2018"双 11"节能家电及碳减排量调查报告

Research Report of Energy-conservation
appliances and carbon emission reduction on
2018 "Double 11"

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CONTENT

Declaration

The results presented in this report is only for reference and do not represent the real situation of the whole industry due to the limitation of the survey scope；

The home appliances mentioned in the report are typical four categories of products including TVs, washing machines, fridges, and air-conditioners;

The "standardization" is a method to solve the problems of different characteristics and parameters between home appliances and ensures comparability;

The "amount of energy saving" mentioned in the report is the difference in electricity consumption caused by the use of energy-conservation appliances in the four categories of household appliances compared with non-energy-conservation appliances;

The "amount of carbon emission reductions" mentioned in the report are the product of the "amount of energy saving" of each appliance and the emission factor of electricity in China.

1. Introduction

On the day of "Double 11" in 2018, the sales of household appliances in the whole network reached 56.89 billion yuan, an increase of 10.9% compared with last year. Since 2015, the sales of home appliance products have been rising, but the rising trend has gradually slowed down. It is expected that the sales of household appliances in "Double 11" will reach a peak in the next few years.
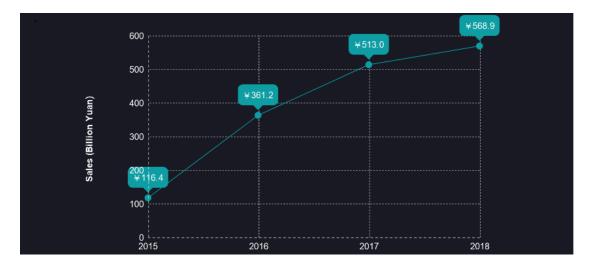

Figure 1 The sales of appliances in the whole network between 2015-2018 on "Double 11"

In 2018, the sales of large household appliances accounted for 46.45% of the sales list, followed by small household appliances accounting for 21.48% and kitchen appliances accounting for 16.08%.
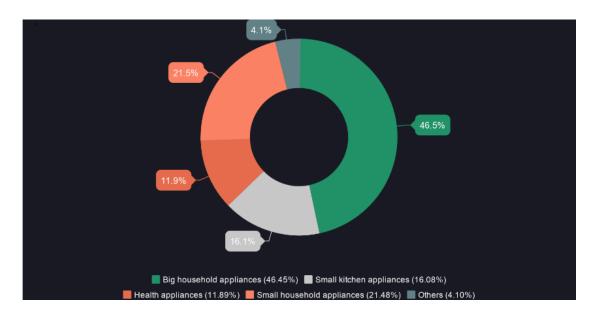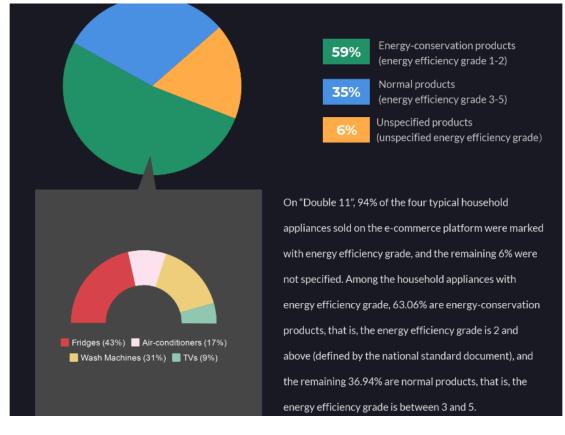

Figure 2 2018 home appliance sales, the proportion of various types of home appliances

Household appliances are closely related to people's lives. They are used every day, and then consume electricity and emit carbon dioxide. To prevent high-energy-cost appliances from entering the market and to guide and help consumers choose high-efficient and energy-saving appliances, "Energy efficiency grade label" is used as an information label attached directly on products or packages of products provides necessary information to consumers for making a purchasing decision.

The energy efficiency label specifies the "minimum allowable values of energy efficiency" of home appliances (the minimum energy efficiency level that is allowed to enter the market) and the "evaluating values of energy conservation" (the minimum energy efficiency level for energy-conservation products). The research scope of this report is the sales data of the four typical household appliances on "double 11" in a specific e-commerce platform, the data are analyzed regarding energy efficiency grade, price, carbon emissions, and energy consumption.

