

APPLIANCE COST & COUNTRY OF ASSEMBLY SURVEY

Our survey of ENERGY STAR refrigerators, clothes dryers, and clothes washers found that United States assembled models are cost-competitive with foreign assembled and that often the least expensive energy-efficient models are assembled in the United States.

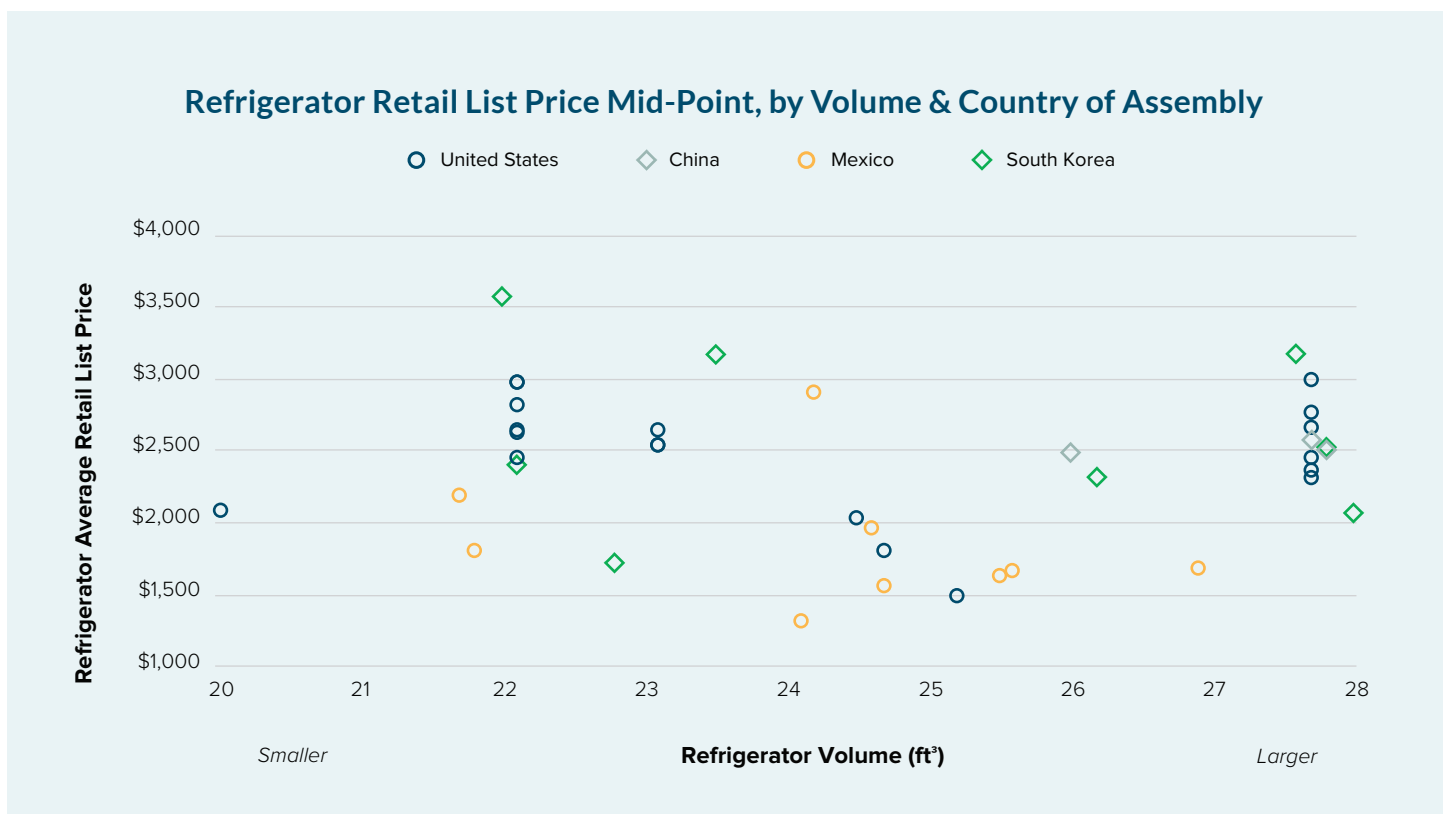
This survey of three types of residential appliances collected retail list pricing from an independent source and collected model country of assembly, through manufacturer data and visiting leading chains of big-box hardware stores.

