

Current S

Presented by Harry STOKMAN (DC Expert BV)

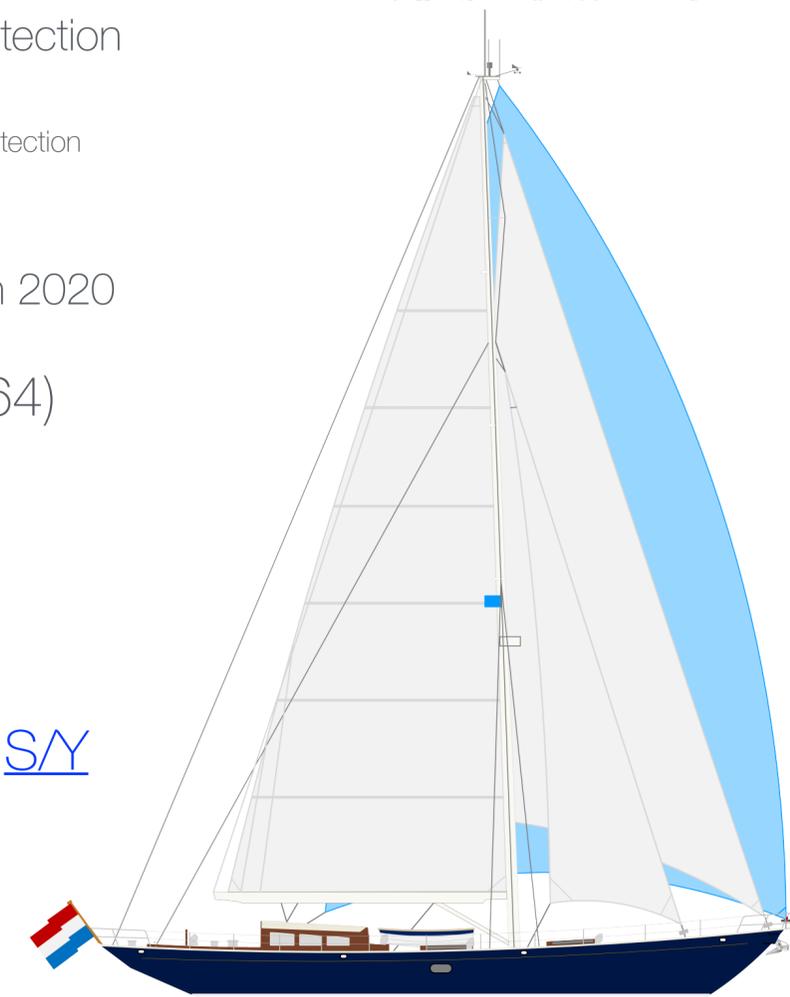
ME (Current/OS ambassador)



Dyslectisch, forgive me for spelling and syntax mistakes

Who is [Harry STOKMAN](#)

- I spend my professional time as [Current/OS Ambassador](#) and as consultant in [DC Expert BV](#)
- When I was 14 years old I made my self the promise to become a rectifier manufacture.
- DC entrepreneur sinds 1988 (design, manufacture and systems)
 - 35 years of Manufacturing of rectifiers for many DC applications like: electrochemical (high current <40kA) and cathodic protection
 - Driver behind the Current/OS Technology Architect of the Current/OS rules and principles (like voltages (350V/700V/1400V), DC Zones, protection and earthing)
 - The DC companies (Like Hellas Rectifiers, FemtoGrid, Direct Current & [DC Systems](#)) where acquired by Schneider Electric in 2020
- Active in standardization ([IEC](#) commission TC8, TC64, SC22E, SyC LVDC and [NEN](#) commission NEC64)
- Co Chair of the [SetPlan DC](#) in the European Union 🇪🇺
- Private project [DC muzen](#), converted our personal home to DC
- Together with my wife taking care off our beautiful she (She is a very beautiful all electric sailing yacht [S/Y Elysium](#)) we are living 24/7 in a DC environment 😊
- Helping my two boys in there company [STOK Electric](#)



DC is fun



When we started in 2009 to execute the plan created in 2004
everybody was laughing



Today everybody is still laughing (excitement) in a large **DC world**



Current/OS



Current/OS: open, global, independant,

- the partnership of manufacturers and electricity stakeholders is shaping a direct current (DC) distribution standard to ensure continued access to electricity for everyone.
- 120+ companies to date, more joining every month
- 27+ Universities
- 8+ certification bodies
- 7+ trade groups
- Global: 25 countries represented in North America, Europe, Asia
- Member of IEC SyC LVDC
- UL Solution founding partner

