HRVATSKO ASFALTERSKO DRUŠTVO

CROATIAN ASPHALT ASSOCIATION

DIGITAL TECHNOLOGIES FOR MORE SUSTAINABILITY IN THE ASPHALT INDUSTRY

DIGITALNE TEHNOLOGIJE ZA VIŠE ODRŽIVOSTI U ASFALTNOJ INDUSTRIJI

THOMAS LEOPOLDSEDER, Q POINT

9. MEĐUNARODNA KONFERENCIJA ASFALTNI KOLNICI 2025
9. INTERNATIONAL CONFERENCE ASPHALT PAVEMENTS 2025
OPATIJA 08. – 09. 05. 2025.

Q Point in a nut shell

Switzerland – Austria - Germany

- Software solutions for an asphalt road construction industry that utilizes existing resources sustainably
- Manufacturer-neutral digital solutions for all stakeholders in the asphalt value chain

Use of asphalt for sustainable mobility

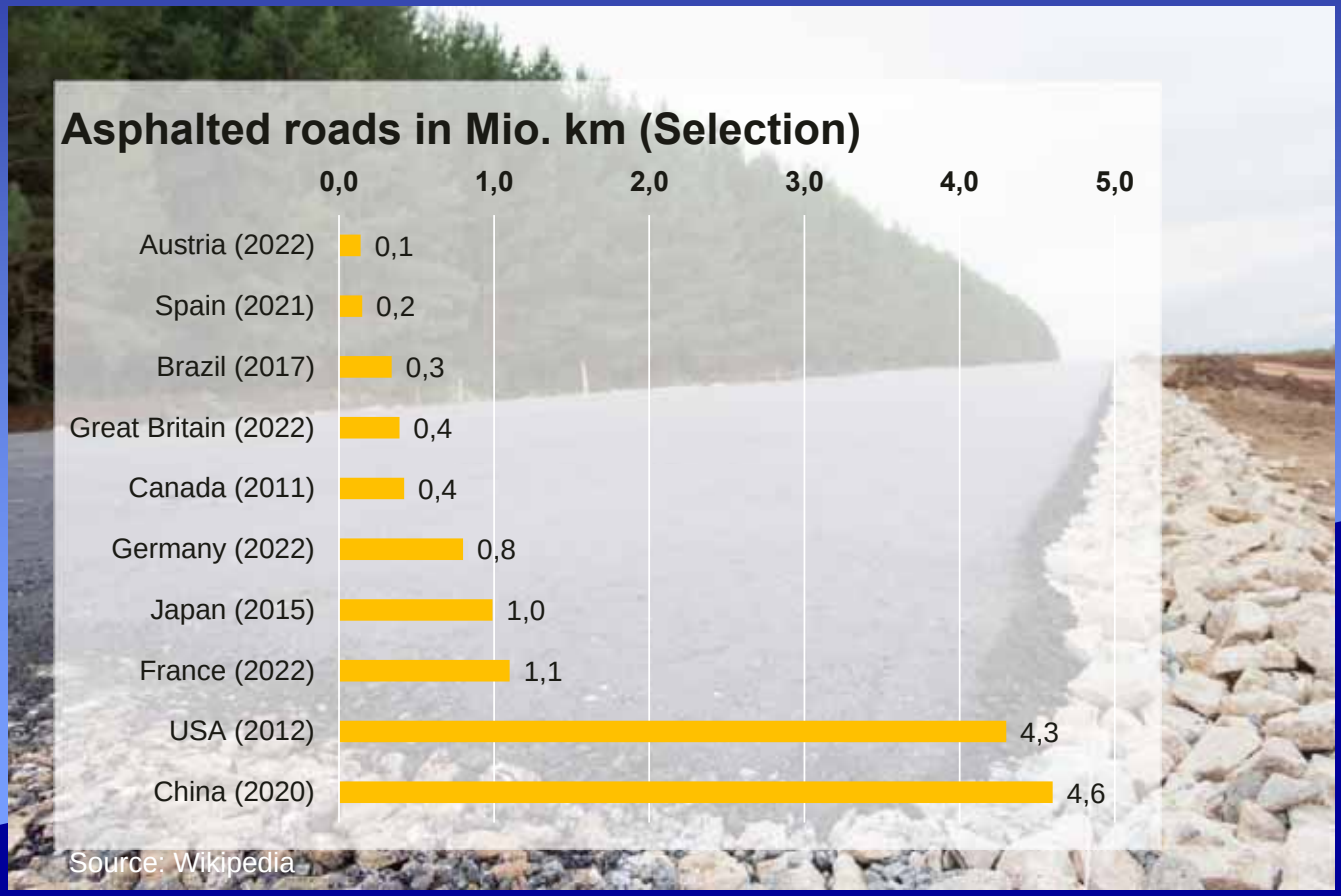
Importance of asphalt sector

Production of asphalt 2023

Croatia	3 Mio. tons
EU-27	203 Mio. tons
Europa[(1)]	269 Mio. tons

[(1)]EU-27 + Great Britain, Iceland, Norway, Serbia, Switzerland and Turkiye

Source: European Asphalt and Paving Association



Goals of sustainability in the industry

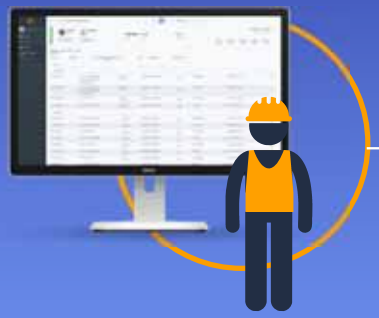
Fullfill requirements of stakeholders

Digital technologies that matter

- Digital distribution of EPD information of the products by asphalt plants
- Digital calculation of the ecological footprint along the whole value chain (Tender phase, Building phase)
- Automatic documentation of the paving and compaction process for longlasting roads and the proof of the quality
- Digital documentation for future maintenance
- Online supervision of the construction

