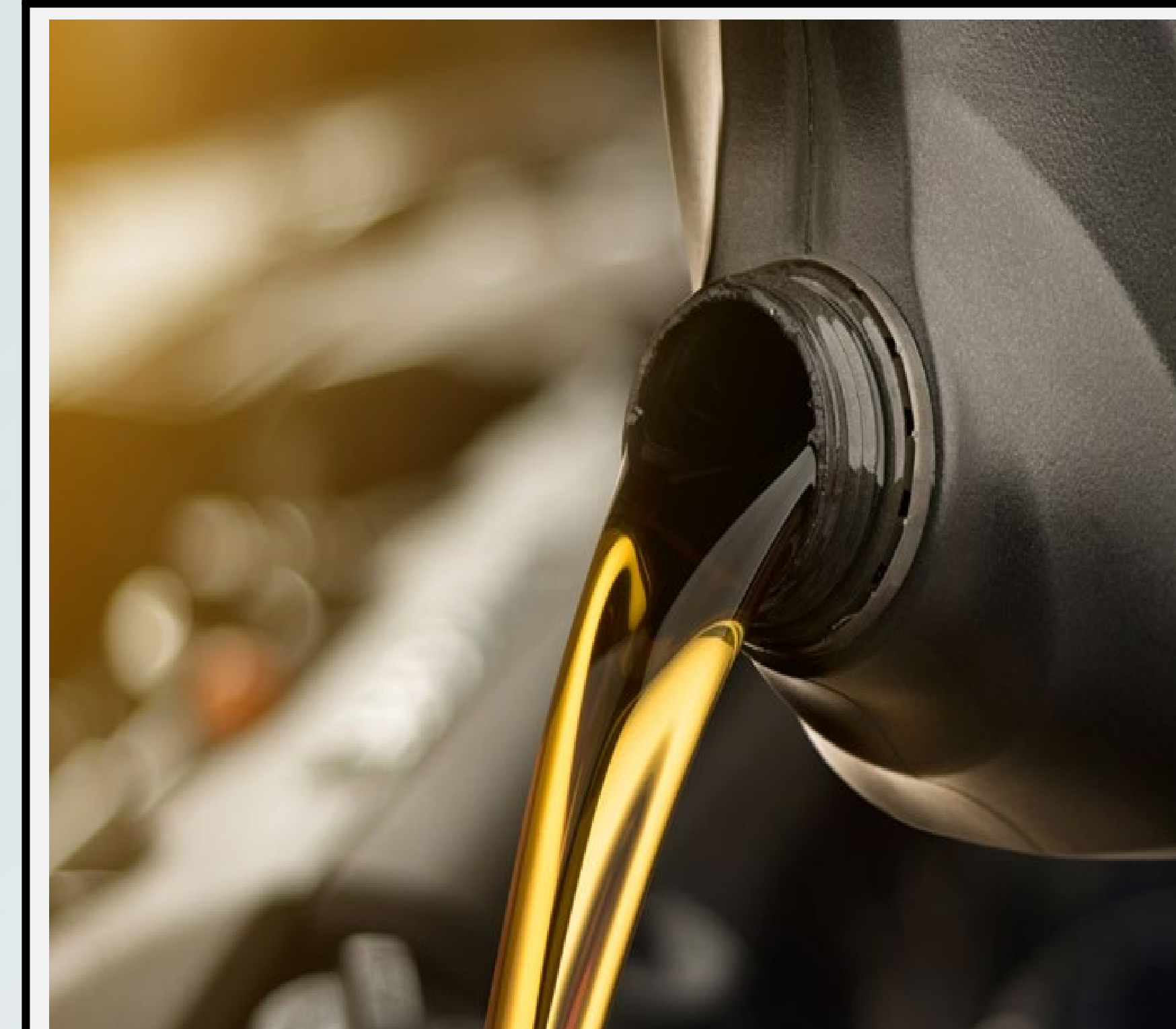