Board Members

Electrical Industry

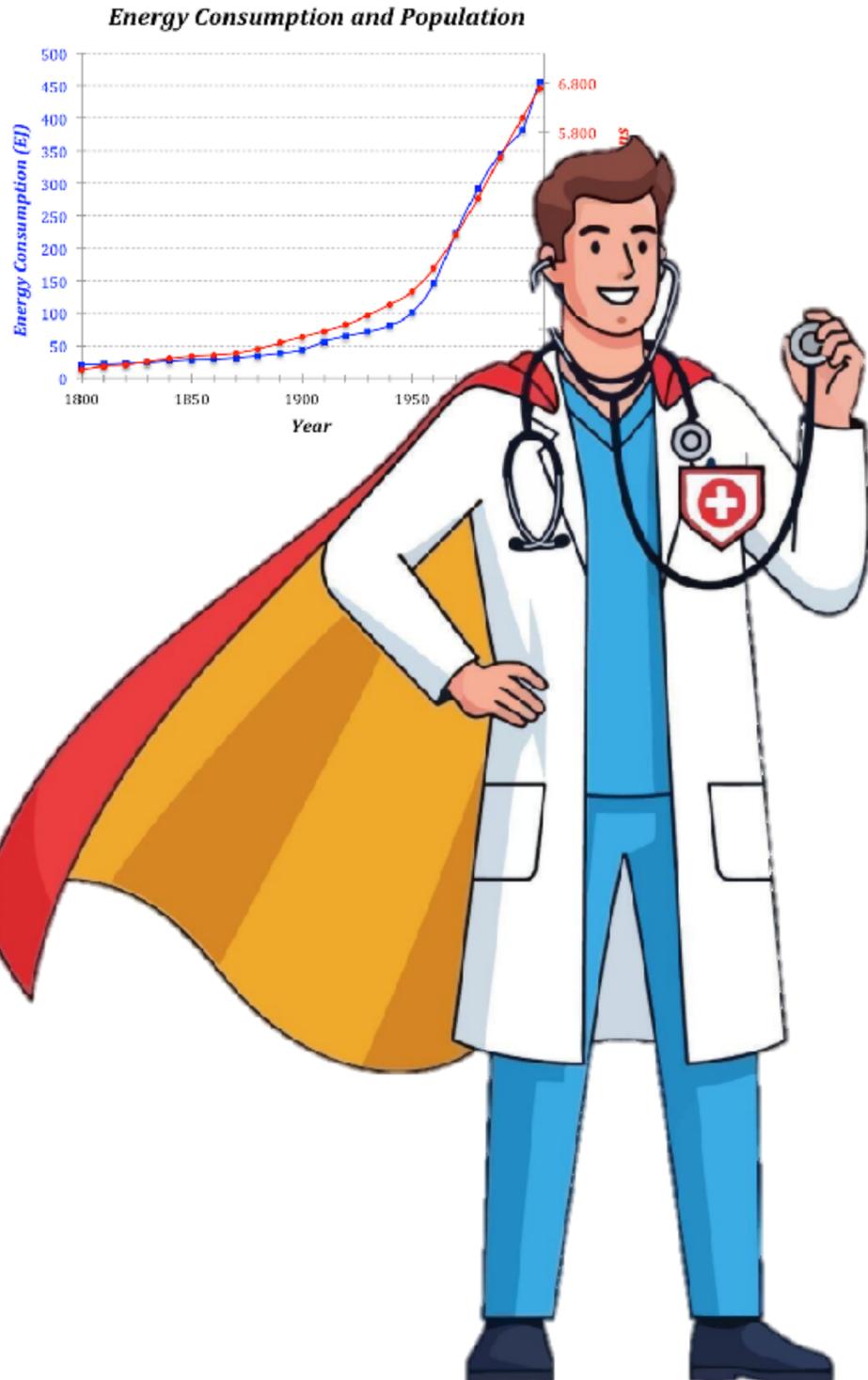
Universities

Certification

Trade Groups



Electrical/electronic people are the new doctors



- We keep our infuse the biggest machine ever created by human alive.
- We don't exist without electricity
- Electricity brings us hygiene and it's the bases of everything
- No electricity no water, polluted air etc.
- Electricians and power electronics keep people alive

Electricians are the new hero's and helping mankind!

One super important message to engineers

Social responsibility

- Technology was there to create tools, for economical and to be convent
- But now technology become part of being
- This brings new responsibilities for engineers, this not taught today
- DC will play a huge role in this new domain for electrical engineers, and will affect humans more than ever before



Why All electric is good

But we become full depended on a single system source

Item	Traditional (reference)	All electric no solar	All electric (full solar) (Net metering)
Heating	1300 m3 GAS 13.000 kWh energy 2,314T CO ₂	2600kWh electrical 473 m3 GAS needed incl. transport 4730kWh energy 0.841 T CO ₂	2600 kWh electrical 3.1kWp Solar 8x400Wp panels
Mobility	833 Liter diesel 8333 kWh energy 2.19T CO ₂	2778 kWh electrical 503 m3 Gas needed incl. transport 5030 kWh energy 0.895 T CO ₂	2778 kWh 3.3kWp Solar 9x 400Wp panels
Electric Consumption household	3000kWh 545 m3 Gas needed incl. transport 5450 kWh energy 0.97T CO ₂	3000kWh 545 m3 Gas needed incl. transport 5450 kWh energy 0.970T CO ₂	3000kWh 3.58kWp 9x 400Wp panels
Total energy CO₂ Reduction	26.788 kWh 5.47 T CO₂ 0%	15.258 kWh 2.706 T CO₂ 50%	8.378 kWh 10kWp solar 0 T CO₂ 100%

