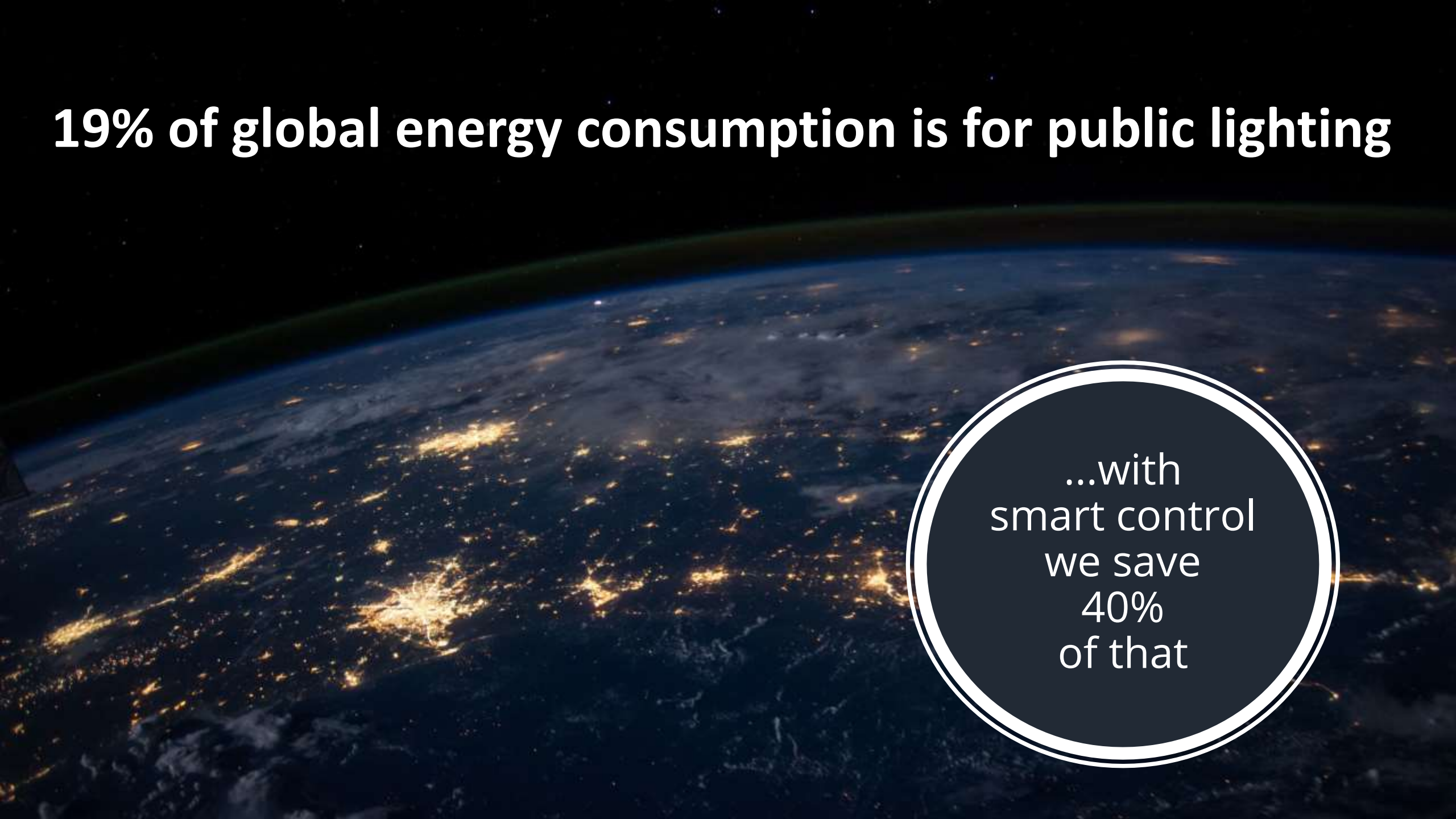
EV Chargers in public lighting

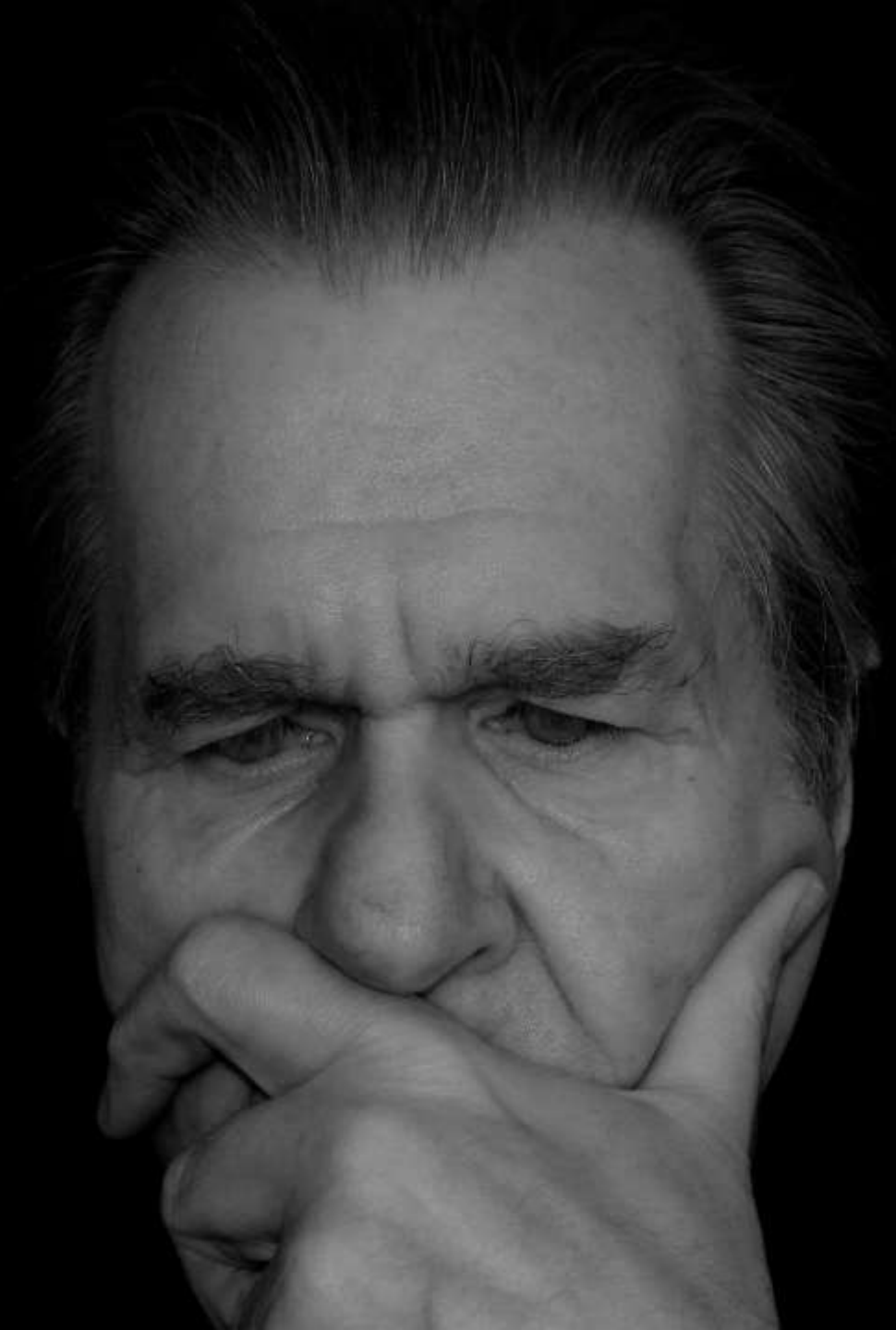
How to build it

Heliodor Macko, SEAK, Slovakia