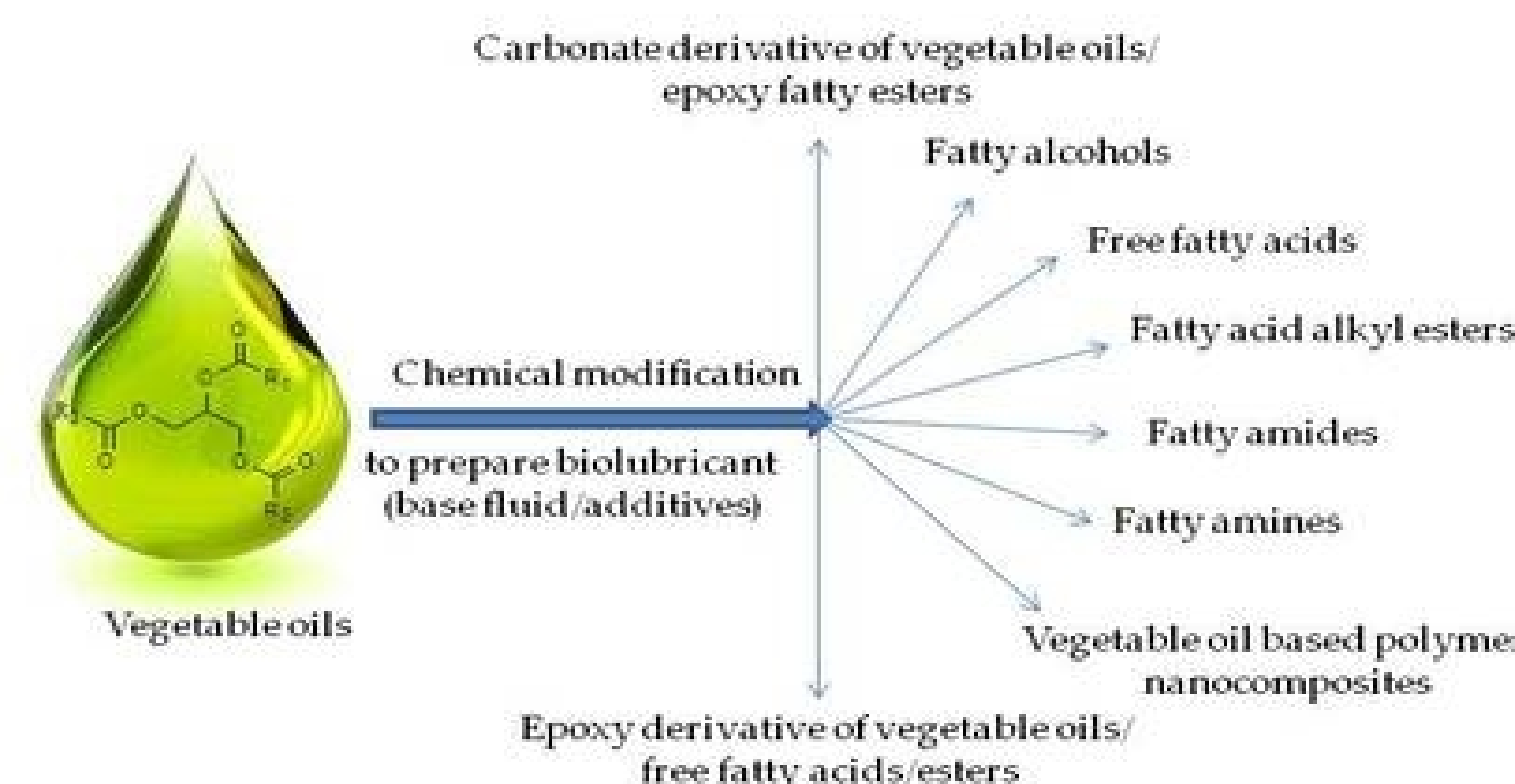