- 1300m³ Gas consumption, 15.000 km/Year in a diesel car 1:18 and 3000kWh consumption
- HVAC Water/Water (COP 5), 15.000 km/Year in an electric car 5.4km/kWh and 3000kWh consumption



Europe DC Set plan

LV and HV DC

Europe DC Set plan
HVDC and LVDC

An official website of the European Union How do you know? ▾


European Commission

EN

SETIS - SET Plan information system

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Direct Current Technologies

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About

The working group on direct current technologies brings together European national government representatives and stakeholders from the energy sector, such as transmission system operators; high-voltage direct current (HVDC) and low-voltage direct current (LVDC) systems manufacturers, research centres and academia; wind turbines manufacturers and wind farm developers. The goal is to identify the needs and pathways for the development and deployment of HVDC and technologies in the EU.

The direct current technologies working group helps to align ongoing research, development and innovation actions at the national and EU level, and develop new joint actions. It also raises interest in DC systems and related power electronics at the national and EU level to support this key technology for the energy transition. Finally, the working group increases collaboration and coordination with the SET Plan countries and ensures their active involvement in the EU technology development.

The HVDC and DC technologies play an important role in integrating renewable energy sources in the EU energy system.

Compare AC and DC from the system point of view

AC 

They are complementary

DC 

Power System (voltage supply)

Energy management

Central market (frequency)

Power limit (protection rating)

Interference of renewables (energy sources)

Complex to manage power (digitalization)

Islanded complex due unpredicted inertia and power

Power quality is key for system performance (reduction
of capacity)

Energy System (current supply)

Power management

Local market

Power limit by (converters)

Renewables local consumption

Simple power management (voltage droop)

Islanding by default

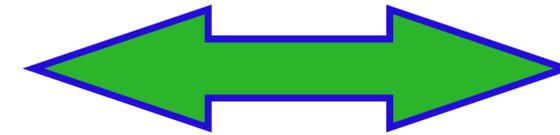
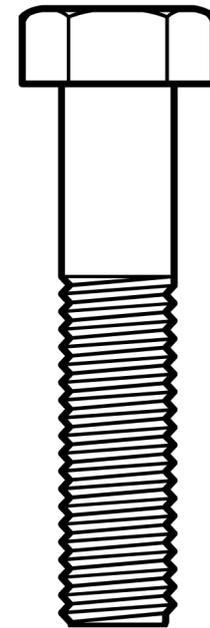
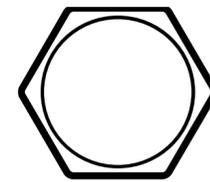
Power quality is local circuit topic, not existing on the
system level

The components don't define the system

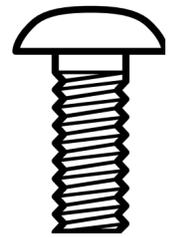
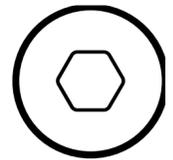
The factor ❤️ is the most sustainable component

It's the relationship

Beauty motivate care, and will affect lifetime



Versus



If we change systems, we should not discuss the screws

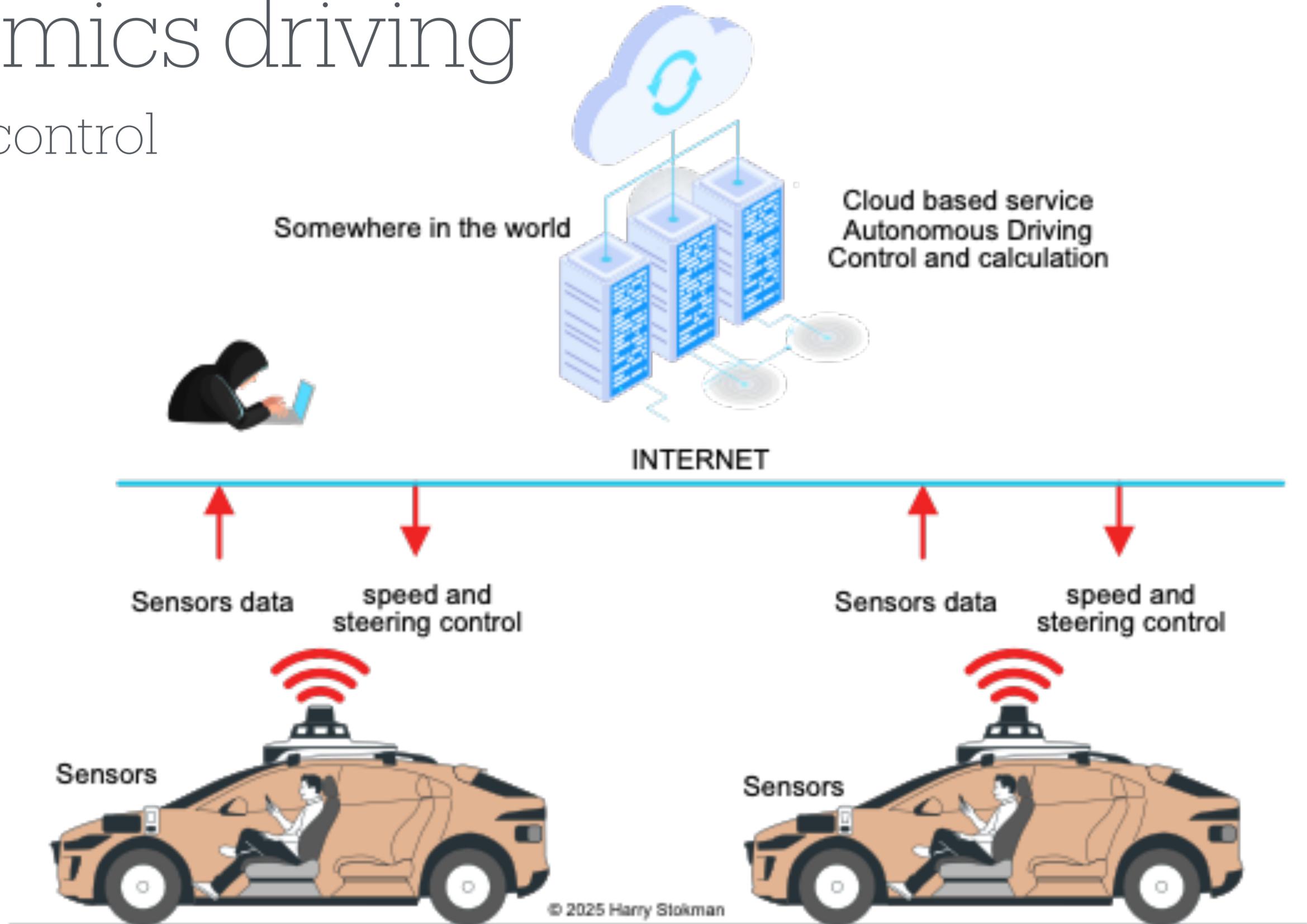
Because some components has advantages some not!

