government, 2022).
- 9.28 Although there was no direct evidence identified for the HIA, we were made aware of potential barriers (e.g., cost, complexity), to switching to alternative reusable devices for people with mental health conditions, physical, sensory or learning impairments which could in some cases, potentially risk a negative impact on smoking cessation. However, there are currently several versions of reusable vapes, with some possibly easier for individuals who may find other products more difficult to access

and navigate (e.g., people with dexterity problems, visual difficulties, physical or mental health conditions).

### **Data Protection**

9.29 Data Protection Impact Assessment (DPIA) screening was completed to identify any impact our proposals have on the use, and changes to use, of personal data.

9.30 Based on information provided in the screening, it was determined that, as no personal data will be processed by the Welsh Government for this proposal, a full DPIA would not be required and no UK General Data Protection Regulation (UK GDPR) compliance advice is needed.

9.31 Individual LAs who will enforce the bans will have their own processes in place to deal with data protection (for example when seeking prosecution or issuing civil sanctions).

### **The Socio-economic Duty**

9.32 The socio-economic duty requires relevant public bodies, including Welsh Cabinet Secretaries to have due regard to the need to reduce inequality of outcome that results from socio-economic disadvantage. The Socio-economic Duty applies to the Welsh Government and, therefore, Cabinet Secretaries are required to give due regard to the Duty when strategic decisions are taken forward.

9.33 Our proposals will have a substantial positive impact for all individuals, (though there may be a negative impact for business owners) including those who experience socio-economic disadvantage, by reducing the amount of single-use vapes littered and the associated negative environmental impact this can cause.

9.34 A ban on single-use vapes will incur a short-term additional cost to individuals in Wales who vape and use single-use vapes, which will affect a higher proportion of those from socio-economically disadvantaged backgrounds. In the short-term, this could contribute to an increasing cost of living which individuals from lower income households in Wales report as having a negative impact on [mental health, physical health and family relationships](#).

9.35 However, in the longer-term, reusable devices are found to be more cost-effective and can allow for a more gradual reduction in nicotine strength when compared to single-use vapes. This could support those who



experience socio-economic disadvantage in seeking to reducing the amount they vape or cease altogether.

### **Welsh Language**

- 9.36 The Welsh Government has fully considered the impact of our proposals on the Welsh Language. Although our proposals do not directly link with the Welsh Government's strategy for the Welsh language, the legislation, guidance for retailers, awareness raising materials, questionnaires for children and young people and specific impact assessments have been produced bilingually to comply with the Welsh Language (Wales) Measure 2011, ensuring there is no adverse impact on the Welsh language.
- 9.37 Cymraeg 2050 is a cross-governmental agenda anchored in the Well-being of Future Generations Act. The regulations deliver against the Programme for Government commitments to embed our response to the climate and nature emergency in everything we do.
- 9.38 A Public consultation on the proposals in 2023 did not result in any consultee outlining a way these proposals could harm the Welsh language. The proposals will not affect the sustainability of Welsh speaking communities or Welsh medium education and Welsh learners of any ages.

### **Justice Impact Assessment**

- 9.39 The proposed legislation will prohibit the supply of single-use vapes in Wales to address the negative impact these products have on our environment. By introducing these regulations, we will reduce the number of single-use vapes being landfilled, incinerated, and littered. It will also stimulate businesses and consumers to shift to reusable, less environmentally harmful alternatives.
- 9.40 The legislation will make it an offence to supply single-use vapes, or obstruct an enforcement officer, or fail to comply with their requests. It provides enforcement officers of the regulator (LAs) with powers of entry, investigation and examination of premises, to determine whether an offence under the proposed legislation has been or is being committed, or a civil sanction imposed has been or is being contravened.
- 9.41 The proposed legislation will result in the creation of both criminal offences and associated civil sanctions.

9.42 A Justice Impact Assessment has been undertaken as part of the legislative development process. As an initial estimate, we anticipate the number of cases expected to be tried in courts will be less than five a year. This figure is based on information provided by the Department for Environment, Food and Rural Affairs, who estimate their similar legislation will result in approximately 20 cases per year expected to be tried in courts, using underage [2020 CTSI report on tobacco control](#), sales of tobacco products as the baseline. Our figure has been adjusted to reflect the population size for Wales. This legislation has been selected as it is enforced in a similar way to the proposed single-use vapes ban i.e. primarily through fines, however where there are repeated instances or if the first offence is of a serious nature, criminal proceedings can be undertaken.

## **10. Post-implementation review**

10.1 The Welsh Government will conduct a post implementation review of the legislation as soon as reasonably practicable three years after it has come into force. It is envisaged the review will assess the effectiveness of the policy in achieving its objectives.

10.2 An initial theory of change has been set out in the Defra IA which will be considered in guiding measurable outcomes in Wales. We will also consider any outcomes for monitoring raised through the various IAs (e.g. relevant impacts on specific groups etc.).

10.3 Whilst details of the review are to be determined, we anticipate this would include:

- Identifying and evaluating the impact the legislation has had on the use of single-use vapes and the associated behaviour of consumers in Wales.
- Identifying and evaluating what impacts the legislation has had on businesses in Wales.
- Identifying and evaluating the extent to which the legislation has succeeded in encouraging a shift to reusable products.
- Identifying, where possible, and evaluating, the extent the legislation has had on reducing littering of single-use vapes following its implementation.

