

E-CIGARETTES: DEFINITION AND GLOBAL MARKET



WHAT ARE ELECTRONIC NICOTINE DELIVERY SYSTEMS (ENDS)?

Electronic cigarettes (e-cigarettes or electronic nicotine delivery systems [ENDS]), are battery-powered devices that heat nicotine-containing e-liquid to create an aerosol that the user inhales. ENDS products are either open or closed systems. Open systems feature a prominent chamber (tank) that is refillable with a third-party e-liquid solution; closed systems consist of a disposable or reloadable prefilled e-liquid cartridge.¹



An example of a closed system e-cigarette product. Closed systems are either disposable or reloadable prefilled e-liquid cartridges. Image taken from Vuse, March 2023.

E-liquids vary in nicotine concentration, flavors (ex: fruit, menthol/mint, candy, herbs/spices, etc.), water content, propylene glycol and glycerin content, and the presence of other compounds. Though ENDS vary widely in look and functionality, most products consist of three main elements: an atomizer, a power source or battery, and a container such as a cartridge or tank that holds e-liquid.



Open system e-cigarette products feature a refillable e-liquid tank. Contrary to closed systems, open system e-liquids are customizable, allowing users to purchase the basic ingredients necessary to mix the user's own e-liquid. Image taken from GeekVape, July 2023.

HEALTH EFFECTS OF E-CIGARETTE USE

While e-cigarettes may deliver fewer toxins than conventional cigarettes, that does not mean their use is safe or without risk. Evidence of the health effects of e-cigarette use continues to emerge, and the virtually endless variety of products and their relative newness makes long-term health effects difficult to ascertain. Aerosol emitted from ENDS contains nicotine and numerous other harmful chemicals, including known carcinogens and heavy metals like nickel and lead.² The World Health Organization's (WHO) Report on the Global Tobacco Epidemic details the emerging evidence of the harmful effects of e-cigarettes, including several studies suggesting that these products have negative effects on aspects of cardiovascular and respiratory health.³ ENDS pose serious risks to the health of young people. Nicotine is a highly addictive drug that can

harm adolescent brain development, particularly the parts of the brain responsible for attention, memory, and learning.^{3,4} Furthermore, research suggests that ENDS use among non-smokers increases the risk of conventional cigarette smoking.⁵

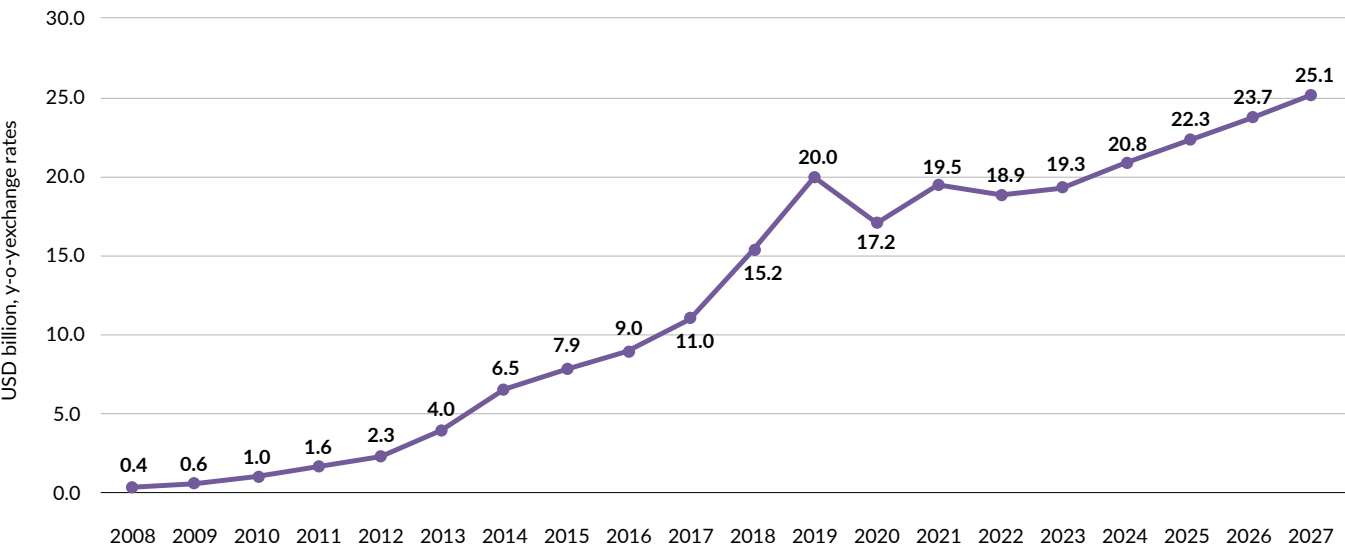
Though evidence on e-cigarette use as an effective smoking cessation aid is limited,⁵ the tobacco industry spends millions of dollars, and touts a harm reduction argument to lobby lawmakers in countries around the world for limited regulations on e-cigarettes.⁶ Furthermore, far from being targeted to smokers who are trying to quit, e-cigarettes are designed and marketed to appeal to youth, resulting in widespread adoption by young people in many countries.