Following our findings are some resources on how to find U.S. manufactured appliances to support American manufacturing.

Refrigerators

Due to the high proportion of foreign residential refrigerators sold in the United States, increasing the purchase of American-made refrigerators would have an outsized impact on manufacturing job creation.

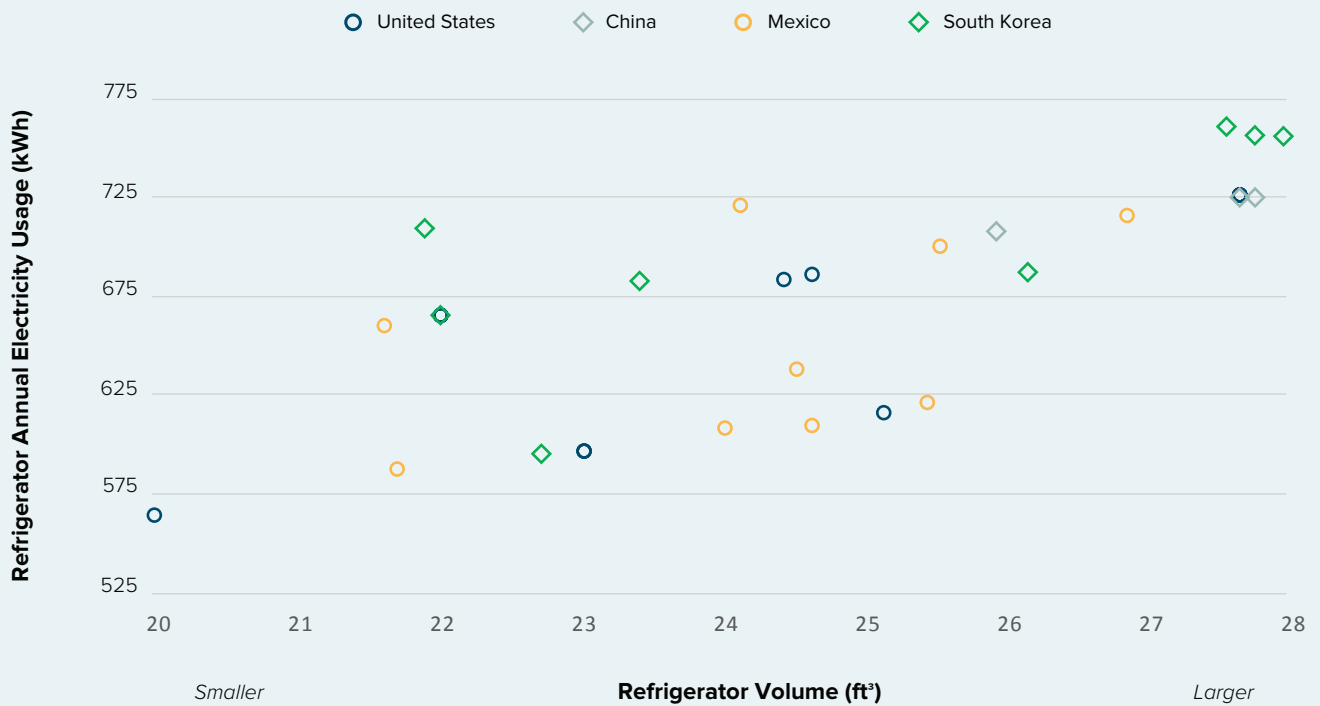
We found that ENERGY STAR refrigerators assembled in the United States are cost-competitive with foreign assembled ENERGY STAR refrigerators, with a U.S. assembled refrigerator being the second least expensive within our survey of 39 energy-efficient refrigerator models. The 39 models were assembled in China, Mexico, South Korea, and the United States.



