

## Plastics Save Energy

- **Plastics contribute to the success of the European low carbon economy roadmap**  
The Energy Roadmap 2050 sets the ground for a much more efficient production and use of energy in Europe. Energy efficiency is at the core of such ambition. Contrary to popular belief, plastics contribute and will keep contributing to energy efficiency. Not only do most plastic products require less energy in their production than alternative materials, but many of them also contribute to saving a significant amount of energy during their use. **A study by denkstatt shows that today's plastic products have enabled energy savings equivalent to 53 million tonnes of fossil fuel. If all plastics solutions available on the market were actually used today, we would save 12 tonnes of CO<sub>2</sub> for each tonne of CO<sub>2</sub> emitted during plastics production (12:1 ratio of use over production).**
- **Plastics save energy in packaging**  
The *denkstatt* report shows with respect to plastic packaging that its use saves more energy in comparison with other materials, thereby contributing to an energy efficient society. Indeed, the results show that, if food were packed in a material other than plastics, the overall weight of packaging would be four times higher, the related energy consumption would double, greenhouse gas emissions would nearly triple, and food waste would increase. The plastics industry is committed to the efficient use of plastics in its products. For example, the weight of plastic washing-up liquid bottles has been reduced by 36% over a 20-year period, from 67g in the 1990s to 43g in 2010.
- **Plastics save energy in building & construction**  
Buildings account for roughly 40% of the EU's energy consumption and greenhouse gas emissions; plastics can help to reduce this energy consumption. 9 out of 10 buildings currently in use will still be standing and occupied in 2050; therefore, both renovation of existing buildings and construction of energy efficient new buildings are necessary to meet EU objectives in this field. Plastics can play a key role, as they offer a unique combination of environmental performance, cost-effectiveness and reliability over time.
- **Plastics save energy in transport and mobility**  
The energy efficiency of modern vehicles could not be achieved without the use of plastics. With new material innovations such efficiencies are expected to further increase. With this regards, plastics offer a high potential for reducing CO<sub>2</sub> emissions, which translates into lower fuel consumptions, by e.g. improving engine efficiency, reducing air resistance through design and lightweight. Material developments with plastics also provide the automotive industry with high performance materials that play a vital role in developing solutions for low carbon emissions such as hybrid, electric and hydrogen vehicles. A modern mid-range car contains up to 15% plastic materials, from car body parts to interior trim, airbags, carpets and many more like electrification, under the hood etc. Plastics have also become established as a construction material for buses and trains contributing to saving energy, investment and maintenance costs.

### Key recommendations:

1. **Consider the full life cycle of plastics** in each application, be it packaging, building & construction, automotive etc.
2. **Plastic packaging saves energy** and remains a valuable resource after its use and should not be lost through landfilling or littering. Innovations as well as organisational management to further increase the recycling of resource efficient plastics packaging will play an increasingly significant role in the future.
3. **Increase the renovation rate of buildings in Europe**  
In order to reduce the energy demand of our buildings, we must increase the overall European annual renovation rate from 1% today to 3% in 2020.
4. **Plastics contribute efficiently to reduction of fuel and CO<sub>2</sub> emissions in diverse fields of mobility**  
Innovative plastic materials can help achieve reducing fuel consumption and, thus, CO<sub>2</sub> emission reduction via diverse measures and applications such as lightweight or improved engine efficiency.