The average unit energy consumption (UEC) of dishwashers has fallen in all regions by an average of 1.9% each year since 1996. Since average capacities have remained relatively stable over the same period, the energy efficiency of dishwashers is improving at a similar rate.

Dishwashers in Canada and the USA typically use over 40% more energy than those in other markets. This is largely driven by products that use a hot water fill and have powered drying. Policy makers in North America may wish to consider whether it is beneficial to replicate the more efficient approach to these aspects used in other markets.

There is evidence that regulations (such as minimum energy performance standards (MEPS) and energy labels) have helped to drive improvements in energy efficiency in all markets. However, the best performing products still use considerably less energy than the average, suggesting that there remains scope for more aggressive measures.

The average UEC is similar for both larger capacity dishwashers and mid-sized models. In larger machines, energy savings are achieved partly through the use of technologies designed to create additional space within the dishwasher. Although these may carry a price premium, this suggests savings will also be possible in smaller models.

Energy savings are also being delivered by lengthening cycle times which have increased by as much as 200% in one market since 1996. Understanding the price impact of different energy saving technologies and the acceptability of longer cycle times will help policy makers set appropriate MEPS and label levels.

More Information

All publicly available Annex mapping and benchmarking outputs are available on the Annex website at http://mappingandbenchmarking.iea-4e.org.
For further information email: contact@mapping.iea-4e.org

Published April 2014
Significant reductions in consumption
All countries/regions have seen consistent reductions in the unit energy consumption (UEC) of dishwashers over the past decade. Although the rate of reduction has diminished in recent years, in most markets the average UEC is now at or below 1 kWh/cycle. Despite having very similar capacities however, dishwashers in Canada and the USA use significantly more energy.

Differing products between markets
Two important differences in Canada and the USA are responsible for these higher UECs. Firstly, most north American dishwashers have a powered drying function where hot air dries the load. Secondly, north American dishwashers not only use more water, but typically all of it is from a hot feed. The larger amount of hot water is estimated to account for around 70% of the difference between Canadian and UK models.

Size matters less
Unusually, average energy consumption changes little with variations in the capacity of a dishwasher. This is partly because additional place settings do not require significantly more hot water. However, more energy will be needed to raise the temperature of the extra dishes themselves. Larger capacity models save energy partly by utilising more efficient technologies that also take less space. It should be possible to extend the use of these technologies to make similar savings in smaller models.

Continued scope for improving efficiency
In Australia the best performing products use 35% less energy than the current average. This illustrates the potential for further savings, particularly since the Australian market has the most efficient product range of all markets examined.

This policy brief is based on a full report published in April 2014. Data quality varies between countries and graphs. See full report for details.

The IEA Implementing Agreement on Energy Efficient End-use Equipment has made its best endeavours to ensure the accuracy and reliability of the data used herein, however makes no warranties as to the accuracy of data herein nor accepts any liability for any action taken or decision made based on the contents of this report.