$$Problems = (Existing\ problems) * (Scalled\ Unit)^2$$



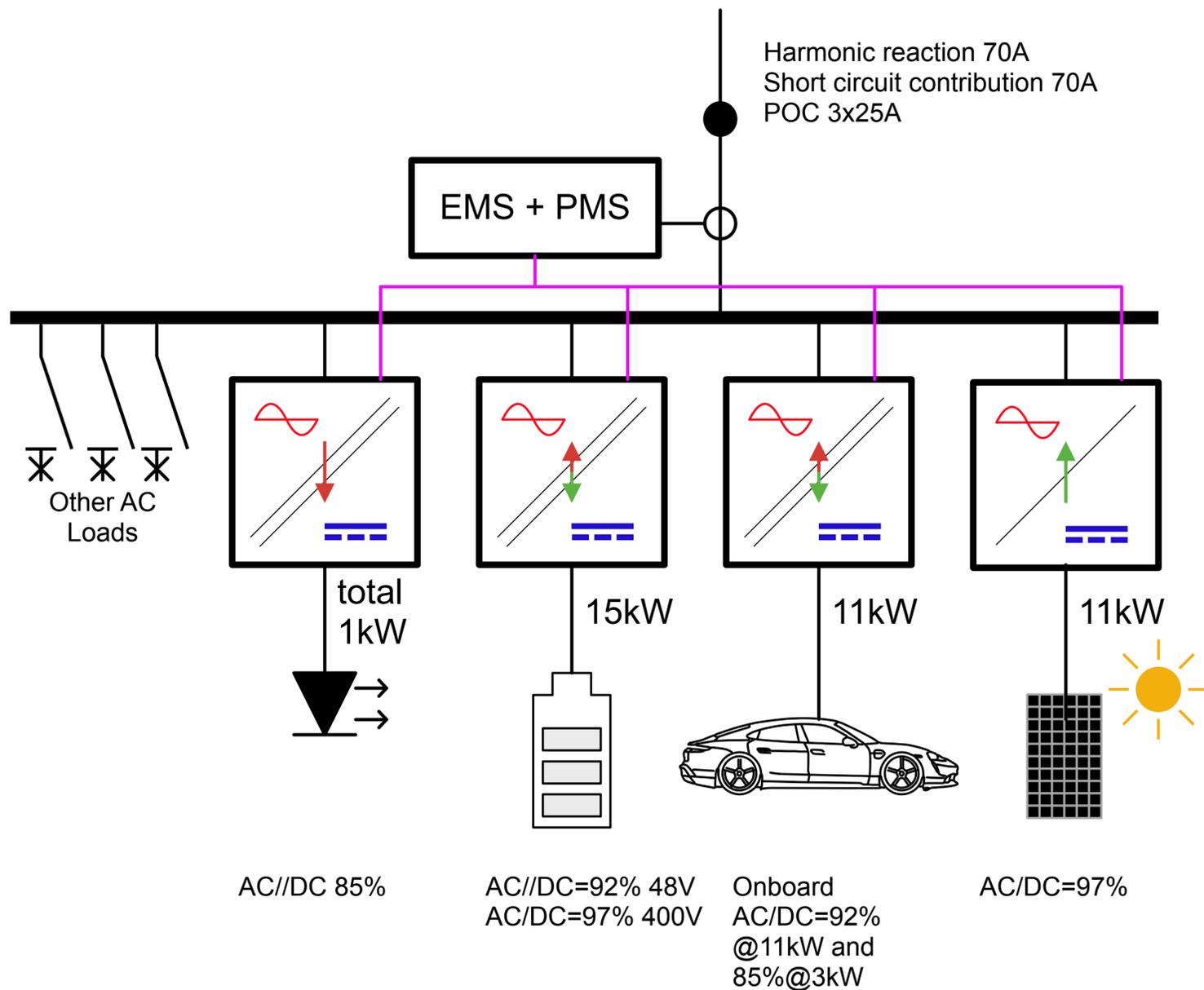
Autonomics driving

Centralized control



Traditional system

AC Coupled system

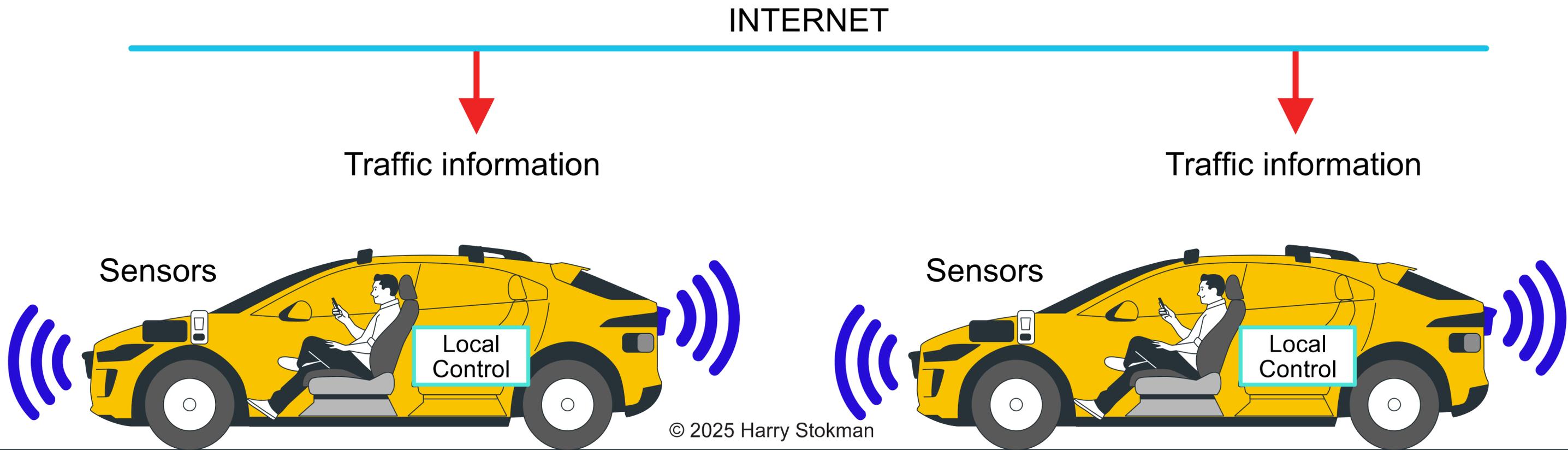


- Complex EMS needed
- Difficult to manage Power quality
- EMS and PMS generate more PQ issues
- Negative effect on power quality due risk of harmonic oscillations between inverters
- Need for a grid forming converter
- More short-circuit contribution in the AC system. AC system impedance is changed
- Selectivity risk in the installation in real-time to the main fuse in the POC
- RCD type B
- Every device is part of the DER and certification
- More power in the AC link, and increase risks



