

What does Sustainable Mobility mean for Lubricants?



UEIL Virtual Congress

20th October 2021

EVs Mean Less Fluids



No crankcase

Fewer moving parts so less metal removal

Less mineral extraction due to more circularity

Chevy Bolt Under the hood from <https://insideevs.com/>

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Drilling image <https://www.timken.com/wp-content/uploads/2016/08/Timken-Industrial-Equipment-and-Machinery-1200x630-1.jpg>

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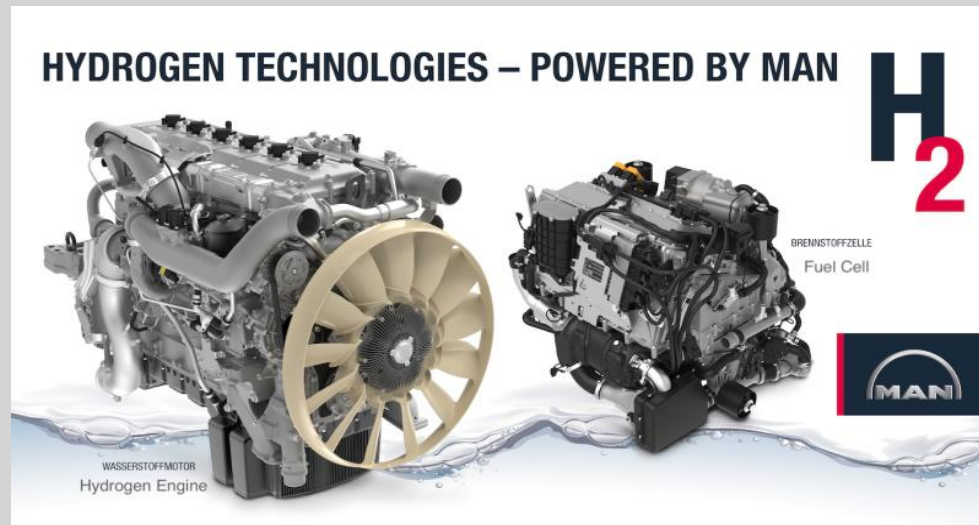
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Mining Image Photo by Dominik Vanyi on <https://unsplash.com>

Sustainability Means New Fluids

New fuels

- Hydrogen (fuel cell & combustion)
- Ammonia



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New Components

- Bio-sourced Gp III
- Estolides



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D 4172 Test Method for Wear Preventive Characteristics (Four-Ball Method)



Super High Oleic Safflower Biobased Engine Oil

- Note wear on bearings
- Note SHOSO pressure increased >2 fold to produce any scar

New fuels

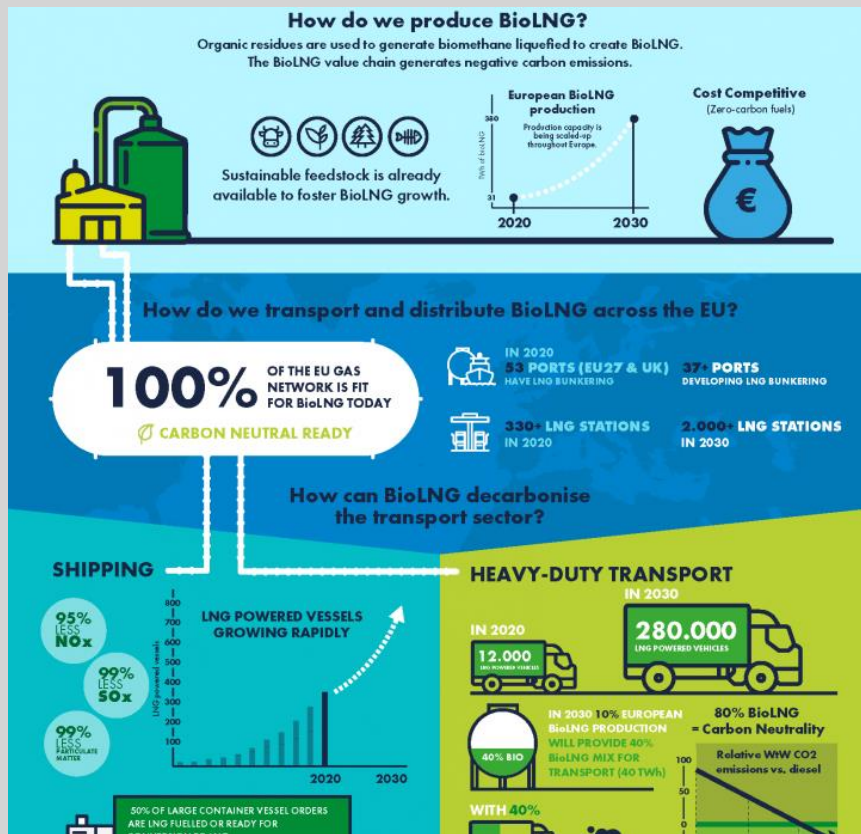
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- New natural products