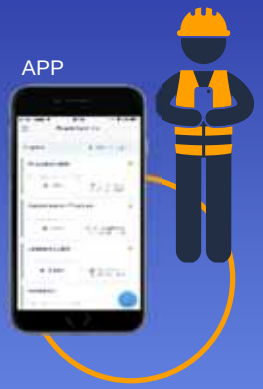
Construction supervision in Baden-Württemberg

Digital
Construction company



Partial data transmission if required

APP



Construction supervisior

Digital delivery information
Digital compaction information
Digital asphalt temperature information

Not mandatory in all projects but sometimes part of the tender!

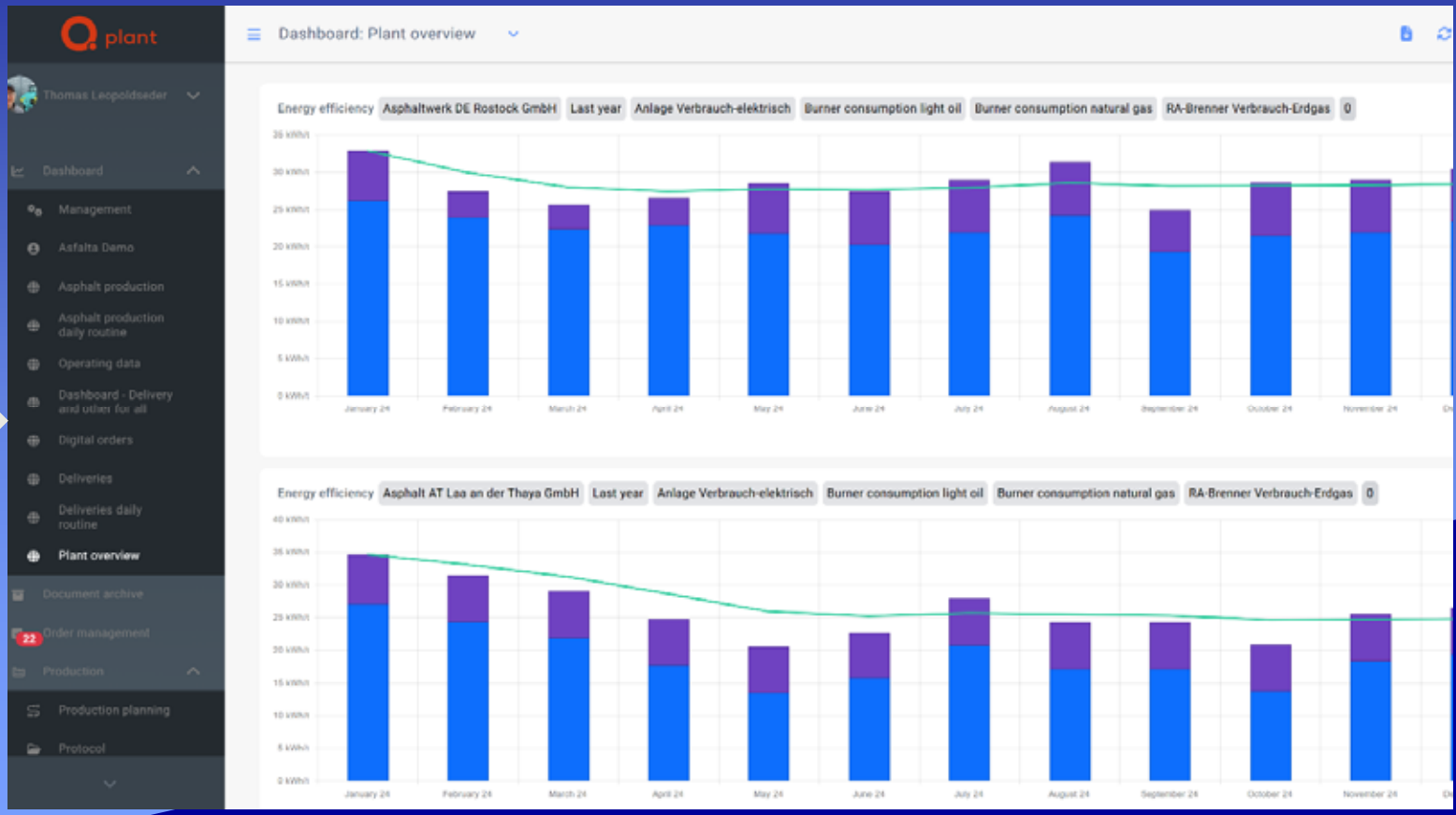
Maximize the usage of recycling asphalt

Digital process management between the construction site and the recycling plant to minimize the administrative effort!

