Greenhouse Gas (GHG) Protocol

KESKO SCOPE 3 GHG INVENTORY REPORT 25.2.2019

Descriptive information	Company response
Company name	Kesko Corporation
Description of the company	Kesko is a highly valued listed trading sector company. It manages retail store chains that are valued by customers, and efficiently produces services for retail store chains' purchasing, logistics, network development and data management. Kesko's operations include the grocery trade, the building and technical trade, and the car trade. Its divisions and chains act in close cooperation with retailer entrepreneurs and other partners. Kesko has over 1,800 stores engaged in chain operations in Finland, Sweden, Norway, Estonia, Latvia, Lithuania, Poland and Belarus. Together, Kesko and K-retailers form K Group, whose sales (pro forma) totalled approximately €13 billion in 2018. K Group is the third biggest retail operator in Northern Europe and employs some 42,000 people. Kesko's core competence areas are: •Development and management of store concepts and brands •Combining retailer entrepreneurship and chain operations efficiently •International retail expertise •Multi-channel retailing •Cost-efficient and responsible business models •Development and management of the store site network
Consolidation approach	Operational control
Reporting period	01/01/2018 – 31/12/2018
Description of the businesses and operations included in the company's organizational boundary	The greenhouse gas emissions reported by Kesko under Scope 1 and Scope 2 of the GHG Protocol include all operating divisions and all operating countries. Scope 1 and 2 emissions include the fuel consumed at properties managed by Kesko and by transportation under its direct control and the energy purchased or acquired by Kesko. Kesko's Scope 3 emissions occur from sources owned or controlled by other entities in the value chain. All indirect emissions (not included in Scopes 1 and 2) that occur along Kesko's value chain, including both upstream and downstream emissions, are presented in the Scope 3 emissions inventory. The Scope 3 GHG emissions inventory of Kesko includes emissions from all operating divisions. From the operating countries, however, the inventory is mainly focused on Finland. Data was also collected from countries where reliable statistics were available on a category by category basis. These

	deviations as well as other limitations in the boundary are reported in connection with the categories and indicators in question.
List of Scope 3 activities included in the report	The following categories, adapting the GHG Protocol, are included in Kesko's Scope 3 GHG emissions inventory: Category 1: Purchased goods and services • Purchased goods for resale • Fresh water Category 2: Capital goods • New constructed buildings Category 3: Fuel- and energy-related activities (not inc. in Scope 1 and 2) • Upstream emissions • Transport and distribution emissions Category 4: Upstream transportation and distribution • Postal services • Outsourced contract operators Category 5: Waste generated in operations Category 6: Business travel Category 7: Employee commuting Category 9: Downstream transportation and distribution • Customer commuting Category 11: Use of sold products Category 12: End-of-life treatment of sold products Category 14: Franchises (retailer entrepreneurs)
List of scope 3 activities excluded from the report with justification for their exclusion	The following list presents the Scope 3 activities excluded from the report with justification for their exclusion by category: Category 2: Capital goods – *Category limitations* • This category is relevant for Kesko. The category includes buildings, store and office furniture. Buildings are included in the 2018 inventory. Emissions from store and office furniture are not included, since reliable information was not available. Category 4: Upstream transportation and distribution – *Category limitations* •Life cycle emissions of purchased products for resale are assumed to include emissions from transportation. Hence, these emissions are not calculated and reported separately in order to avoid double accounting. Category 5: Waste generated in operations – *Category limitations*

	•Waste in this category includes the waste generated in Kesko's warehousing operations in Finland and store operations in Finland. Category 8: Upstream leased assets – *Category excluded* •This category is not relevant for Kesko. Kesko does not have assets that are leased and not already included in the company's Scope 1 or Scope 2 inventories. Category 10: Processing of sold products – *Category excluded* •This category is not relevant for Kesko. Kesko does not sell any intermediate products. Category 13: Downstream leased assets – *Category excluded* •This category is not relevant for Kesko. Kesko does not have assets that are leased for other companies and are not already included in the company's Scope 1 or Scope 2 inventories. Category 15: Investments – *Category excluded* •This category is not relevant for Kesko. Kesko does not have Scope 3 emissions associated with investments and the company does not provide financial services. Biogenic emissions Kesko, as a retail operator, does not practice any operations that would cause biogenic emissions. Retail products include products such as grocery which life cycle emissions may also include biogenic emissions due to e.g. cultivation. However, emissions from products for resale are estimated in a high level and it would be very challenging to divide those emissions in sub-categories. Due to these issues biogenic emissions are not reported.	
Base year emissions	No base year established.	
GHG emissions data 2018 (Metric tons CO2e.)	Scope 1	45,139
	Scope 2	80,822