19% of global energy consumption is for public lighting



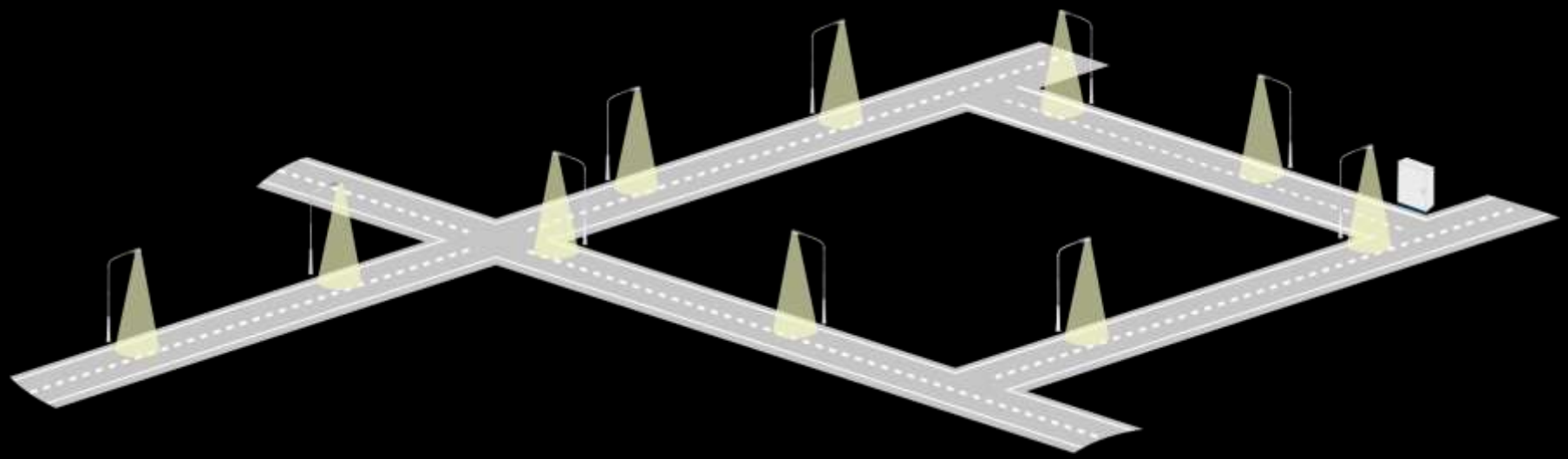
So – what is Smart lighting anyway?