THE GLOBAL E-CIGARETTE MARKET

The global ENDS market has grown rapidly and is projected to continue its expansion in the years to come.

- ENDS are available in at least 98 markets/countries globally. The global retail value of the ENDS market was \$18.9 billion (USD) in 2022, a 71.8% relative increase since 2017.⁷
- In 2022, the US was the largest market for ENDS—worth \$6.0 billion (USD), and accounting for 31.7% of the global retail value of ENDS.⁷
- The United Kingdom was the second largest market for e-cigarettes in 2022 at \$2.5 billion (USD), worth 13.2% of the global retail value, followed by China at \$1.7 billion (USD).⁷
- The overall retail value of the North American ENDS market in 2022 was \$7.8 billion (USD), 41.3% of the global ENDS market. The European market in 2022 was \$7.0 billion or 37.0% of the global retail value.⁷
- ENDS are clearly expanding beyond these markets to other parts of the world. The Middle Eastern-African market experienced a 25.0% relative growth in retail value from 2021 to 2022.⁷

Global Retail Value of E-Cigarettes, Actual (2008-2022) and Projected (2023-2027)⁷



Notes: Global retail value retail sales price (RSP) of ENDS market using year-on-year exchange rates and current prices. Projections made for 2023-2027.

Source: Euromonitor International 2022 Ed. Accessed June 2023.

E-CIGARETTE BRANDS

The WHO has reported that more than 30,000 e-cigarette brands are available in the EU alone.³ In the US, where ENDS products must apply for a marketing order to be sold, the Food and Drug Administration (FDA) has received applications for nearly 7 million different ENDS products.⁸ ENDS are

available in at least 98 countries/markets.⁷ The three largest ENDS brands are Vuse manufactured by British American Tobacco (BAT), JUUL manufactured by JUUL Labs, and RELX manufactured by RELX Technology.⁷

VUSE

- In 2022, BAT's Vuse represented 18.4% of the global ENDS market, up from 15.1% in 2021 and 8.5% in 2020.⁷ Vuse's largest market is the US—worth approximately \$2.2 billion. Globally, BAT's Vuse is worth approximately \$3.5 billion.⁷
- Vuse Go, a disposable e-cigarette, is now sold in at least 24 countries.⁹
- BAT's Vuse was inherited from R.J. Reynolds Tobacco Company in 2017 following the companies' merger. In 2020, BAT consolidated its e-cigarette brand Vype with its brand, Vuse.¹⁰



Image 1: Vuse e-cigarette (taken from vusevapor.com, December 2022)

JUUL

- JUUL launched in 2015 in the US and is now sold in at least 20 markets.⁷ In 2018, Altria, a spin-off tobacco company of Philip Morris International (PMI) acquired a 35% stake in JUUL Labs.¹¹
- In 2022, JUUL Labs represented 11.8% of the global ENDS market, down from 14.6% in 2021 and 18.8% in 2020.⁷ JUUL's largest market is in the US—worth approximately \$1.9 billion in 2022. Globally, JUUL's global market was worth \$2.2 billion in 2022.⁷
- E-liquid JUUL "pods" (cartridges containing e-liquid) can contain up to approximately 40 mg of nicotine, equivalent to the nicotine content found in about 1 package of cigarettes.¹²



Image 2: Juul e-cigarette (taken from juul.com, December 2022)

RELX

- RELX was launched in 2017 in China, is now sold in at least 7 markets, and is seeking to launch in the US.⁷
- In 2022, RELX had 6.7% of the global ENDS market, down from 10.5% in 2021 and 5.8% in 2020.⁷ RELX's largest market is China—worth approximately \$1.2 billion.
- Globally, RELX is worth approximately \$1.7 billion.⁷
- From 2018 to 2022, RELX's global market share increased by 21.3%.⁷



Image 3: RELX e-cigarette (taken from relxnow.com, December 2022)

KEY MESSAGES

- There are millions of ENDS products that vary widely in look and functionality, but all produce an aerosol that the user inhales. Many of the most popular brands are owned by multi- national tobacco companies.
- The ENDS market has grown rapidly and is projected to continue that expansion.
- While the North American and European markets make up the largest share of global ENDS retail value, markets are expanding, and the Middle Eastern-African market experienced a 25% retail value growth from 2021 to 2022.
- While e-cigarettes are often promoted as less harmful than conventional cigarettes, they are not harmless, with evidence suggesting that use affects both respiratory and cardiovascular systems. Nicotine is highly addictive and can be especially harmful to young users.
- The evidence of ENDS success in helping smokers quit is mixed at best, and no country has approved them as a smoking cessation device. Far from being targeted only to adult smokers, they are often designed and marketed to appeal to youth, resulting in high rates of use among young people.

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