Overview



- The shift toward sustainability and using green chemistry to derive new base oils made from renewable resources will continue.
- Electric vehicles (EVs) will require smaller quantities of highly specialized lubricants as opposed to large quantities of standard lubricants currently used for internal combustion engine vehicles.
- As EVs partially replace internal combustion engine vehicles, the volume production of lubricants will decrease, but new specialized EV lubricants will provide more value to companies that develop them.

Alternative base oil feedstocks



Karmakar, G., et al. *Lubricants* 2017, 5(4), 44; <https://doi.org/10.3390/lubricants5040044>

Much research has been focused on the development of bio-lubricants made from animal fats and vegetable oils. Esters are currently well known to be very useful for industrial applications that require excellent low-temperature properties. Esters that exhibit pour points of lower than -42°C have been synthesized and show viscosity indices that are near commercial lubricants, such as polyalphaolefins (PAOs) and polyolesters (POEs).

Advent of electric vehicles

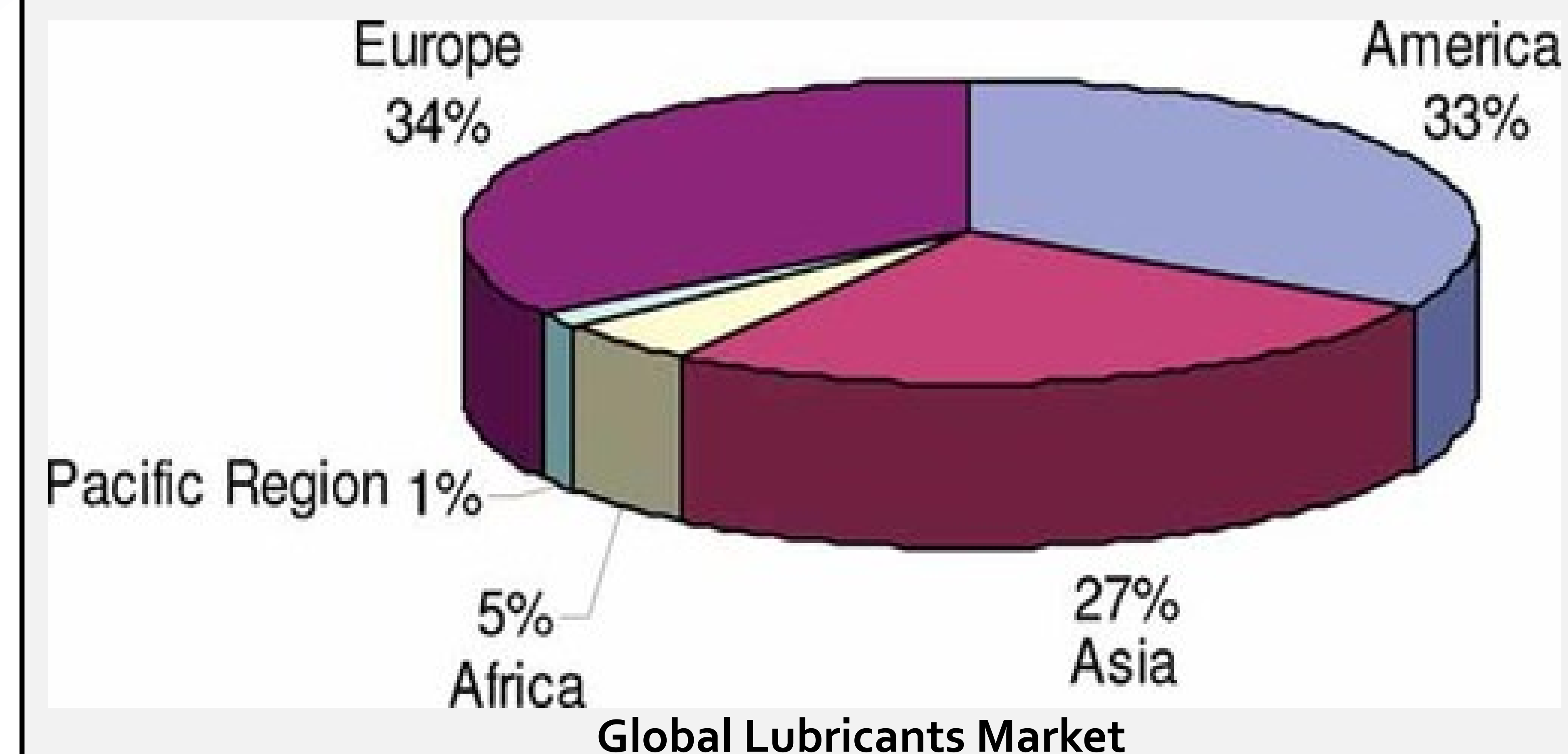
A very important consideration in the direction of the lubricant market is the advent of electric vehicles (EVs), or the electrification of the powertrain/drivetrain. EVs require very specialized lubricants as opposed to the standard lubricants for internal combustion engine (ICE) vehicles. It has been predicted that the demand for automotive lubricants will not rise anymore due to the EV market. The largest demand for EVs are in both the European and Chinese markets, so the development of efficient EV lubricants will be of great value in the coming years in these areas.



