

## EFFICIENCY POLICY PROGRESS INDEX

The table below includes the list of metrics used by the IEA to determine the energy performance levels of each end-use in the Efficiency Policy Progress Index (EPPI).

### Metrics used in the EPPI

| Sector   | End-use                                     | Performance level metric  |
|--|---|---|
| <b>Buildings<br/>(residential/non-residential)</b> | Space heating and cooling                   | Increase in expected building performance per m <sup>2</sup> or weighted change in envelope U-value (W/m <sup>2</sup> /K) based on standardised building configurations |
|  |   | Increase in efficiency of heating system standards (boilers, furnaces, heaters)   |
|  |   | Increase in the energy efficiency ratio (EER) of space cooling equipment standards  |
|  | Water heating                               | Increase in minimum performance levels of water heating equipment   |
|  | Appliances                                  | Increase in minimum performance levels  |
| <b>Transport</b>                                   | Light-duty vehicles and heavy-duty vehicles | Increase in vehicle fuel economy or emissions standards<br>Increase in fuel economy or GHG standards for medium and heavy freight trucks                                |
|  | Motor-driven systems                        | Increase in minimum performance levels for medium sized electric motors (0.75 – 375 kW) based on IE level.  |
| <b>Industry</b>                                    | Industry sector                             | Energy savings target from mandatory industry schemes weighted by consumption of the businesses that are included in the programme                                      |

The first version of the EPPI, launched in the *Energy Efficiency Market Report 2016*, measured policy progress in 2015 relative to 2005. The EPPI now tracks policy progress on a rolling basis for each year from 2000 to 2017. Furthermore, measurements of coverage and strength have been integrated. This was done by combining data from three other IEA models into the EPPI model: the Energy Technology Perspectives buildings model, which tracks global energy use in buildings and industry, the Mobility Model (transport), which tracks global energy use for vehicles, and the World Energy Model, which tracks overall energy production and consumption for the *World Energy Outlook*. The specific EPPI modeling updates include:

- Resetting the baseline year from 2005 to 2000. This means that policy progress is measured relative to existing energy performance levels in 2000.
- Linking sales of equipment and vehicles for all years after 2000 to improvements in policy strength since 2000. This allows the IEA to track how much equipment is covered by stronger new policies as the stock turns over. The share of equipment in each model year after 2000 is multiplied by the strength in policy improvement relative to 2000. The result shows the impact of policy progress on the stock of each equipment or vehicle, in each year.
- Weighting policy progress by final energy consumption (TFC) share per country, sector and end-use, to aggregate progress and assess the relative importance of end-uses and sectors.

For example, if a country's minimum energy performance level for refrigerators was 500 kWh/unit in 2000, and new standards reduced minimum performance levels to 450 kWh/unit in 2001 then to 400 kWh/unit in 2003, the EPPI value for refrigerators in this country in 2016 are calculated as the share of new refrigerators in the country sold in years 2001 to 2003 times 10% (the difference in annual energy use between a 500 kWh and a 450 kWh unit) and the share of post 2003 units in the 2015 stock times 20% improvement (the difference in annual energy use between a 500 kWh and a 400 kWh unit). The following figure and table below shows an EPPI calculation in further detail.

**Graphical overview of an EPPI calculation for example end-use**



## An EPPI calculation for an example end-use

| End-use X | Share of stock |   |      |      | Strength |      |      |      |
|-----------|----------------|---|------|------|----------|------|------|------|
|           | 2000           | 2001  | 2002 | 2003 | 2000     | 2001 | 2002 | 2003 |
| 2000      | 5.0%           | 4.8%  | 4.7% | 4.5% | 0.0%     | 0.0% | 0.0% | 0.0% |
| 2001      | 0.0%           | 6.0%  | 5.9% | 5.7% |          | 10%  | 10%  | 10%  |
| 2002      | 0.0%           | 0.0%  | 4.0% | 4.3% |          |      | 10%  | 10%  |
| 2003      | 0.0%           | 0.0%  | 0.0% | 6.5% |          |      |      | 20%  |
| EPPI      | 2000           | = 5.0% × 0.0%   |      |      |          |      |      |      |
|           | 2001           | = (4.8% × 0.0%) + (6.0% × 10%) = 0.6%                               |      |      |          |      |      |      |
|           | 2002           | = (4.7% × 0.0%) + (5.9% × 10%) + (4.0% × 10%) = 1.0%                |      |      |          |      |      |      |
|           | 2003           | = (4.5% × 0.0%) + (5.7% × 10%) + (4.3% × 10%) + (6.5% × 20%) = 2.3% |      |      |          |      |      |      |

Note: The stock shares of each model year do not fully align with the presentation in Figure A.1, as stock shares per model year vary over time due to early retirement and changes in total stock

This approach enables the IEA to track the movement of minimum performance regulations compared with a given base year, taking stock turnover into account. Note that this analysis shows the movement of bottom-line performance and does not directly reflect the same movement of the market average unit energy consumption. The gap between the MEPS and the market average differs per end-use and per country.