Four of the six most energy-efficient ENERGY STAR refrigerator models within the survey are assembled in the United States. A U.S. assembled refrigerator is also the most energy-efficient refrigerator within the survey of 39 ENERGY STAR refrigerators. The annual electricity usage of the 39 models ranged from 563 to 760 kiloWatt-hours.



Refrigerator Annual Electricity Usage, by Volume & Country of Assembly



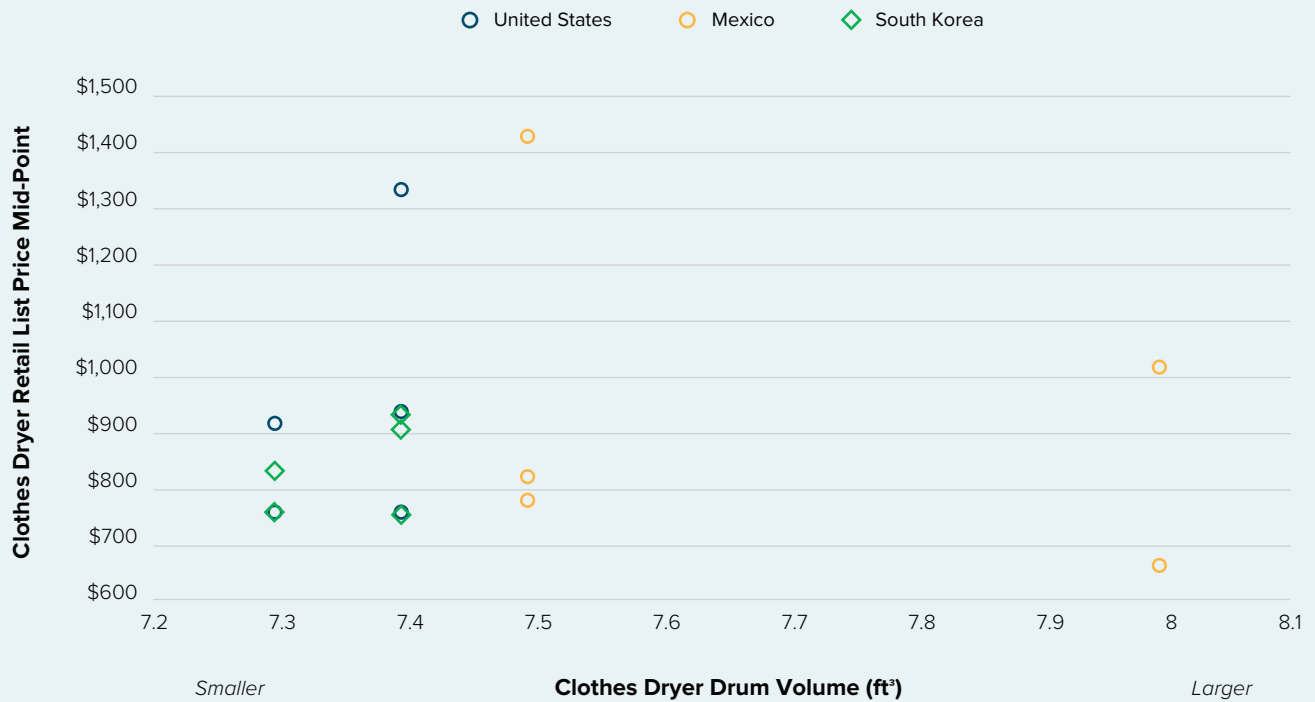
The 39 ENERGY STAR refrigerator models within the survey are from six brands, of which three brands had models within the survey that were assembled in the United States.

Clothes Dryers

ENERGY STAR clothes dryers assembled in the United States are cost-competitive with foreign assembled ENERGY STAR clothes dryers. We found that clothes dryers assembled in the three countries (Mexico, South Korea, and the United States) within our clothes dryer survey, had models priced throughout the survey's price range.