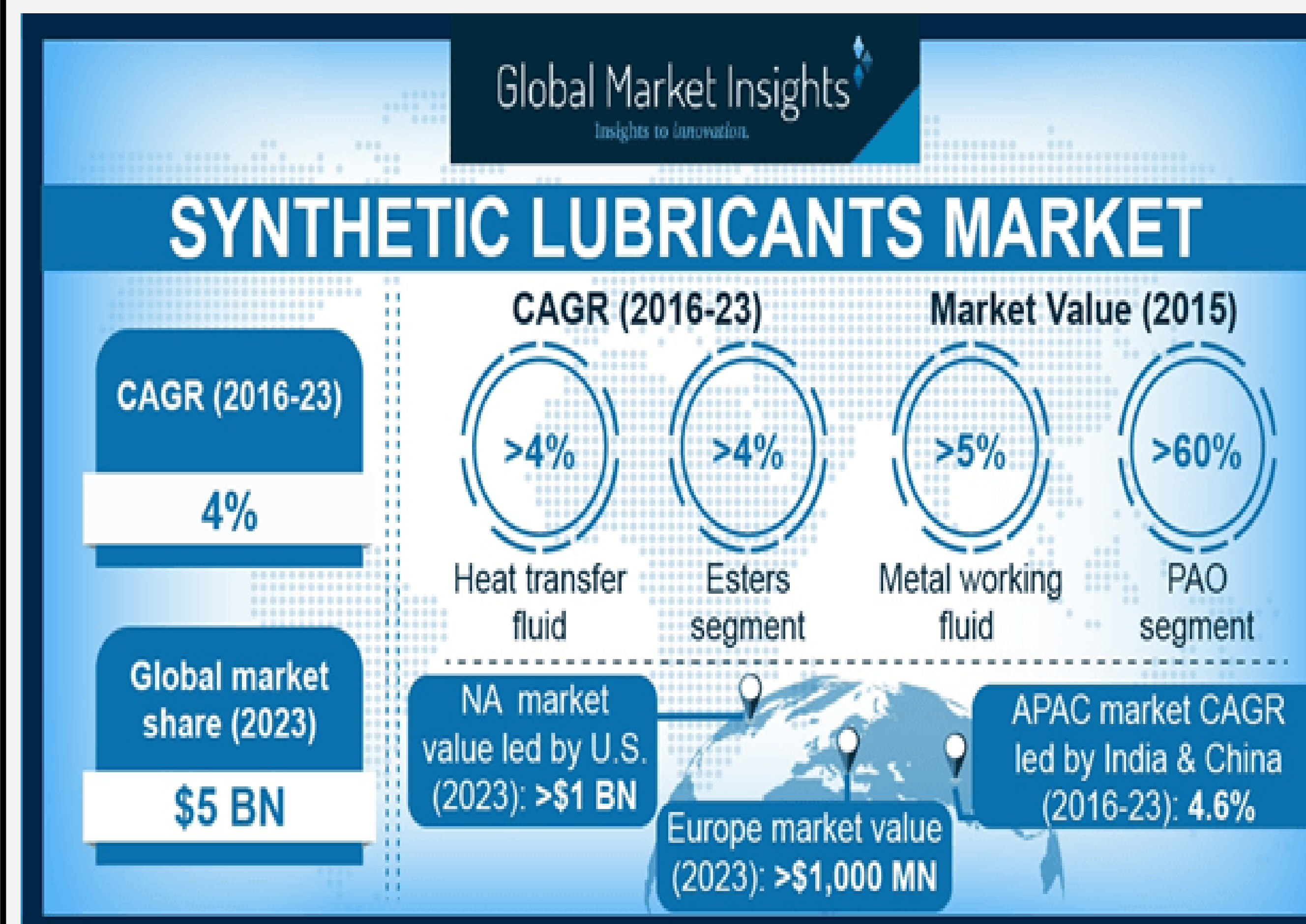
<https://threatpost.com/electric-vehicle-charging-stations/139958/>

Sustainability

The concept of sustainable lubrication has been and will continue to be very important as research shifts away from a heavy reliance on fossil fuels. Only about one percent of the petroleum that is extracted goes into the production of lubricants. World consumption is about 42 million tons of finished lubricants annually, compared to about 4,500 million tons of oil. Sustainable lubricants derived from biomass and other renewable sources have shown to be very promising in addressing this issue and should remain a large focus in the near future.



Salimon, J., et al., "Biolubricants: raw materials, chemical modifications, and environmental benefits," *Eur. J. Lipid Sci. Technol.* 112: 519–530, 2010.



<https://www.gminsights.com/industry-analysis/synthetic-lubricants-market>

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