SEAK Powerline Technology

What is Smart Lighting?

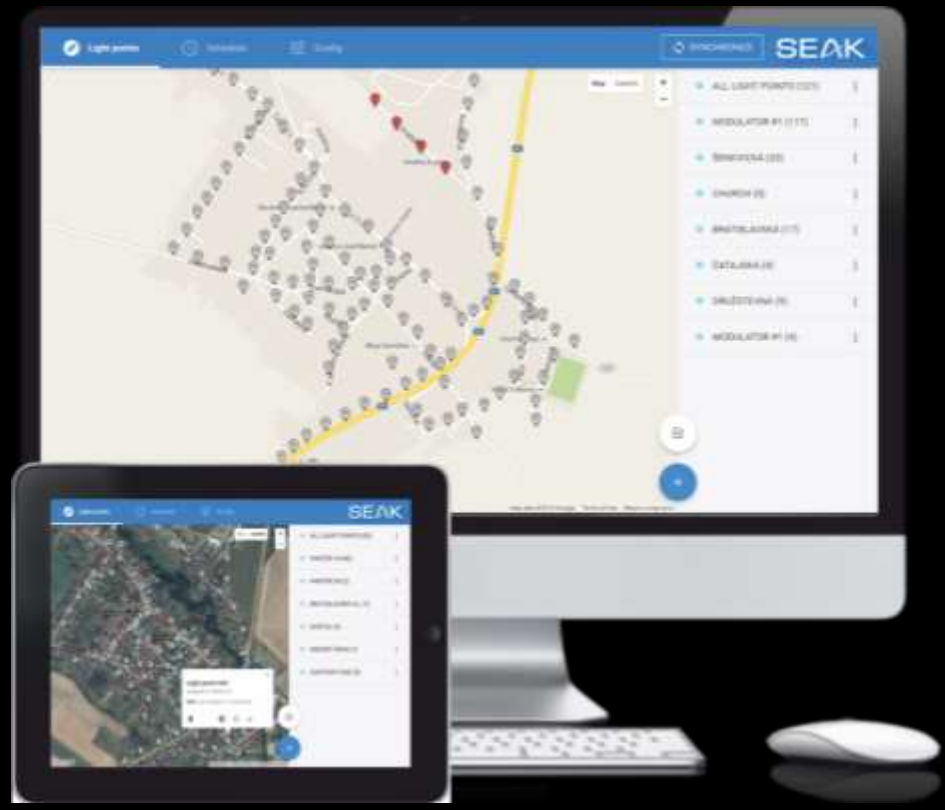
Remote control of each individual luminaire intensity 0% – 100%



SEAK Powerline Technology

What is Smart Lighting?