Production technologies and digital control systems for an efficient production with RAP!

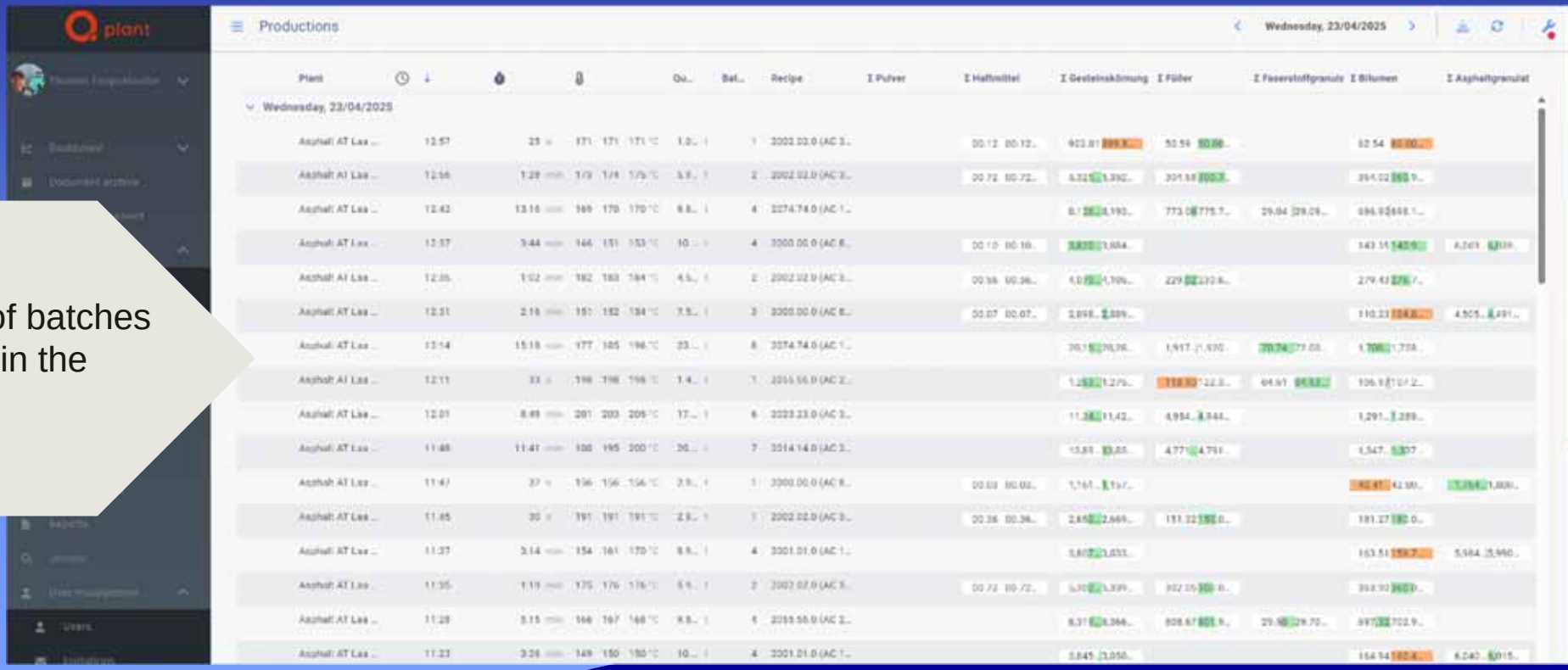
Minimize resources during production

Production dashboards allow exact analyses of the energy consumption to compare plants and to find efficiency potentials!