Clothes Dryer Retail List Price Mid-Point, by Volume & Country of Assembly



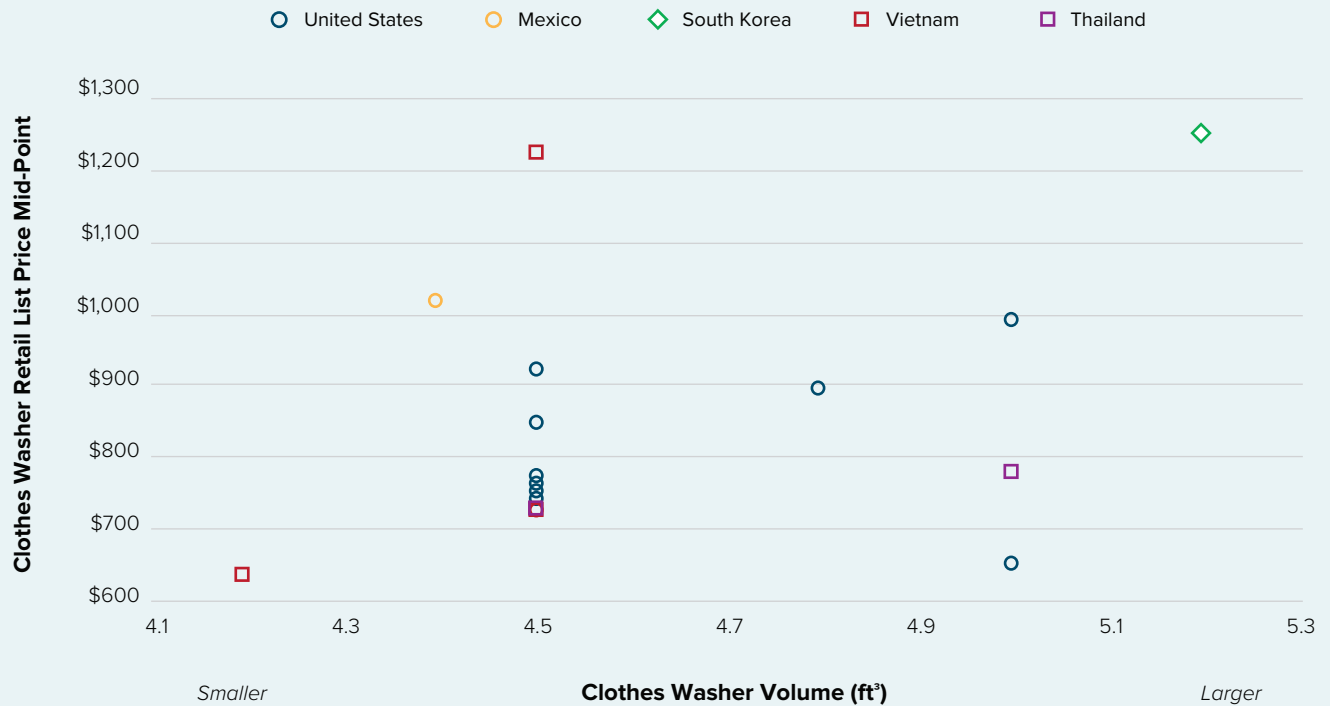
The 15 ENERGY STAR clothes dryer models within the survey are from six brands, of which two brands had models within the survey that were assembled in the United States.

Clothes Washers

ENERGY STAR clothes washers assembled in the United States are cost-competitive with foreign assembled ENERGY STAR clothes washers, with a U.S. assembled clothes washer being the second least expensive clothes washer within our survey of 16 energy-efficient models. The 16 models were assembled in five countries, Mexico, South Korea, Thailand, United States, and Vietnam.