Remote diagnostics of each luminaire



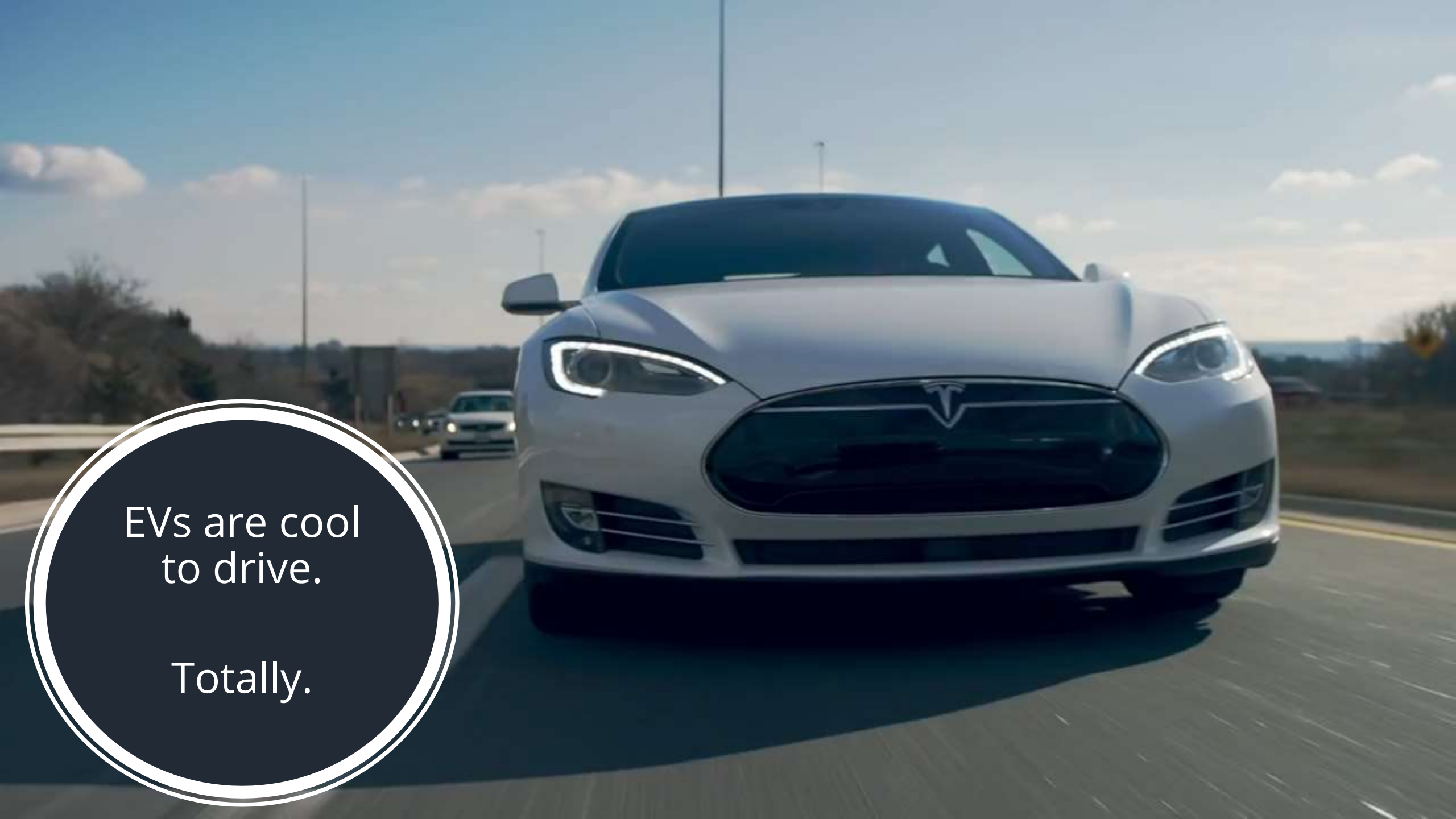
Smart City Lighting

What is Smart Lighting?

Optimized automatic mode (twilight and motion sensors)