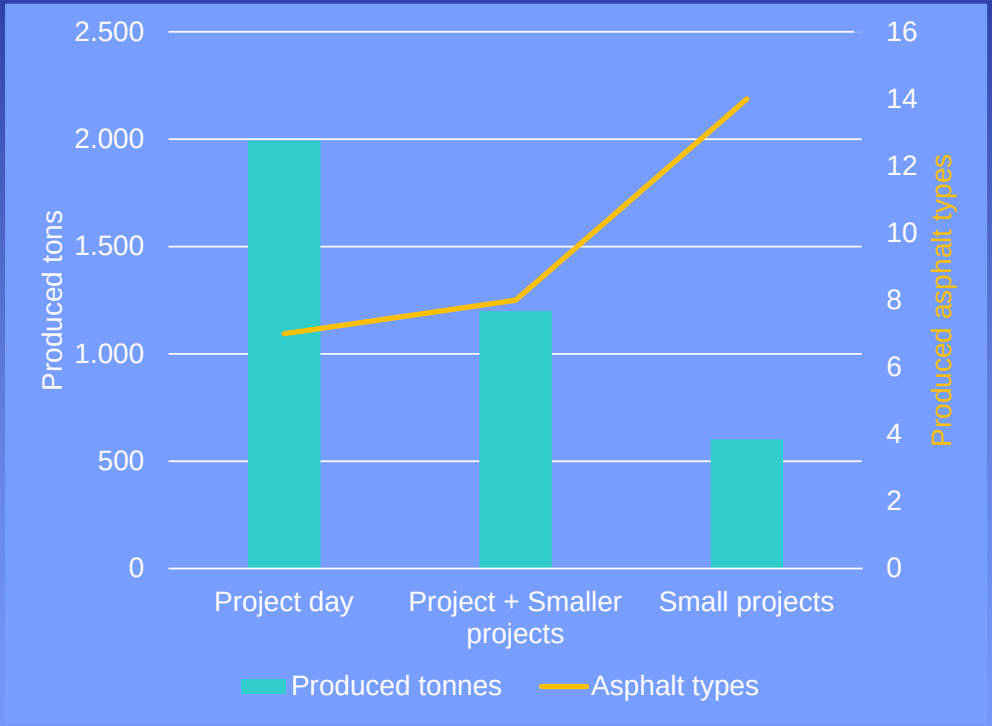


Minimize resources during production

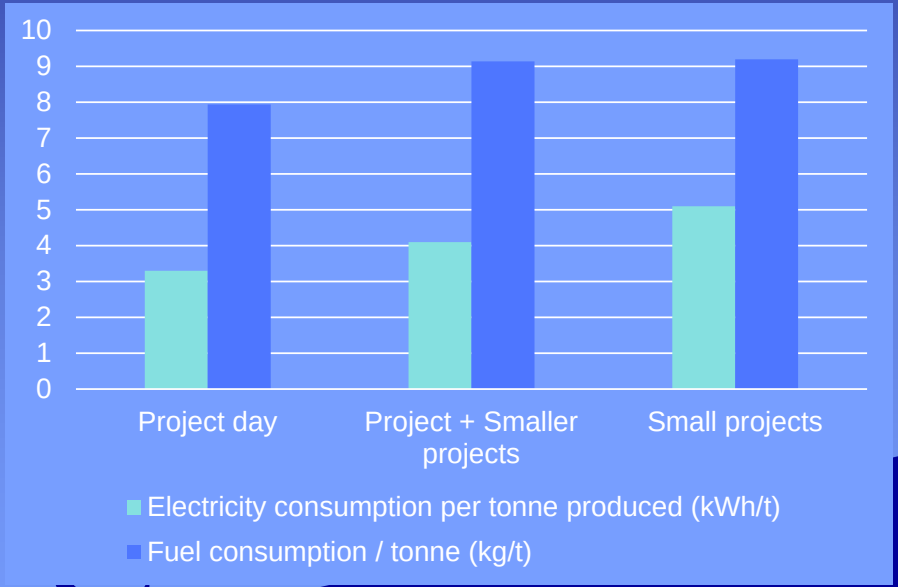
Fast data analyses of batches to find out problems in the production!



Optimization potential and opportunities

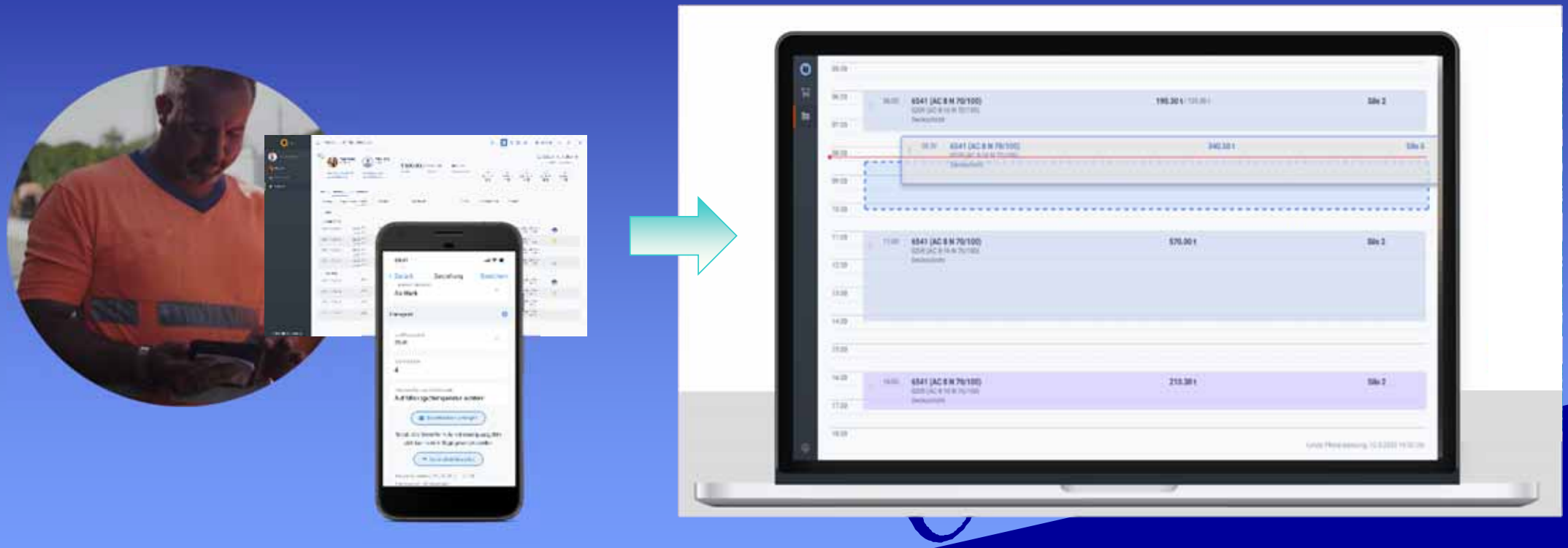


- Combination of production batches reduces energy consumption!