2 Data analysis of sold energy-conservation appliances

2.1 Energy efficiency grade distribution

Figure 3 Energy efficiency grade distribution of sold appliances in "Double 11"

On "Double 11", 94% of the four typical household appliances sold on the e-commerce platform were marked with energy efficiency grade, and the remaining 6% were not specified. Among the household appliances with energy efficiency grade, 63.06% are energy-conservation products, that is, the energy efficiency grade is 2 and above (defined by the national standard document), and the remaining 36.94% are normal products, that is, the energy efficiency grade is between 3 and 5.

2.2 Differences of emission reduction between appliances

2.2.1 Differences of energy-consumption

Figure 4 Differences of energy-consumption

For each type of household appliances, after "standardization" respectively, according to the energy efficiency grade from the corresponding national standards, the total energy consumption during the lifetime of energy-conservation products and normal products is calculated and compared.
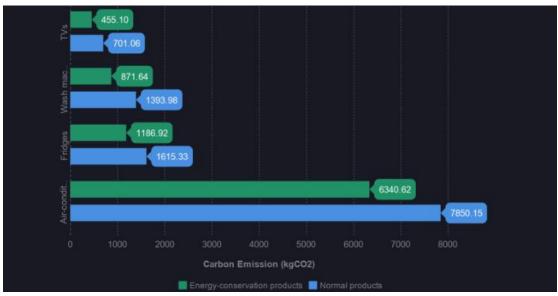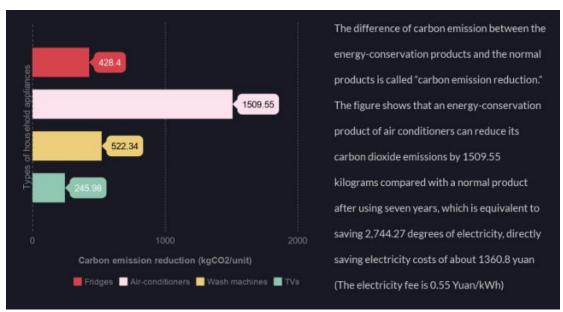
2.2.2 Differences of carbon emission

Figure 5 Differences of carbon emission

The electricity is consumed when using household appliances, generating those amount of electricity would cause carbon emissions, which are the primary cause of global warming. We can calculate the total amount of carbon dioxide they will produce over their lifetime based on how much electricity is consumed by those products. For example, the electricity amount of using a normal air-conditioner by seven years (on average) is equivalent to 7805.15 kilograms of carbon dioxide emission, while using of energy-conservation air conditioners will consume less electricity and equivalent to carbon dioxide emission which is only 6360.62 kilograms.

2.2.3 Rank of carbon emission reduction

The difference of carbon emission between the energy-conservation products and the normal products is called "carbon emission reduction." The figure shows that an energy-conservation product of air conditioners can reduce its carbon dioxide emissions by 1509.55 kilograms compared with a normal product after using seven years, which is equivalent to saving 2,744.27 degrees of electricity, directly saving electricity costs of about 1360.8 yuan (The electricity fee is 0.55 Yuan/kWh)

Figure 6 Rank of carbon emission reduction

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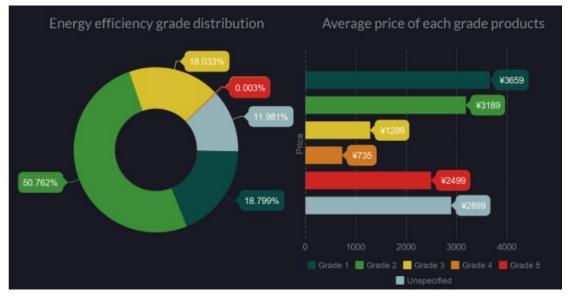
2.3 Conclusion

On the day of "Double 11" in 2018, selling energy-conservation appliances 708,789 units, these can reduce carbon dioxide emissions for 451158.6 ton and save electricity 739 million kWh which is equivalent to electricity fee about 407 million yuan. Alternatively, planting 451.2 million trees Equivalent to a forest of the size of 46,037 basketball courts.