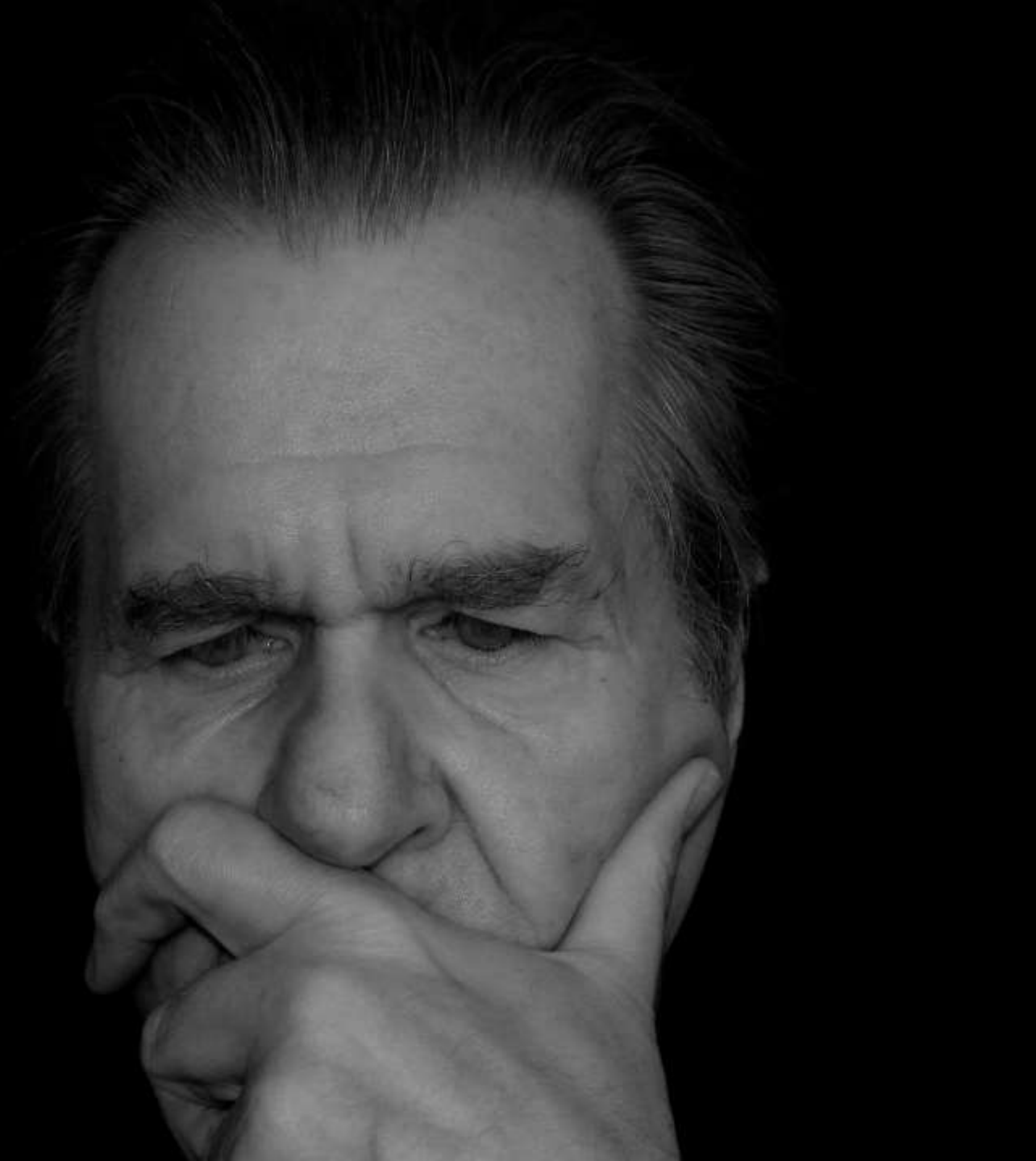
Energy monitoring and reporting

Connectivity for EV chargers and other IoT devices

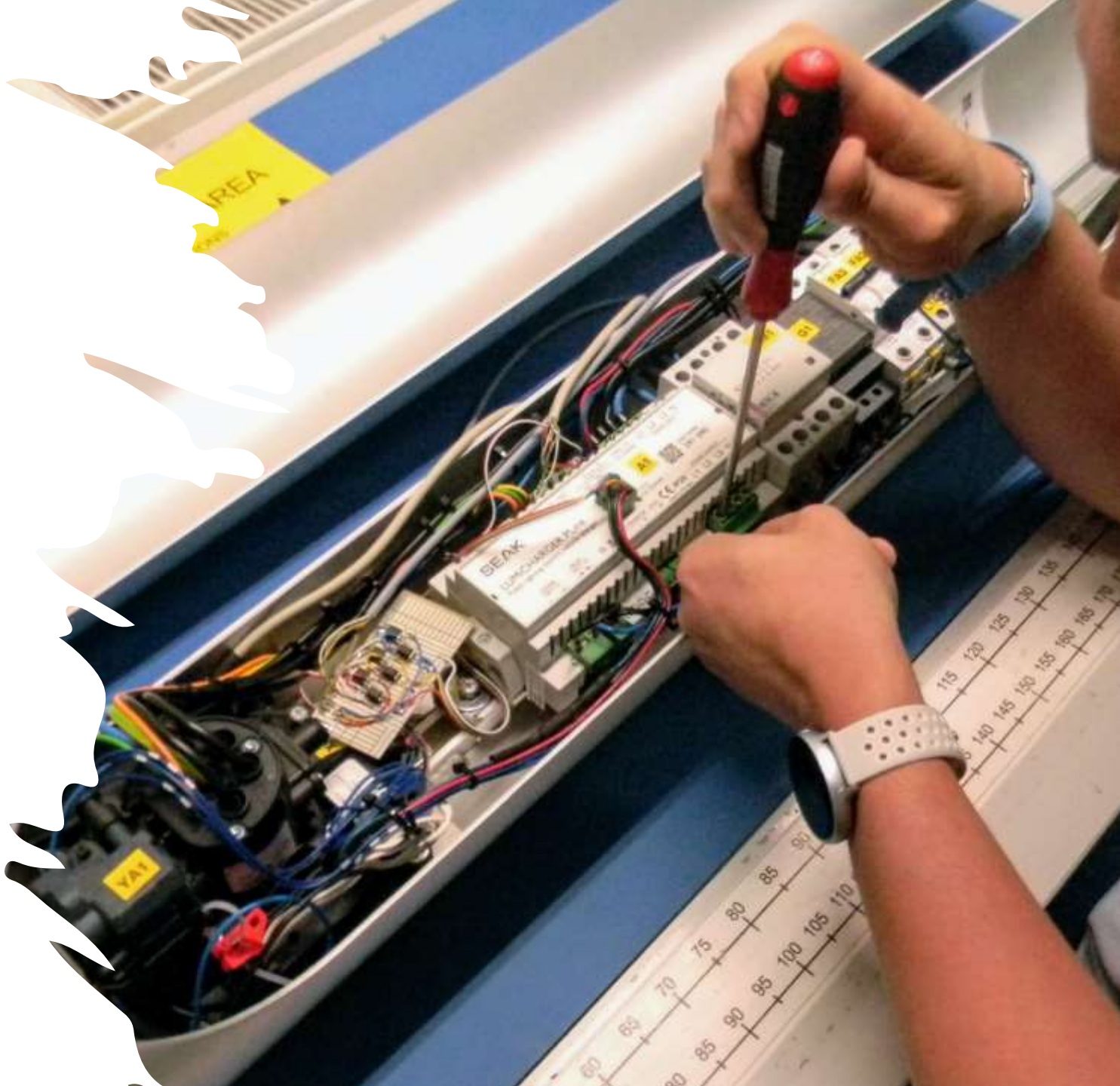

EVs are cool
to drive.
Totally.


But then you get home...
...and you need to charge it.

How about using from light poles for EV charging?



...we created a charger that fits inside of the lamp pole



Smart lighting & EV charging using existing power lines

Example of the use

Day: Luminaires at 0 %

Line capacity: 30 kW

Charging: 19 kW | Charging: 11 kW

Smart lighting & EV charging using existing power lines

Example of the use

Night: Luminaires at 80 %

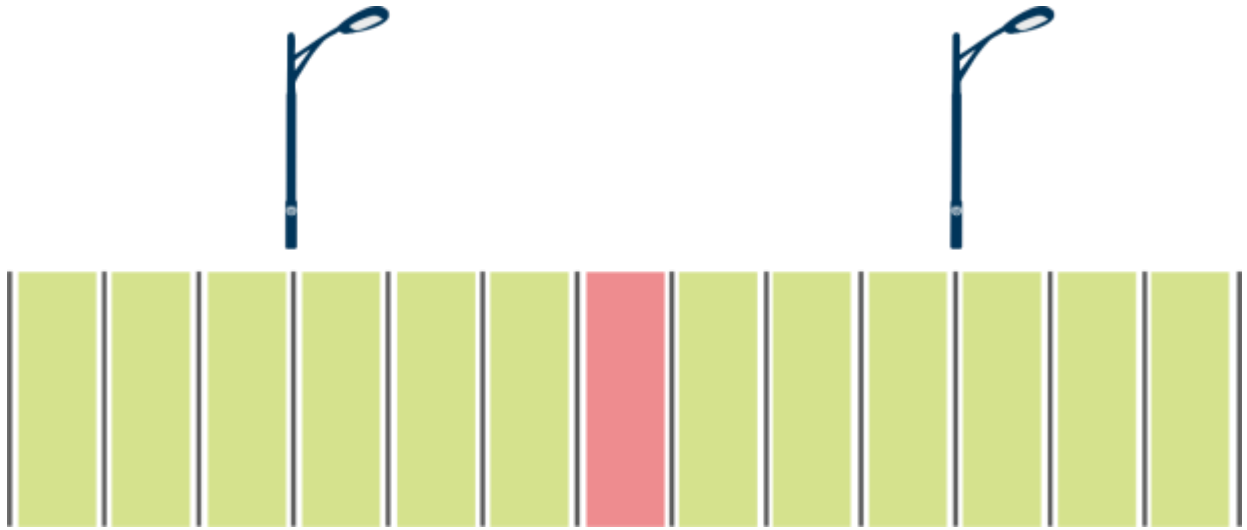
Line capacity: 30 kW

Light: 5 kW

Charging: 14+11 kW

What to think about when planning chargers from lighting poles…

1. Suitable parking places next to the poles



1 lamp pole
up to 6 parking spots

1 lamp pole
up to 2 parking spots

2. New or old lamp pole

Retrofitting wallbox
for existing poles

Bratislava, Železná studienka

Charger integrated into lamp pole
For new installations

22 kW AC nabíjačka so zdieľanou kapacitou v Sabinove

3. Existing electrical wiring

Power lines for lighting: 400/230V, TN-S or TN-C

There should be at least* 5 kW (reasonable minimum), or 11 kW (comfort) available for every car at all times.