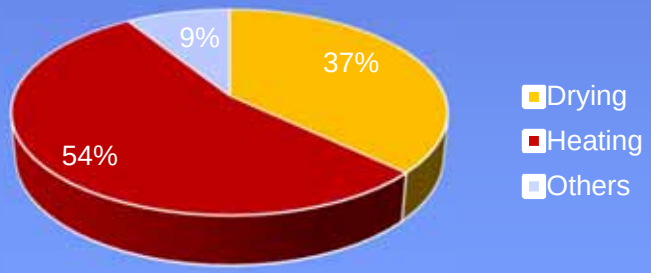
The digital management of orders supports the creation of efficient production programmes

Digital production planning based on digital recevided orders and forecasts

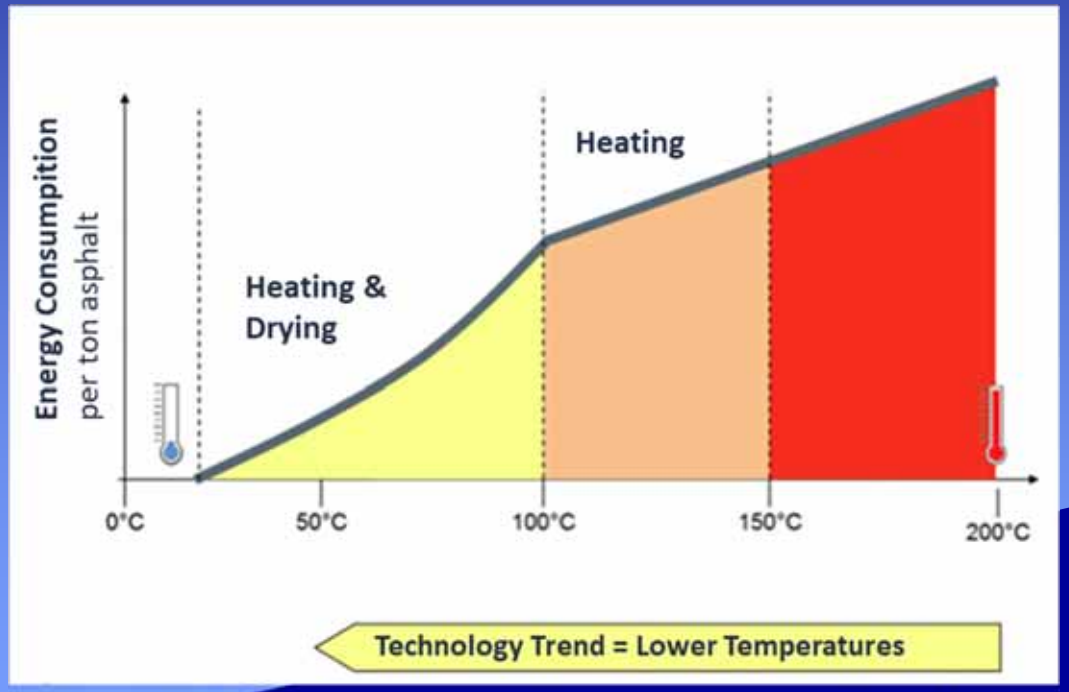


Minimize emissions

H2 Burner and other alternative burner technologies



Energy consumption



Source: Technical Aspects of the use of Warm Mix Asphalt, EAPA

Netherlands 2025

- Asphalt production per year: 7 Mio to
- All asphalt producers agreed on the usage of WMA in 2025
- Lowering the temperature from ~160 C ° to 110 C °
- 14.000 to CO_2 savings / year

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Reducing the production temperature will save some 14,000 tons of CO2 emissions annually, based on 7 million tons of fresh asphalt applied to roads, parking lots and runways each year in the Netherlands.

'Today's asphalt won't be for sale in 2025'