SHOSO https://www.acs.org/documents/inform/2020/INFORM_Feb_2020.pdf

Sustainability Means Circularity



New fuels from waste

- Bio-LNG
- Bio-Methanol
- Bio-sourced hydrocarbons

More re-refining

- More collection
- Lubricants as part of TFM

Bio-LNG <https://sea-Ing.org/2020/11/new-joint-paper-biolng-makes-carbon-neutrality-a-reality-for-eu-transport/>

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Sustainability Means Innovation

Shared Mobility

<https://inversmobility.medium.com/shared-mobility-2021-5-trends-you-should-keep-an-eye-on-e60a150aff01>



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Autonomous Mobility

Image © 2016 [Swiss Post](#)



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Autonomous Mobility

Image © 2016 [Swiss Post](#)

Last Mile Delivery

Image www.cityq.biz courtesy of NovAzure <https://novazure.com/here-comes-the-car-e-bike/>

Opportunities

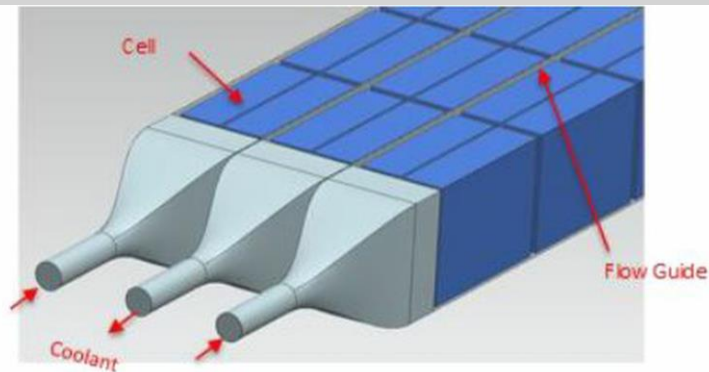


Figure 3 Example immersion cooling system

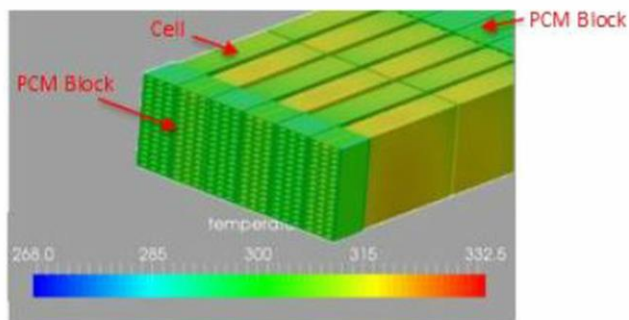


Figure 8 Immersion cooling with PCM at 20 kW, temperature in Kelvin

Fast Charging of EVs

- Immersion cooling requires dielectric fluids or phase change materials
- Comparable volume/vehicle to crankcase

Fit for 55

- Lubes can contribute almost everywhere

Images from Croda White Paper "[Immersion Cooling of Batteries Using Dielectric Fluids CFD Study](#)"

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