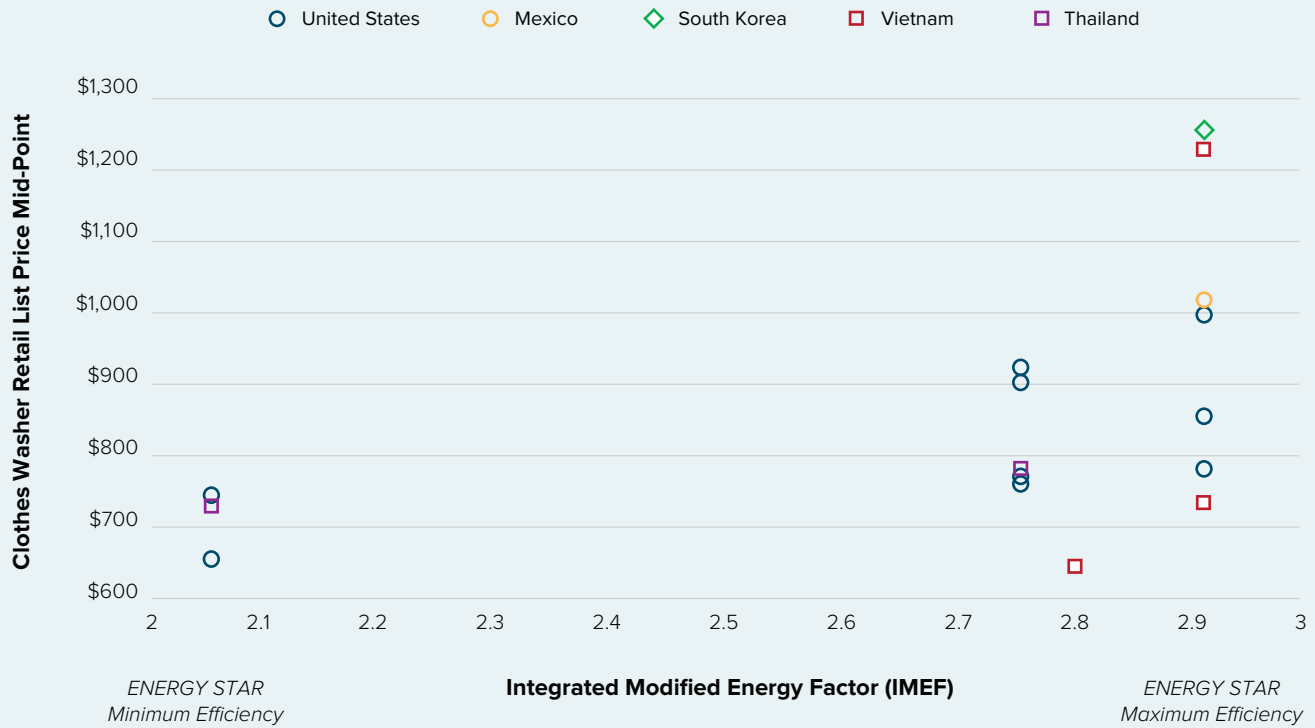


Clothes Washer Retail List Price Mid-Point, by Volume & Country of Assembly



U.S. assembled clothes washers are also cost-competitive when the level of energy efficiency is considered, with U.S. assembled clothes washers being the least expensive or second least expensive when comparing models with the same or similar Integrated Modified Energy Factor (IMEF). IMEF is a measure of energy efficiency, the higher the IMEF, the more energy-efficient the clothes washer.¹

Clothes Washer Retail List Price Mid-Point, by IMEF & Country of Assembly



The 16 ENERGY STAR clothes washer models within the survey are from six brands, of which four brands had models within the survey that were assembled in the United States.

Methodology

This survey collected retail list pricing, country of assembly, volume, energy efficiency metrics, and other characteristics of numerous refrigerator, clothes dryer, and clothes washer models. The country of assembly was collected using two methods. One method used was visiting two different U.S. leading chains of big-box hardware stores in Washington DC and recording the country of assembly listed on the name-plate of each model that was on display in the store. The two big-box hardware stores were visited in January and March 2020 for refrigerators and March and July 2020 for clothes dryers and clothes washers. The second method used the GE Appliances Made in America website as a resource to collect the country of assembly for a subset of

refrigerators² and clothes washers³ that are “Made in America.”