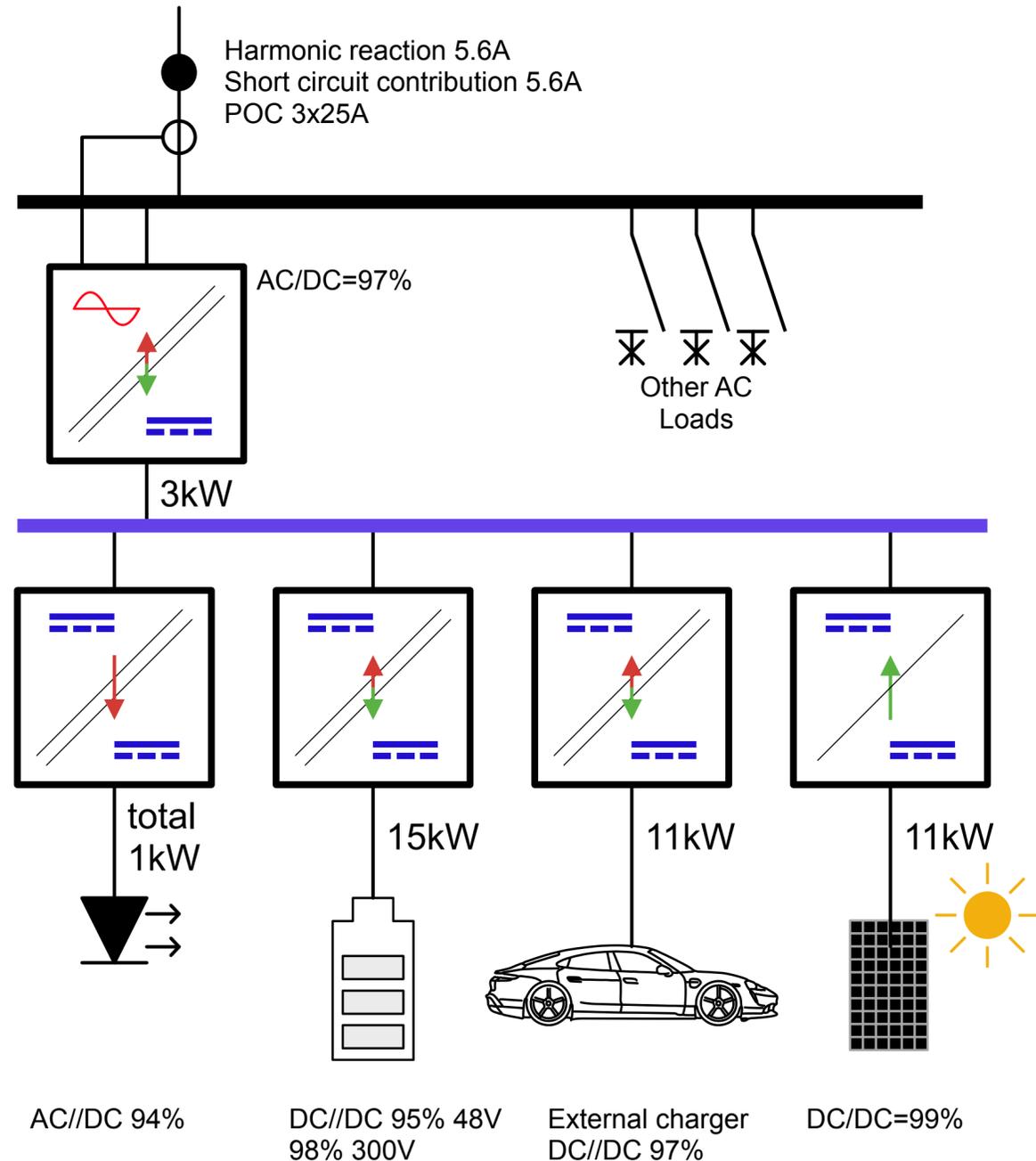
Autonomics driving

Local control



ILC Parallel hybrid

Why this makes sense



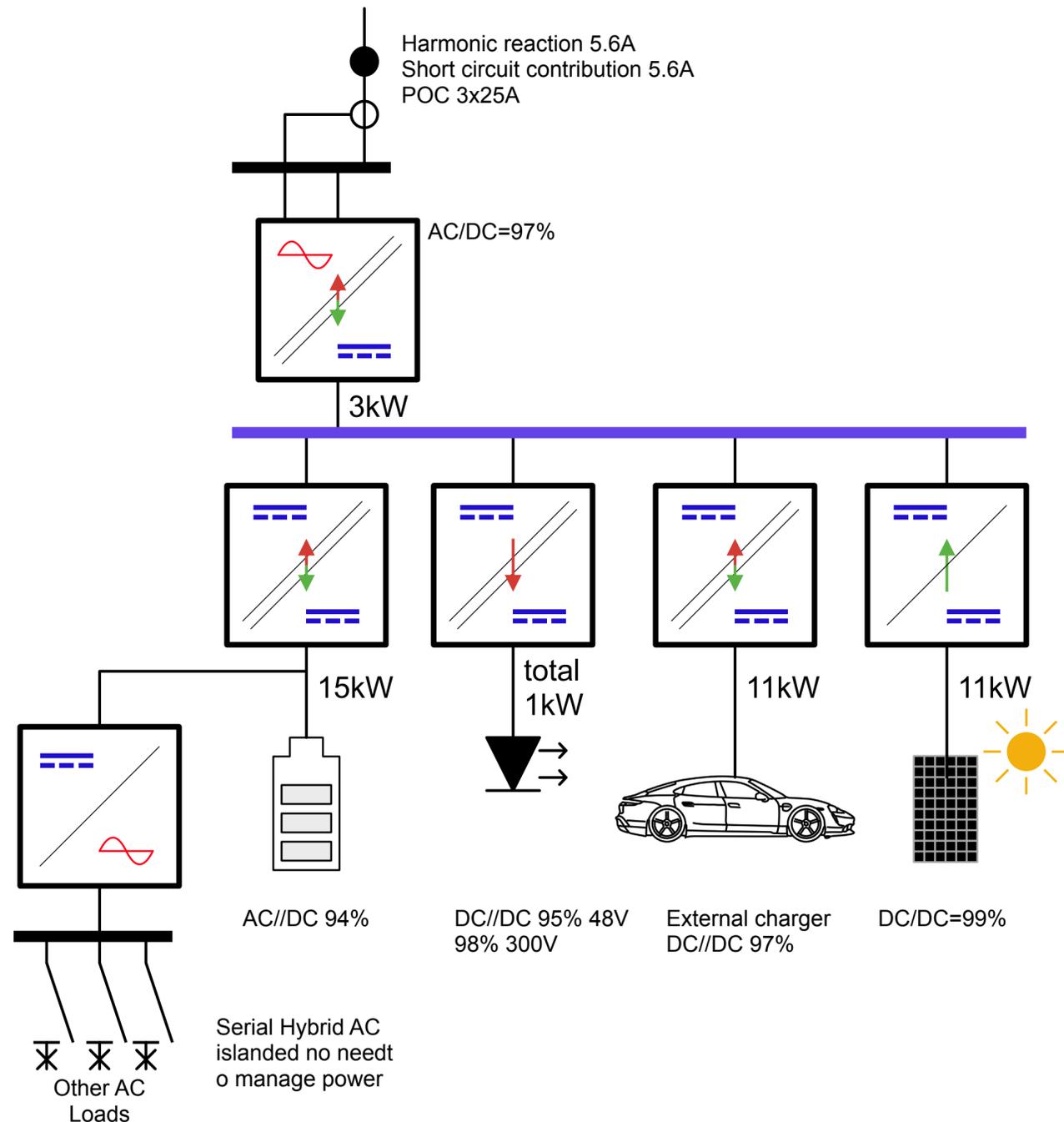
- Single AC//DC converter/Inverter
- Large reduction of the AC to DC stage for homes a factor of 10 is feasible
- Battery turnaround cycle is more efficient ~10% makes more effective net capacity with the same battery size
- ILC can be more complex and used to compensate the energy in the POC within the 15min time slot (energy meter remains 0 kWh)
- Proper line current compensation because there is no a single AC/DC converter. In the traditional case it requires much more complexity to get the same effect.
- DC system is isolated from the AC grid and independent of the AC network.
- No management off the DC side needed by the DNO
- No privacy and cyber issues, No cloud control on the DC part.



