In 2016, the positive descending development of greenhouse gas emissions continued, thanks to investments made by Fortum. Espoo is participating in joint efforts to combat climate change by pursuing carbon neutrality by the year 2030. Espoo’s challenge is the rapid growth of its population – even though emissions by resident are decreasing quickly, overall emissions are more difficult to curb. Rapid population growth increases for example traffic emissions, which constitute 27% of the overall emissions.

The good news is that social and economic sustainability is showing signs of recovery: for example, the number of unemployed people started falling at the end of 2016.

**Espoo’s climate emissions are falling faster than anticipated**

According to HSY’s preliminary calculations, Espoo’s climate emissions fell by 5% in 2016. District heating is increasingly being produced by methods other than fossil fuels, particularly heat pumps and biofuel. Thanks to this, emissions per resident are declining quickly. However, the strong growth of the population has increased the total amount of emissions in comparison to 1990, which is considered the comparison year in Espoo’s calculations.

* The figures for 2016 are preliminary, to be confirmed towards the end of 2017.

**Figure 1.** Greenhouse gas emissions in Espoo in 2007-2016.
The popularity of renewable energy is growing

The number of trips made by Espoo residents has increased with the population, but the growth has now been distributed differently between various modes of transport. In the past ten years, Espoo’s population has increased by 15%, but the amount of passenger car traffic at our calculation points has only increased by 3%. The growth of sustainable modes of transport has been greater than the increase in population: pedestrian traffic in the city centre has increased by 25% and cycling between different centres by 96% at our calculation points. The 2016 public transport data was not yet available.

Figure 2. The combined output of solar power systems connected to the grid in Espoo in 2012-2016. The popularity of solar power continued to grow in 2016. The City of Espoo has also installed solar panels at its properties, most recently to Espoo Hospital, Elä ja Asu senior centre in Leppävaara and Niipperi standard school.

Figure 5. Development of modes of transport in Espoo in 2007-2016.

Air quality remained good or satisfactory

Espoo has two permanent air quality monitoring stations: Luukki monitoring station in a rural area measures country air, and Leppävaara monitoring station measures air quality in a regional centre with busy traffic. The concentrations of air pollution have mainly decreased in the Helsinki Metropolitan Area both in the long and short term, despite the fact that the population and volume of traffic have increased.

Figure 6. Annual averages of nitrogen oxide from car exhaust in 2007-2016 in high-traffic Leppävaara and at the Luukki rural station. The location of the Leppävaara monitoring station was changed in 2010, which partly explains the increase in the concentration.
**The surface water's ecological condition is good or satisfactory**

The main factors posing a threat to the ecological condition of water systems are eutrophication due to external nutrient and solid matter load and the cultivation and regulation of water systems. Water systems are loaded by agriculture, habitation and construction.

The ecological condition of water systems can be improved by various measures, for example by reducing the nutrient load, restoring lakes, removing fish migration barriers and providing water protection counselling.

**Figure 7.** Ecological state of surface wasters in 2013. The classification is done approximately every six years.

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**Falling trend in electricity and water consumption**

Electricity consumption per resident decreased slightly from the previous year. Water consumption per resident, on the other hand, increased. However, a falling trend can be observed in both over the past decade, so we are moving in the right direction.

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**The protection of our diverse nature is vitally important**

Espoo has more than 80 nature conservation areas. In order to preserve natural diversity, it is essential that we preserve the ecological connections or corridors between nature areas that enable animals to move from one location to another. Flowing water is an important ecological connection between water systems and the sea. Various key species reflect the state of marine areas, and changes in their condition impact the condition of the entire ecosystem.

**Figure 8.** Preservation of nature is also important outside the conservation areas. Functional ecological connections enable various species, such as the endangered flying squirrel, to travel between different forests.

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**No significant changes in the amount of household waste**

The amount of household waste per resident in the Helsinki Metropolitan Area has not significantly reduced over the last ten years, but over the last few years, it has slightly decreased. In 2015, the amount of household waste produced was 315 kg/resident. From that, 4% ended up at a landfill, 48% for energy production and 48% was recycled.
Positive signals in view in social and economic development

Figure 9. Number of unemployed Espoo residents in 2007-2016. The number of unemployed began falling in October 2016.

Figure 10. Economic dependency ratio in Espoo in 2006-2015. The figure indicates how many unemployed persons or persons outside the workforce there are per employed person. The dependency burden on employed persons has grown further, but the situation in Espoo is good compared to the rest of the country.

Figure 11. State-taxable income per income earner in 2006-2015. In 2015, the corresponding average income level for the entire country was slightly more than €29,000 per annum.

Figure 12. Level of education of Espoo residents over the age of 15 in 2007-2016. The share of graduates with academic degrees kept increasing in 2016.

Sources: Aluesarjat regional database, Caruna, Finnish Energy, City of Espoo, Fortum, Helsinki Region Environmental Services Authority HSY, National Land Survey of Finland, Finnish Environment Institute (SYKE), Ministry of Economic Affairs and Employment’s employment statistics, Statistics Finland

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This and previous sustainable development reports are available in electronic format at www.espoo.fi/sustainabledevelopment

Espoo has been twice recognised as the most sustainable city in Europe in a survey made by the Dutch Telos research group. The survey compared the economical, sociocultural and ecological sustainability of various European cities.