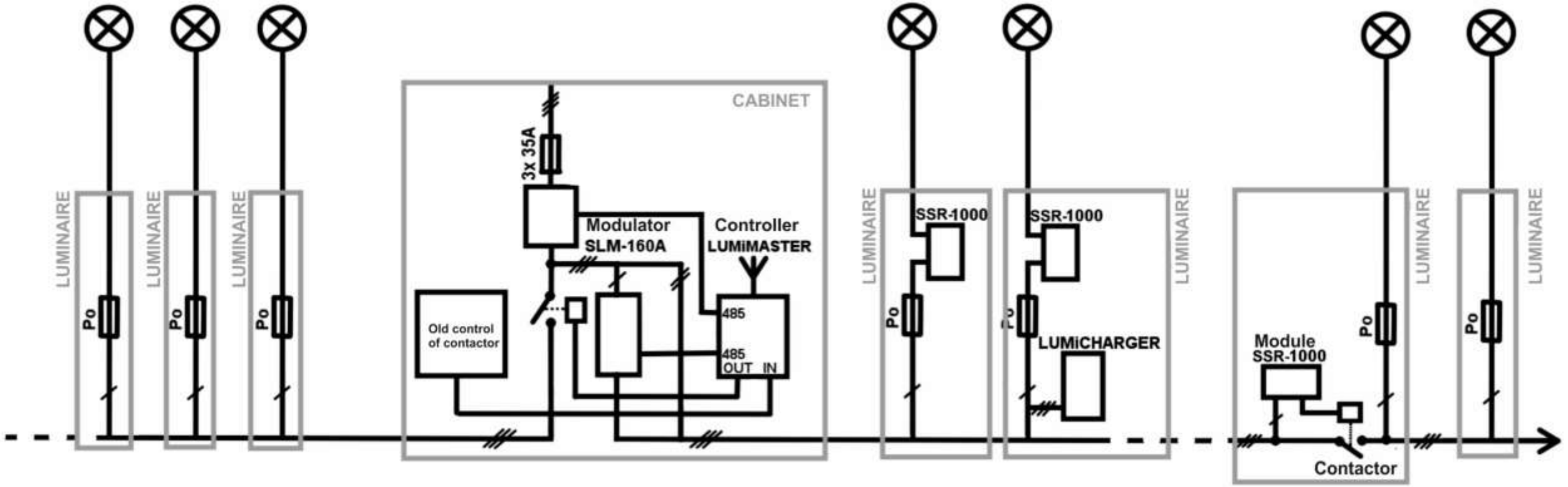
Electric cable	Max. current	Max. power	Max # of chargers	
			(5 kW)	(11 kW)
Aluminum AYKY 2,5 mm^2	3x 30 A	21 kW	4	2
Copper CYKY 2,5 mm^2	3x 38 A	26 kW	5	2
Aluminum AYKY 4 mm^2	3x 38 A	26 kW	5	2
Copper CYKY 4 mm^2	3x 48 A	33 kW	6	3
Aluminum AYKY 6 mm^2	3x 47 A	32 kW	6	3
Copper CYKY 6 mm^2	3x 61 A	42 kW	8	4
Aluminum AYKY 10 mm^2	3x 63 A	43 kW	8	4
Copper CYKY 10 mm^2	3x 81 A	56 kW	11	5

* These are table values. Final capacity shall be determined by authorized electrician, who takes also measured actual quality and total length of existing cabling into account.

5. Integration with smart lighting

The line needs to be powered during the day. The lights need to be off.

If SEAK smart lighting is already installed in the city, nothing is needed and your’re good to go.
If not, communication components need to be added to the feeder panel.



Payment collection

The city gets monthly reports about charging and payments.

We send the city collected money for the electricity.

charge.sk

Služba spoplatnenia nabíjacích staníc
Prevádzkuje SEAK s.r.o., Slanská 11934/92, 08001 Prešov,
IČO: 46150749, www.seakenergetics.com

Monthly report of charging

Period 19 Feb 2021 - 28 Feb 2021

Place Miesto: Sabinov smart lampy - 17. no... (1)