Kesko Scope 3 GHG emissions (metric tons CO2e.) in 2018

No.	Category	Emissions (metric tons CO2e.)	Primary data [1)]	Secondary data, estimation [2)]
Upstream emissions				
1	**Purchased goods and services [3)]**	**7 300 300**	5 %	95 %
2	**Capital goods**	29 600	50 %	50 %
3	**Fuel- and energy-related activities**	30 200	50 %	50 %
4	**Upstream transportation and distribution**	6 500	75 %	25 %
5	**Waste generated in operations**	**11 600**	50 %	50 %
6	**Business travel**	3 500	70 %	30 %
7	**Employee commuting**	18 100	60 %	40 %
8	**Upstream leased assets**	*not applicable*	*not applicable*	*not applicable*
Downstream emissions				
9	**Downstream transportation and distribution**	149 100	70 %	30 %
10	**Processing of sold products**	*not applicable*	*not applicable*	*not applicable*
11	**Use of sold products [3)]**	1 993 400	5 %	95 %
12	**End-of-life treatment of sold products [3)]**	45 400	5 %	95 %
13	**Downstream leased assets**	*not applicable*	*not applicable*	*not applicable*
14	**Franchises**	92 900	40 %	60 %
15	**Investments**	*not applicable*	*not applicable*	*not applicable*

1) Primary data: Calculations based on company-specific data

2) Secondary data: Calculations based on generic or industry average data from published sources, estimation or extrapolated data

3) High-level estimation, the emissions may change in the future when the calculation methods will be developed.

Category	Description of the types and sources of data used to calculate emissions	Description of the methodologies, allocation methods, and assumptions used
1: Purchased goods and services	**Purchased goods for resale** Activity data (primary data): Calculations are based on purchase volumes by purchase categories. A total of 37 product categories were chosen. Products were divided into trade divisions based on relative revenue. Thus there were 19 grocery products, 15 building and technical trade goods and 3 cars chosen. Products were chosen to represent the overall products. Where data was available, chosen products were from the top of the most sold product list. Emission factors (secondary data): Emission factors (for emissions before use, from use and from end-of-life treatment) for representative products have been taken from multiple sources including: ilmasto-opas.fi; MTT. 2013. Raportti 83; Nissinen, A. Salo, M. ja Grönroos, J. 2010. Ilmastodieettipuntari – mihin sen antamat ilmastopainot perustuvat?; WWF Climate Calculator; An updated lifecycle assessment study for disposable and reusable nappies. Science Report – SC010018/SR2. Environment Agency; Sustainable Plastics with Reduced Carbon Footprint & Reduced Waste, Joseph P. Greene California State University; Karelia-parketti. LCA analyses; Saari, A. Rakennustietosäätiö RTS ja Rakennustieto Oy; RT Environmental Declaration Puuinfo Oy Sawn timber; Väylärakentamisen ympäristövaikutukset ja ekoindikaattorit: Ehdotus arviointijärjestelmäksi Tiehallinnon selvityksiä 22/2006 RT Ympäristöseloste: Pukkila Oy Ab, Keraaminen laatta; Nike, Inc. Comparative Product Life Cycle Assessment; Volkswagen. The Life Cycle of a Car – Environmental Commendations Document Progress; Volkswagen. The new Transporter:	**Purchased goods for resale** Coverage: All countries and divisions Method: This indicator includes all the accumulated lifecycle emissions of products for resale; divided in emissions before use, from use and from end-of-life treatment. The range and amount of products for Kesko resale are massive and thus it is very challenging to calculate or reliably estimate the emissions of these products. In order to get a preliminary view about the size and significance of this category, emissions were evaluated in a high level. As a calculation method, a total of 37 products were selected for calculation. The amount of selected products were divided between trade divisions based on relative revenue. Products were selected on highest revenue basis where data was available. The emissions were evaluated based on the sold volumes. Life cycle emission data was acquired from as reliable sources as possible. Finding studies, credible values and as universal results as possible is challenging and thus results are only meant for high-level evaluation.