ILC (Serial Hybrid)

Why this makes sense

- Single AC//DC converter/Inverter fully grid friendly
- No negative effect other than the public distribution
- No need to manage the AC loads
- AC always islanded
- PQ not affecting AC operation
- Increase of Power on the AC installation



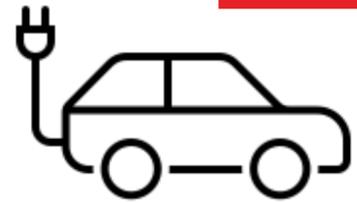
Introduce the persona's

The happy few

Family A



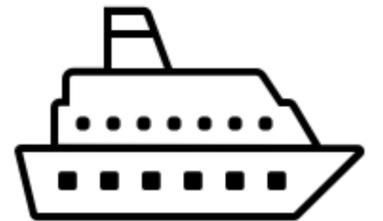
- They have a sailing boat
- Drives an electrical car
- Technical sector **independently**
- Most likely arts or entrepreneur
- Failed criminal



Family B



- They have a motorboat
- Drives a combustion engine
- Financial sector **ROI** driven
- Most likely a lawyer or entrepreneur
- Or succeeded criminal



The rest of the world

Family C



- They don't have a boat
- Want to contribute to a sustainable world
- Only a few can contribute and can pay
- Many of them can not pay for the transition



Let me introduce some families

The persona's in a very populist view to simplify



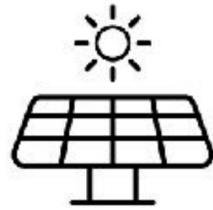
All characters and events are fictional. Any resemblance is coincidental.

	Family A 🚢	Family B 🚗	Family C 🚲
Work	Entrepreneur in the technical sector	Entrepreneur in the financial market	Eployee
Financial	Relative wealthy (high income)	Wealthy (high income)	Low and middle income
Political	Démocrate/Liberal	Conservative/Liberal	Mix of any political color, disappointed populist
Hoby	His sailing Yacht, like to anchor	His Motor Yacht, like to party in the marina	Bicycle in the forest
Mindset	Freedom and independence	Money drive ROI focused	Group and Social oriented
Car	All electric EV	Fuel combusting sports car with 4 exhausts	Normal car mostly a affordable type
Energy production	Solar with BESS	Renewables are 🤖 drill baby drill	Like to have solar and to contribute
Technolgy	Early adaptor	Classic old stuff is better	Look for affordable
House	Luxes but try to be efficient	Luxes but prioritise comfort, sauna, hot tub	Normal houses
Relation to others	Open minded	Strong opinion classify people as woke	See family B as dream.
Hair style	Windy look, chaotic	In Style well looking	Varies
In the media	Used as example in product catalogs	Glossy and gossip magazines	No visibility
Influencing	Can make impact in the society	Play a big role in the conservative domain	Only when showing frustration



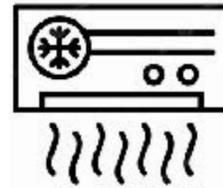
Energy Transition a chain of disappointments

The journey towards sustainable energy has sparked a wave of disappointment among various stakeholders.



PV Owner

Many believed they would recoup their investments through net metering, only to find restrictions limiting compensation to only auto consumption.



HVAC Owners

Anticipated efficiency is compromised by units that are often incorrectly sized for varying climate conditions, leaving owners dissatisfied.