Appliance model volume, energy efficiency metrics, and retail list pricing was collected from the ENERGY STAR Certified Product Finder webpages for refrigerators⁴, clothes dryers⁵, and clothes washers⁶, which provides retail list pricing from retailers across the United States. The retail list pricing from the ENERGY STAR Certified Product Finder webpages were recorded on three days in February and March 2020 for refrigerators, and on two days in July and August 2020 for clothes dryers and clothes washers. The retail list pricing for each model was typically displayed as a range and the mid-point of that range was used in this analysis of retail list pricing. The retail list price range potentially reflects pricing differences between different retailers,

different regions of the United States, and/or different finishes (white, black, stainless steel, etc.) of those specific models. One clothes washer model and four refrigerator models did not have a retail list price range, but rather a retail list price, which was used in the analysis.

REFRIGERATORS

This survey determined the country of assembly and collected retail list pricing for 41 refrigerator models. One refrigerator model was removed due to it not having an icemaker, and all the remaining models within the sample have icemakers. One side-by-side refrigerator model was also removed, with the remaining 39 models all having a bottom-mounted freezer.

All 39 refrigerator models included in the survey have a bottom-mounted freezer, automatic defrost, and an icemaker. The 39 models are the size of typical residential refrigerators, with a volume ranging from 20 to 28 cubic feet. Of the 39 models, 29 models have a Thru the Door Dispenser and 11 models have Wi-Fi Connectivity, of which two have a Display Screen.

The 39 models were assembled in four countries, which includes three assembled in China, nine assembled in Mexico, eight assembled in South Korea, and 19 assembled in the United States.

CLOTHES DRYERS

This survey determined the country of assembly and collected retail list pricing for 16 clothes dryer models. One clothes dryer model was removed due to it having a drum volume of 4.3 ft³, with all the remaining models within the sample having a drum volume of between 7.3 to 8.0 ft³.

All 15 clothes dryer models included in the survey are vented, non-heat pump clothes dryers, and are the size of typical residential clothes dryers, with a drum volume ranging from 7.3 to 8.0 cubic feet. The annual electricity usage of the 15 clothes dryer models only differed by 1 kiloWatt-hour. Of the 15 models within the survey, only one model, the most expensive U.S. assembled model, featured Wi-Fi Connectivity.

The 15 models were assembled in three countries, with exactly five models having been assembled in each country, Mexico, South Korea, and the United States.

CLOTHES WASHERS

This survey determined the country of assembly and collected retail list pricing for 18 clothes washer models. Two clothes washer models were removed due to having a volume of 2.2 and 2.4 ft³, with all the remaining models within the sample having a volume of between 4.2 to 5.2 ft³.

All 16 clothes washer models included in the survey are front or top loaded clothes washers and are the size of a typical residential clothes washer, with a volume ranging from 4.2 to 5.2 cubic feet.

The 16 models were assembled in five countries, which includes one assembled in Mexico, one assembled in South Korea, two assembled in Thailand, nine assembled in the United States, and three assembled in Vietnam.

HOW TO FIND U.S. ASSEMBLED APPLIANCES

Several brands assemble appliances in the United States. Included is a compiled list of brands and countries of assembly of appliances that we collected during this survey. It should be noted that this is not a complete listing, as not all appliance manufacturers list the country of assembly on their products.