ROAD CONSTRUCTION May 23, 2023

Tekst door Roel van Gils | Fotografie door VBW

Many roads that lead to sustainable asphalt

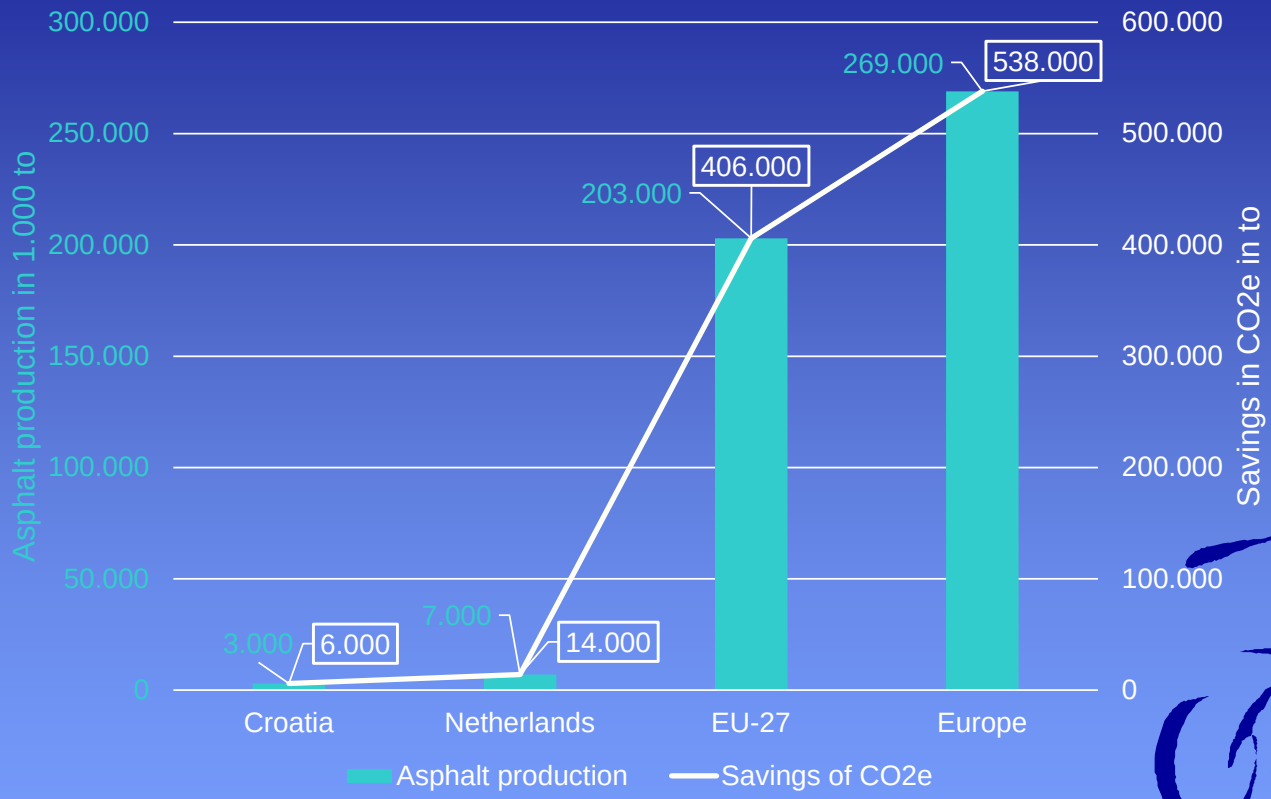
The Dutch asphalt industry is a global leader in making asphalt more sustainable and sets itself new goals all the time. A year and a half ago, for example, the decision was made to phase out the current hot-mix asphalt mixtures. This means that today's asphalt will no longer be for sale in 2025. An ambitious decision when you consider that we currently use 300+ different asphalt mixtures in our country. Stefan de Munck, chairman of the Bituminous Works Department of Bouwend Nederland, updates us on the latest developments in the field of asphalt sustainability.

Stefan de Munck is not only chairman of the Bituminous Works Department of Bouwend Nederland, but in daily life he is also director of Heijmans Infra Asfalttechniek.

14,000 tons of CO_2-reduction

About 9 m3 of gas is consumed on average in the production of asphalt, according to De Munck. "The biggest savings in both emissions and CO_2-footprint can be achieved by reducing the temperature. Warm Mix Asphalt is therefore the sustainable alternative and the next step in making asphalt sustainable towards 2025. Actually, all asphalt plants have been working on this for some time. Some producers are focusing more on the hardware, with different techniques in the plant, while others are looking for it more in adding additives to be able to produce at a lower temperature." For comparison, current hot mix asphalt is produced at a temperature of around 160 degrees Celsius, semi-hot mix sits at 140 degrees Celsius and hot mix at 100 - 110 degrees Celsius.

Some figures



Source:Asphalt in figures 2023, EAPA

	Car km equivalent
Croatia	35,3 M
Netherlands	82,3 M
EU-27	2,4 Bn
Europa	3,1 Bn

Calculated with 170 g / km CO2e

Savings are calculated with ~ 2 kg CO2e / to by using warm-mix asphalt instead of hot-mix-asphalt
Savings depend on type of energy, technology, ..

Technologies for warm-mix-asphalt

Production technologies

- Foam bitumen
- Additives
- Waxes

Digital logistics planning

- Online tracking of trucks
- Estimated time of arrival
- Reduction of waiting times