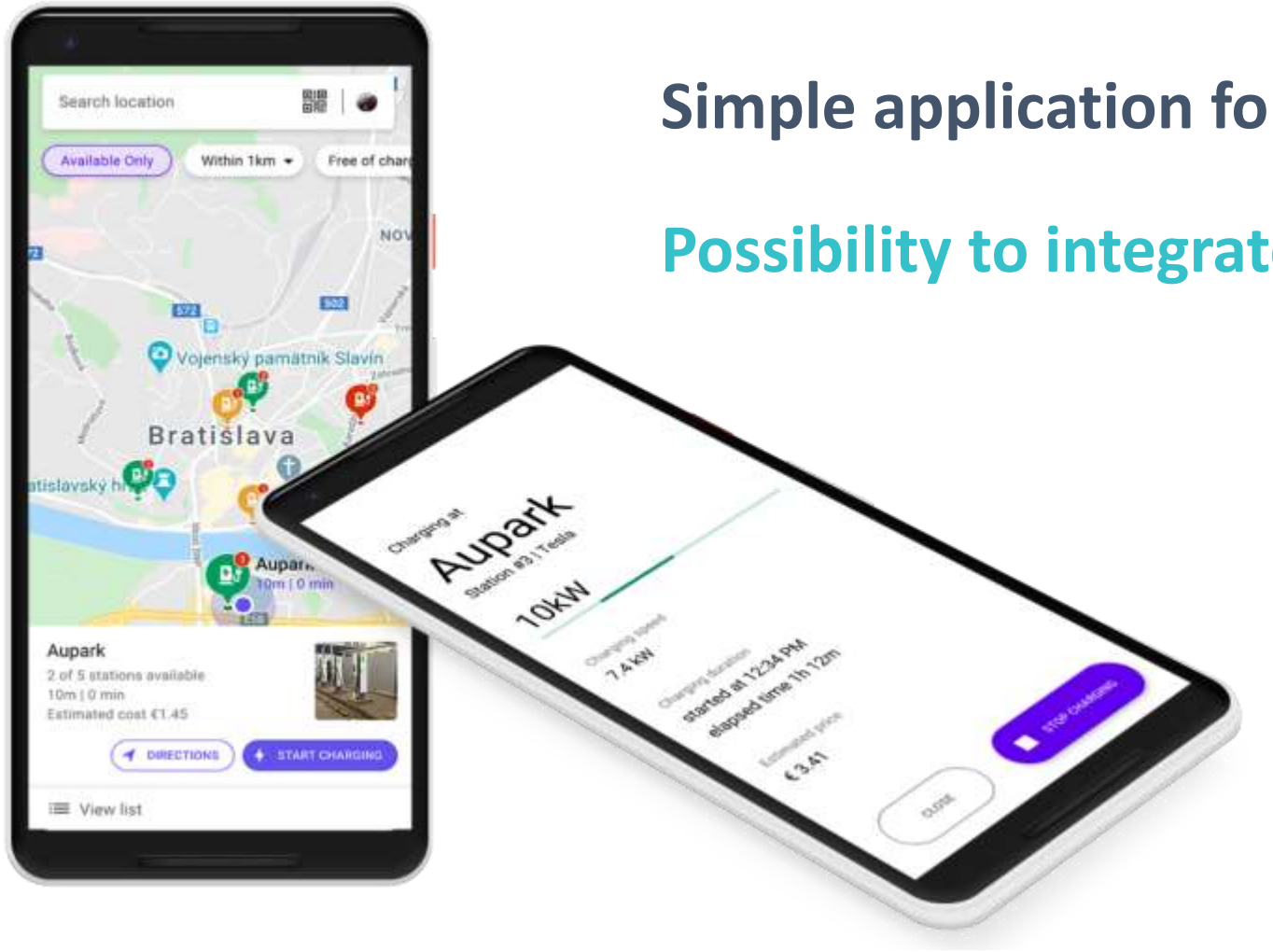
Počet nabíjaní	Spolu kWh	Vyúčtovaná suma
6	88.4	0.00 €
	Priemerne minút 231.7	Priemerne kWh 14.7
Mesačný poplatok 0.00 €	Spracovanie platieb 0.00 €	Poplatky spolu 0.00 €
	Fakturujte nám prosím 0.00 €	

kWh 88.4 • ● 88.4

Počet nabíjaní 6 ▬ 6

	Place	Charger	Start charging	End charging	Roaming (Hubject)	kWh	Time of charging	Price
1.	Sabinov smart lampy...	SEAK smart lampy Lumic...	19 Feb 2021, 06:37	19 Feb 2021, 11:46	-	23.5	309	0.00 €
2.	Sabinov smart lampy...	SEAK smart lampy Lumic...	19 Feb 2021, 13:17	19 Feb 2021, 13:23	-	0.0	5	0.00 €
3.	Sabinov smart lampy...	SEAK smart lampy Lumic...	19 Feb 2021, 13:30	19 Feb 2021, 16:58	-	9.3	208	0.00 €
4.	Sabinov smart lampy...	SEAK smart lampy Lumic...	23 Feb 2021, 15:38	23 Feb 2021, 18:50	-	14.5	191	0.00 €
5.	Sabinov smart lampy...	SEAK smart lampy Lumic...	26 Feb 2021, 10:40	26 Feb 2021, 15:31	-	15.0	291	0.00 €
6.	Sabinov smart lampy...	SEAK smart lampy Lumic...	26 Feb 2021, 15:46	26 Feb 2021, 22:13	-	26.1	386	0.00 €

Chargeme.online



Simple application for use of charging stations

Possibility to integrate with local online payment

QR-code authenticated charging

RFID authenticated charging

EV Chargers in public lighting

Thank you!

SEAK,
Heliodor Macko,
CEO