Country of Assembly for Some Brands of ENERGY STAR Appliances

Brand	Refrigerator	Clothes Dryers	Clothes Washers
Amana (Whirlpool)		United States	United States
Bosch	China	Poland	Germany
Electrolux		Mexico	Mexico
Frigidaire (Electrolux)	Mexico		
GE Appliances	Mexico United States	China Mexico	China United States
Hotpoint (GE Appliances)		Mexico	
KitchenAid (Whirlpool)	United States		
LG	China Mexico South Korea	South Korea	South Korea Thailand Vietnam
Maytag (Whirlpool)	Mexico	United States	United States
Roper (Whirlpool)		United States	United States
Samsung	China Mexico South Korea Thailand	Mexico	Thailand United States Vietnam
Whirlpool	Mexico United States	United States	United States

Many brands that manufacture products in the United States also manufacture in other countries. The easiest way to confirm that the model you are buying was assembled in the United States is to go to your local appliance retailer and look for *Made in America* or *Assembled in the U.S.A.* labels, like the examples below.

EXAMPLES OF U.S. ASSEMBLED LABELS



We found that not all models assembled in the U.S. carry the labels above, so at your local retailer, look for *Made in America*, *Assembled in the U.S.A.*, or similar wording on the name-plate/serial-number label on the appliance. For refrigerators, the name-plate is typically high on an interior sidewall and for clothes dryers and washers, the name-plate is typically on the rim of the door/lid opening or sometimes high on the side or back of the appliance. Be careful not to mistake a U.S. address on the name-plate for U.S. assembled, as foreign manufacturers have U.S. offices or subsidiaries.

The GE Appliances Made in America website⁷ is a resource to find their

Made in America appliances, including refrigerators, clothes washers, electric ranges, wall ovens, and dishwashers. As of September 23, 2020, the GE Appliances Made in America website lists 93 refrigerators that are Made in America, of which 63 are ENERGY STAR labeled, and ten clothes washers that are Made in America, of which nine are ENERGY STAR labeled. GE Appliances claims that some products have up to 90% U.S. content.

Another resource to confirm an appliance model's country of assembly is the specification sheet for that model, as some manufacturers list the country of assembly. Specification sheets can be found on the manufacturer's website

and some retailers also provide this information on specific appliance models on their websites.

You can find additional information and manufacturing locations of U.S. manufacturers of clothes dryers, clothes washers⁸, and refrigerators⁹, of all sizes along with custom and high-end models, in our Building Clean database. The Building Clean database (www.BuildingClean.org) contains more than 4,500 manufacturing facilities producing building products across the United States.

ENDNOTES

- 1 DOE, ENERGY STAR Certified Residential Clothes Washers Buying Guidance. Available online: <https://www.energystar.gov/productfinder/product/certified-clothes-washers/results>
- 2 General Electric (GE), GE Appliances Made In America Refrigerators. Available online: <https://www.geappliances.com/ge/usa/>
- 3 GE, GE Appliances Made In America Washers & Dryers. Available online: <https://www.geappliances.com/ge/usa/#mia-laundry>
- 4 DOE, ENERGY STAR Certified Product Finder Refrigerator. Available online: <https://www.energystar.gov/productfinder/product/certified-residential-refrigerators/results>
- 5 DOE, ENERGY STAR Certified Product Finder Clothes Dryers. Available online: <https://www.energystar.gov/productfinder/product/certified-clothes-dryers/results>
- 6 DOE, ENERGY STAR Certified Product Finder Clothes Washers. Available online: <https://www.energystar.gov/productfinder/product/certified-clothes-washers/results>
- 7 GE, GE Appliances Made In America Refrigerators. Available online: <https://www.geappliances.com/ge/usa/>
- 8 Building Clean, Building Clean database. Available online: https://buildingclean.org/building/advanced-search?field_sector_target_id=All&field_csi_target_id_selective%5B%5D=540&field_ownership_value=All&field_mfg_imp_value_op=not&field_mfg_imp_value=All&field_exporter_value_op=not&field_exporter_value=0&field_mwdbe_value=0&facility_type=all
- 9 Building Clean, Building Clean database. Available online: https://buildingclean.org/building/advanced-search/map?field_sector_target_id=All&field_csi_target_id_selective%5B%5D=531&field_ownership_value=All&field_mfg_imp_value_op=or&field_mfg_imp_value=All&field_exporter_value_op=not&field_exporter_value=0&field_mwdbe_value=0&facility_type=mfg