3 Specific Analysis

3.1 Fridges

3.1.1 Sold data analysis for fridges

Figure 7 Energy efficiency grade distribution and average price of fridges

The energy efficiency grade of fridges is divided into five grades, Grade 1 means the highest energy efficiency, Grade 2 is the minimum level for energy-conservation products, and the Grade 5 is the minimum level for products that are allowed to enter markets. By analyzing the overall situation of consumer purchases, Grade 2 products are purchased with the largest number which is accounting for 50.762% of the total sales; the sales of Grade 4 and Grade 5 products approach zero; the unspecified products account for an 11.981% of total sales. The average price of fridges decreases with the decrease of energy efficiency grade. The reason why the price of Grade 5 does not conform to this rule may be due to the small number of samples, only with 0.003% of total sales of fridges.
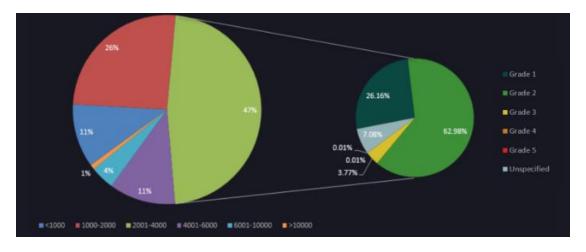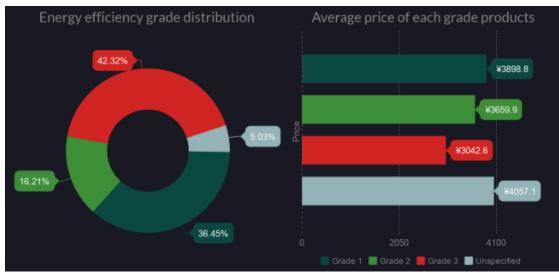
Figure 8Price distribution of fridges

The figure shows that consumers preferred to purchase fridges of price within 1000 and 4000 yuan. Within the price interval of 2001 to 4000, it accounts for 47% of total sales of fridges. In this price interval, the purchase of Grade 2 fridges accounts for 63%. The number of purchases of Grade 4 and Grade 5 fridges is nearly zero.

3.2 Air-conditioners

3.2.1 Sold data analysis for air-conditioners

Figure 9 Energy efficiency grade distribution and average price of air-conditioners

The energy efficiency grade of air-conditioners is divided into three grades, Grade 1 means the highest energy efficiency, Grade 2 is the minimum level for energy-conservation products, and the Grade 3 is the minimum level for products that are allowed to enter markets. By analyzing the overall situation of consumer purchases, Grade 3 products are purchased with the most significant number which is

accounting for 42.32% of the total sales of air-conditioners, and followed by Grade 1 products which are accounting for 36.45%. The average price of Grade 1 air-conditioners is 3898.8 yuan, which is 238.9 yuan more than Grade 2 products and 856.2 yuan more than Grade 3 products.
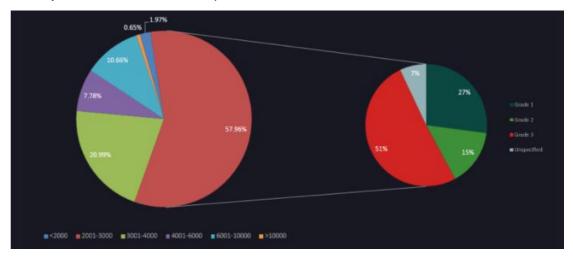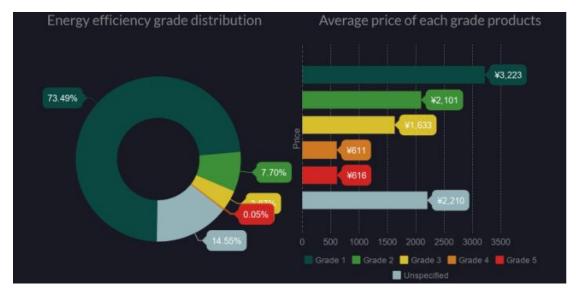

Figure 10 Price distribution of air-conditioners

The figure shows that consumers preferred to purchase air-conditioners of price within 2001 and 4000 yuan. Within the price interval of 2001 to 3000, it accounts for 57.96% of total sales of air-conditioners. In this price interval, the purchase of Grade 3 air-conditioners account for 51% and followed by Grade 1 products which are accounting for 27%.
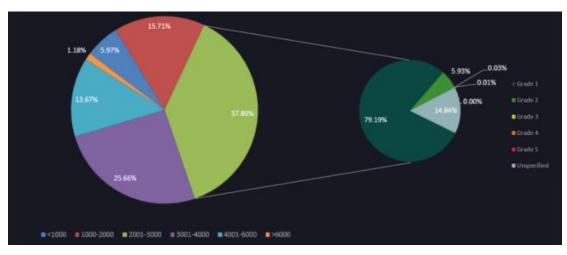
3.3 Wash Machines