	Environmental commendation, Background report; Alexander, M., Gurr, A. & Patterson, J. 2011. Preparing for a life cycle CO2 measure; Helling, R. & Parenti, V. LCA ENERG-ICE, a new polyurethane foam technology for the cold appliance industry. 2013; Gibbs, Michael J., Soyka, Peter and Conneely, David Conneely (ICF Incorporated). CO2 EMISSIONS FROM CEMENT PRODUCTION. **Fresh water** Activity data (primary data): The water consumption was gathered from Kesko's operational systems and water meters. The water use in a few buildings was estimated, since metering was not available. Emission factors (secondary data): HSY:n energiatase ja kasvihuonekaasujen päästöt 2013 and 2015 data.	**Fresh water** Coverage: All countries and divisions Method: Calculations are based on water consumptions and an emission factor for fresh water.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0 %

2: Capital goods	Activity data (primary data): Data about new buildings constructed in 2018 were gathered from the Kesko real estate divisions. Data included square meters of buildings and frame construction materials. Emission factors (secondary data): Sitra, 2012, Rakennuksen elinkaaren hiilijalanjälki. The Concrete Centre, Embodied CO2 of Structural Frames.	Coverage: All countries and divisions Method: Calculations are based on area of buildings and emission factors for construction per square meter. Since the report by Sitra only provides emission factors for concrete and wood, we assumed steel construction to have similar emissions to concrete. This is supported by the report by the Concrete Centre. Emission factors do not include maintenance, demolition and recycling of material. These emissions depend also on materials used.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0 %

3: Fuel- and energy-related activities	Activity data (primary data): Fuel and energy use data was gathered from Kesko's operational systems and	Coverage: All countries and divisions; electricity purchased by retailers is not included

	energy meters. The energy use in some properties was estimated, since metering was not available. Primary energy reporting, including emission calculations, for Kesko was executed by Enegia Oy. Emission factors (secondary data): Motiva (2015), CO2 emission factors. Vantaan energia (2013), transmission and distribution losses for electricity and district heat in Finland. Weisser, Daniel. A guide to life-cycle greenhouse gas (GHG) emissions from electric supply technologies National renewable energy laboratory, Life Cycle Greenhouse Gas Emissions from Electricity Generation	Method: Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in Scope 1 or Scope 2, including: 1) Upstream emissions of purchased fuels, heat and electricity (extraction, production, and transportation of fuels consumed in the generation of electricity, steam, heating, and cooling consumed by the reporting company) 2) Transmission and distribution (T&D) losses (generation of electricity, steam, heating and cooling that is consumed (i.e., lost) in a T&D system) – reported by end user
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		100 %
4: Upstream transportation and distribution	**Outsourced contract operators** Activity data (primary data): Pre-calculated emission data from the operations systems of Kesko Logistiikka. Kesko Logistiikka received data for calculations from the service provider. Finland: Customer-specific GHG emissions report from service provider Posti Oyj. Emission factors (secondary data): VTT Lipasto, LIISA 2011 database **Postal services** Activity data (primary data): Finland: Customer-specific GHG emissions report from service provider Posti Oyj. Emission factors (secondary data): Emission factors used in Posti´s report are based on IPC EMMS CPI Calculator Tool 2012.	**Outsourced contract operators** Coverage: Finland, all divisions+ Finnish business related freight also for other countries Method: This emission data is based on the following factors: •mileage (also return trips are included) •transport volumes •transportation modes •vehicle types and vehicle type - specific emission factors **Postal services** Coverage: Finland Method: Postal services are outsourced operational services. Emissions are caused by fuel burned in traffic and warehouse operations and they are reported as part of upstream distribution. Kesko has avoided a remarkable share of emissions from postal services by

		using Posti Green services. Total amount of avoided GHG emissions in 2016 was 7 365 metric tons CO2e.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		100 %
5: Waste generated in operations	Activity data (primary data): Waste and waste water data is based on waste-type-specific volume data that is gathered from Kesko's waste operators. Emissions factors (secondary data): WWF Climate Calculator: emission factors from GHG emission factors for waste components produced, treated and recovered in the HSY area - Background document for the calculations Dahlbo, H., Myllymaa, T., Manninen, K., Korhonen, M.-R. (2011) Finnish Environment Institute SYKE Waste water: HSY:n energiatase ja kasvihuonekaasujen päästöt 2013 and 2015.	Coverage: All countries and divisions. Method: The category includes waste that is generated in Kesko's operations. In Finland, the waste accumulated by Kesko's retailers is not included in the category. The following waste types are included into the analyses: used oils, paints and glues, fluorescent lamps, PCB-containing glass, batteries and accumulator wastes, pressure-treated wood (hazardous), cardboard, biowaste, animal waste of food preparation (raw and cooked), energy waste, wood, glass waste, metal waste, plastic waste, paper waste, construction waste, electrical and electronic waste, mixed waste, security waste and waste water. Waste is created all along the entire supply chains. Transportation and further handling of waste causes emissions which are caused by third-party service providers. In Kesko's case, it is not possible to evaluate waste-related data outside Kesko´s own operations because of complex supply chains and the related massive amounts and poor availability of data.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		100 %
6: Business travel	Activity data (primary data):	Coverage: Finland