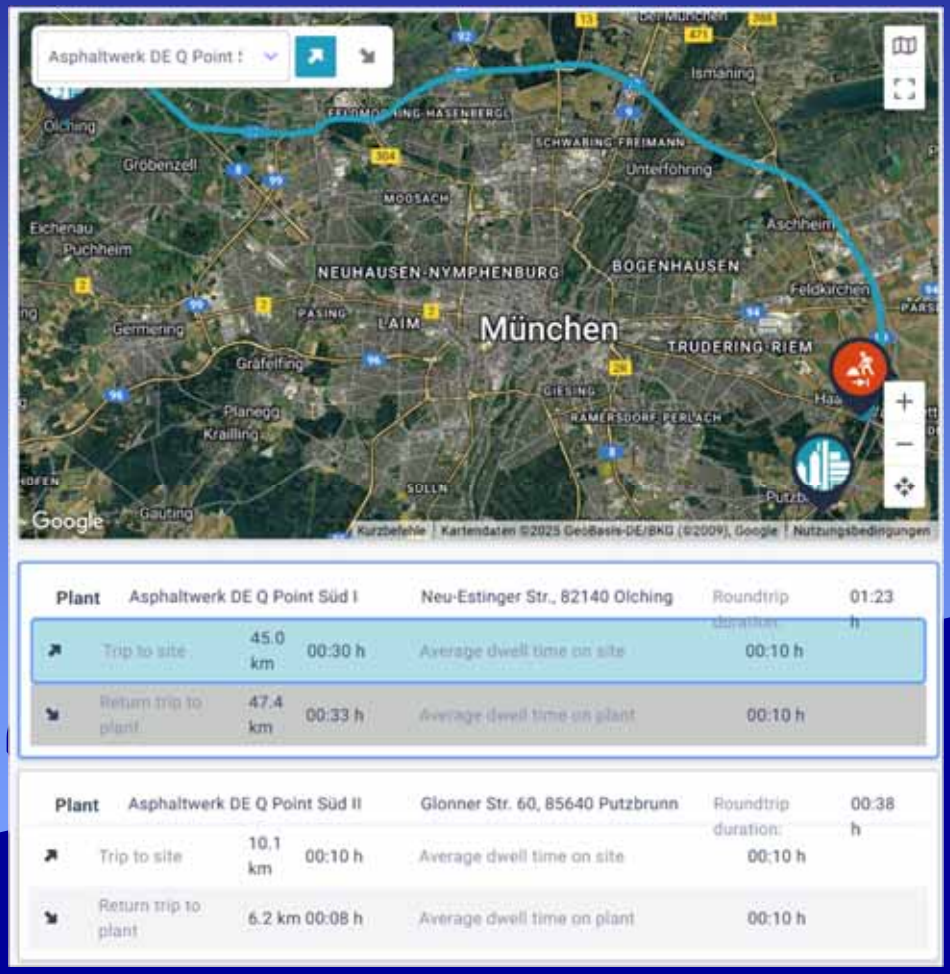
Digital installation monitoring

- Continous temperature control on paver and roller
- Continous compaction control during compaction process

Reduce transports

Paving scheduling to optimize number of lorries

Transport monitoring and route optimization



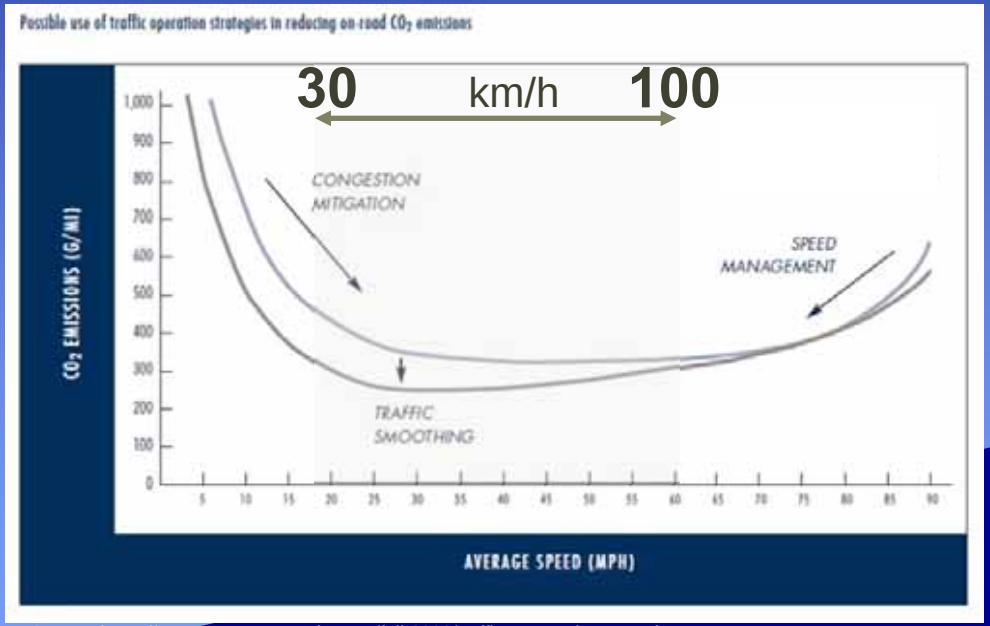
Plant	Asphaltwerk DE Q Point Süd I	Neu-Estinger Str., 82140 Olching		Roundtrip duration:	01:23 h
Trip to site	45.0 km	00:30 h	Average dwell time on site		00:10 h
Return trip to plant	47.4 km	00:33 h	Average dwell time on plant		00:10 h

Plant	Asphaltwerk DE Q Point Süd II	Glonner Str. 60, 85640 Putzbrunn		Roundtrip duration:	00:38 h
Trip to site	10.1 km	00:10 h	Average dwell time on site		00:10 h
Return trip to plant	6.2 km	00:08 h	Average dwell time on plant		00:10 h

Shorten construction times

- Road construction causes around 30% of traffic jams!
  - Waste of time
  - Higher emissions due to stop & go traffic and low speed