3.3.1 Sold data analysis for wash machines

Figure 11 Energy efficiency grade distribution and average price of wash machines

The energy efficiency grade of wash machines is divided into five grades, Grade 1 means the highest energy efficiency, Grade 2 is the minimum level for energy-conservation products, and the Grade 5 is the minimum level for products that are allowed to enter markets. By analyzing the overall situation of consumer purchases, Grade 1 products are purchased with the most significant number which is accounting for 73.49% of the total sales of wash machines, and followed by unspecified products which are accounting for 14.55%. The average price of wash machines decreases with the decrease of energy efficiency grade. The average price of Grade 1 products is 3233 yuan which is 1122 yuan more than Grade 2 products and is about two times to Grade 3 products.
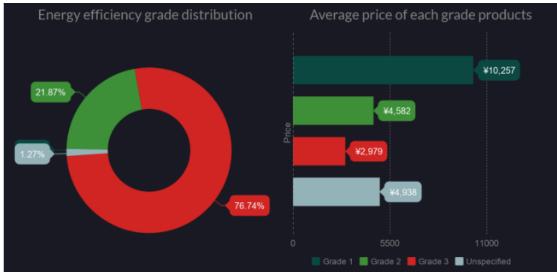
Figure 12 price distribution of wash machines

The figure shows that consumers preferred to purchase air-conditioners of price within 2001 and 4000 yuan. Within the price interval of 2001 to 3000, it accounts for 37.8% of total sales of wash machines. In this price interval, the purchase of Grade 1 air-conditioners account for 79.79% and followed by unspecified products which are accounting for 14.84%.

3.4 Tvs

3.4.1 Sold data analysis for Tvs

Figure 13 Energy efficiency grade distribution and average price of Tvs

The energy efficiency grade of TVs is divided into three grades, Grade 1 means the highest energy efficiency, Grade 2 is the minimum level for energy-conservation products, and the Grade 3 is the minimum level for products that are allowed to enter markets. By analyzing the overall situation of consumer purchases, Grade 3 products are purchased with the most significant number which is accounting for 76.74% of the total sales of wash machines, and followed by Grade 2 products which are accounting for 21.87%. The average price of TVs decreases with the decrease of energy efficiency grade. The average price of Grade 1 products is 10257 which is about two times to Grade 2 products.
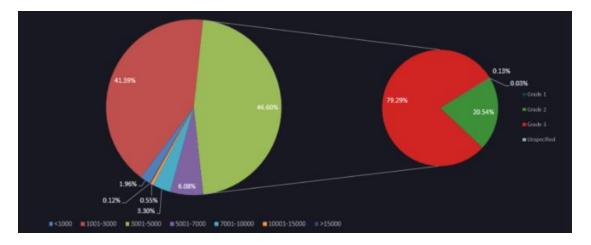
Figure 14 Price distribution of Tvs

The figure shows that consumers preferred to purchase air-conditioners of price within 1001 and 5000 yuan. Within the price interval of 3001 to 5000, it accounts for 46.6% of total sales of TVs. In this price interval, the purchase of Grade 3 TVs account for 79.29% and followed by Grade 2 products which are accounting for 20.54%.

4 Other data analysis – Green packages

In addition to energy efficiency grade labels can guide consumers to consciously choose green consumption when purchasing household appliances to reduce carbon emissions, there are other green consumption behaviors, such as using green packages.

Green packages have lower carbon emissions than regular packages. The number of orders on the day "Double 11" in the whole network in 2018 totaled 1.54 billion pieces, of which about 550,798 pieces are green packages and accounted for only 0.04%. This part of the green package reduced the total emissions by 22,032 kilograms of carbon dioxide, which is equivalent to planting 220 trees.

5 Explanation

5.1 Method of collecting data

Manually research and collect public disclosure information and data on e-commerce platforms.

Communicate with suppliers to obtain information and sales data.

5.2 Research Method

The calculation results in this report include the calculation of carbon emission reduction based on the national standard document of energy efficiency grade for each appliance. The following is the reference document:

《GB 12021.2-2015》

《GB 12021.4-2013》

《GB 21455-2013》

《GB 24850-2013》

5.3 Disclaimer

The research data published in this report uses the sample research method, and the data results are affected by the number of samples. Due to the limitations of research methods and samples, the scope of investigation data collection is limited, and these results are not equal to the real market situation. We do not assume any legal responsibility for the accuracy, analysis, and prediction of the data reported.