	•Flights: Pre-calculated emission data was received from travel agency. •Car use: Calculations are based on mileage data gathered from Kesko's travel system. •Taxi trips: Financial data was gathered from Kesko's travel system. •Train trips: Financial data data was received from railway company VR. •Ferry trips: Financial data and numbers of passengers were received from Tallink Silja and Viking Line ferry companies. •Hotel nights: Financial data and number of nights were received from hotel companies. Emission factors (secondary data): •Private cars and taxis: VTT Lipasto, LIISA 2011 database •Train: VR emissions calculator •Ferry: VTT Lipasto, MEERI 2011 database •Hotel stays: Scandic Sustainability Live Report, Finland	Method: This indicator includes emissions from business-related travel by air, road, rail, taxi, and ferry as well as hotel stays. Taxi, train and ferry information were given in euros. The average cost of the transportation modes were used to estimate the kilometers and emissions.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		90 %
7: Employee commuting	Activity data (primary data): Calculations are based on an employee survey. The survey was conducted using the HSL Commuting Calculator in December 2016. Emission factors (secondary data): The HSL Commuting Calculator calculates emissions for the Helsinki Area.	Coverage: Finland Method: Employee commuting includes travelling between homes and working places. Emission calculations are based on the following information: •average distance •used transportation mode (car, public transport, walking, cycling, car pooling) •number of workers The answers to the survey covered 42 % of Finnish office workers. Results for all Finnish workers are extrapolated based on those answers.
Description of the data quality of reported emissions		Fair

Percentage of emissions calculated using data obtained from suppliers or other value chain partners		5 %
9: Downstream transportation and distribution	Activity data (primary data): Customer and market analyses were provided by Kesko´s market analysts. Data is based on Kesko's operational systems and K-Plussa membership card information. Emission factors (secondary data): Emission factors for car and bus (average values, no regional emphasizing) are taken from VTT Lipasto and for bus (Helsinki region), train, tram and metro from HSL (Helsinki Region Transport) environmental report 2016).	Coverage: Finland Method: The analyses are based on customer information from K-Plussa membership cards. The membership card information includes: •distance between home and stores •numbers of customer visits depending on store types and geographical regions. In the grocery trade 91 % are K-Plussa sales. The K-Plussa data includes approximately 95 % of all visits of households that have used the card when paying their shopping. This information is used to calculate the number of all customer visits that led to a transaction in 2018. Average distances between stores and homes were calculated based on median data about distances calculated from customers´ postal codes and Kesko´s store locations.
Description of the data quality of reported emissions		Good
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0 %
11: Use of sold products **12: End-of-life treatment of sold products**	See Category 1: Purchased goods for resale.	See Category 1: Purchased goods for resale.
Description of the data quality of reported emissions		Poor
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		0 %

14: Franchisees	Activity data (primary data): This category includes the electricity purchased by retailer entrepreneurs in properties managed by Kesko and the electricity and heating consumption of properties owned or leased by the entrepreneurs themselves. The store areas of stores owned or leased by entrepreneurs were gathered from Kesko's operational systems. Energy use in the stores per square meter was assumed to be similar to the stores managed by Kesko. Primary energy reporting, including specific consumption calculations for stores managed by Kesko, was executed by Enegia Oy. Emission factors (secondary data): Emissions were calculated based on the average emission factors for heating and electricity in Finland. Source: Motiva (2015), CO2 emission factors.	Coverage: Finland franchises Method: The electricity consumption in properties managed by Kesko is reported in the Kesko Energy Consumption Report by Enegia. Electricity and heating energy consumptions (Scope 2) of properties owned or leased by entrepreneurs were calculated on given store area, specific consumption factors by Enegia and Finland's average emission factors by Motiva.
Description of the data quality of reported emissions		Fair
Percentage of emissions calculated using data obtained from suppliers or other value chain partners		100 %