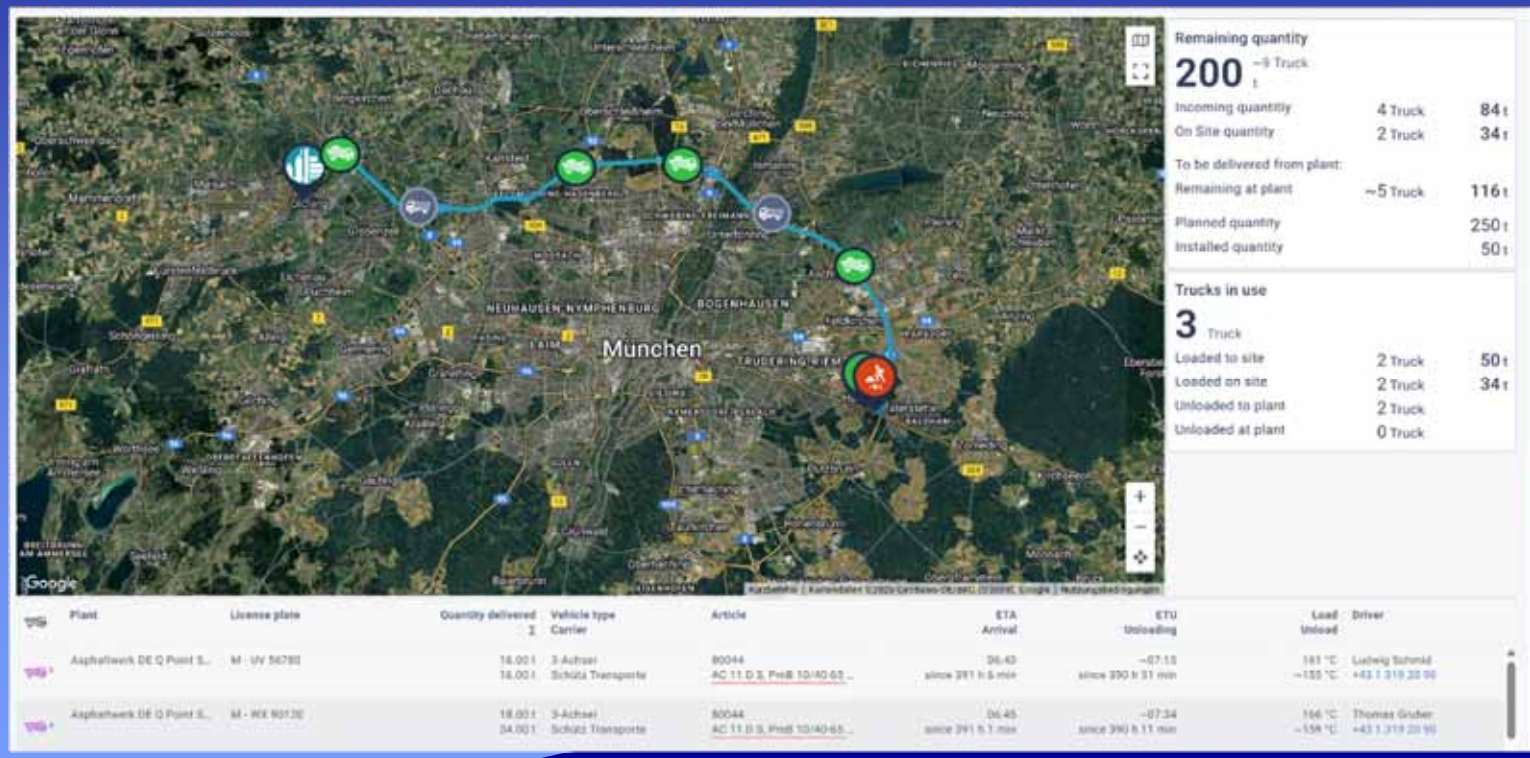
Emissions depending on the speed



Source: https://www.accessmagazine.org/fall-2009/traffic-congestion-greenhouse-gases

Shorten construction times

Real-time information help to avoid interruptions in the process, which minimizes waiting time and construction time



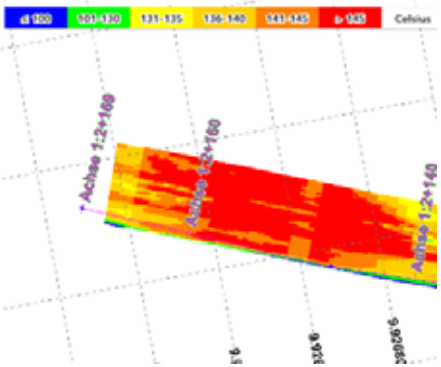
Increase lifetime of roads by a high quality pavement

Real-time supervision of paver stopps and temperature during the paving process!

Real-time supervision of the construction
Everytime from everywhere!

Documentation for a circular environment

Digital process management along the entire value chain ensures valueable information for maintenance and reconstruction.



Digital technologies support the mobility of tomorrow by

reducing the usage of resources

helping people to avoids errors and failors

supporting people on the job site to build long-lasting roads

leading to an efficient and energy saving production process

enabling the usage of warm/low mix temperature asphalt

collecting information along the whole value chain for an ecologic circular economy

Q Point - Solutions for a sustainable road construction industry!

Contact

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