Battery Owners

Those who invested in batteries for dynamic tariffing are now facing potential changes that could undermine their initial financial planning.

* Net metering is stopping, PV energy reduces value

* EV get high taxes due weight

* HVAC performance is different, sound issues

* Batteries on the energy market change, lower ROI



EV Owner

Initially incentivized by tax support, they now face increased taxes on heavier electric vehicles, leading to frustration.



Net-Zero Contributors

Even those achieving net-zero emissions must still contribute to the increasing grid costs, fostering frustration among a committed audience.

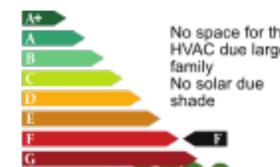
Challenge of Opportunistic Motivations: Individual solutions may provide short-term gains but can lead to new issues when standardized.

Need for a Systems Approach: We must understand the domino effect of these solutions on broader systems to ensure a sustainable and equitable energy transition



How the society looks YTD

Angry people are the most expensive component in a system.



Social system effects

Social Domain

Unfairness Issues:

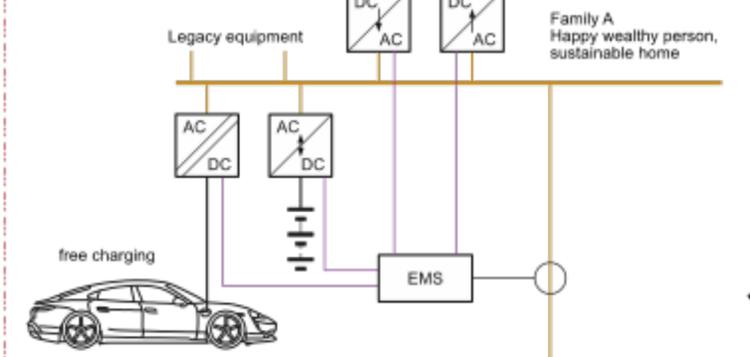
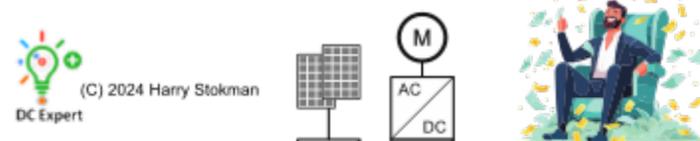
- Not everybody can charge at home.
- Not everybody can have Solar
- Not everybody can have access to Geo bonded heat pumps no sharing policy
- Not everybody has sun on his roof.

That lead to the following topics:

- In the same area huge difference in cost for mobility
- Not the same energy labelling for the same houses
- No value for trees to the community
- The home who are able to become energy efficiency the don't contribute to the system cost.
- Grid investments payback it done by the connection fees
- The people who can not optimise there power will pay for the expansion
- This lead to polarisation in the society
- Angry people are the most costly factor in the system
- The Energy transition become a negative direction.
- So the climate targets are not meet
- higher socialised cost.

Angry due he pays a lot while Fam A have the possibility for free charging

High prices frustrated because some neighbours are charging for free



Social disappointments let to grow of populism in the society



Renew our biggest asset we own as mankind

Due energy efficiency program without power efficiency grid expansion is required (investment payed by all subscribers) Paid by everyone lead to unfairness from the people who have and have not



Social Relationships

Important for the success of the energy transition

⚠ A bit overrated to explain the point



→ Think about ↑	Family A	Family B	Family C	Family D
Family A		No connection between two different characters (sailors versus motorboaters).	Do not understand why people in their immediate surroundings are angry. After all, they are doing their best to do everything right.	Do not see any difference yet, and do not understand the considerations yet
Family B	The A family thinks woke.		No interaction	Find family D super woke
Family C	They consider family A antisocial, and resentment arises: they come with their sweet talk, and we end up paying the price.	From a distance, it's fun to gossip about family B	There is a lot of difference between the C families among themselves, especially in terms of costs, and the benefits for everyone are not equal.	Love family D and are super happy that they help the neighborhood
Family D	Try to convince family A to become a family D	No interaction	Is surprisingly happy to be part of the neighborhood and have nice chats with the neighbors	





Project DC Muzen

Converted my personal home to a DC home

Innovations

Bring Technology to homes

- All electric home with a DC backbone 350V DC servicing:
 - AC and DC independent standalone microgrids
 - Thermal storage HVAC integrated and aligned (no thermostat)
 - Distributed IoT panels (technical compartments distributed for electrical equipment)
 - PoE Lighting (smart lighting powered and controlled by TCP/IP and PoE)
 - USB-C PD 240W wall sockets (local 48V distribution)
 - Managed capacity (grid friendly operation)
 - Distributed sources
- No EMS and control (no centralised controller)
- Distributed smartness inside the devices that have autonomous control inside the equipment

De Muzen (The Muses) its a street in Aalsmeer



The words museum, music, and amuse resemble each other for good reason. They are all derived from the Muses, goddesses of art and science. These nine goddesses symbolised inspiration and appear in various ancient myths. *(The name fit perfect to the project)*



Design requirements for Family A

DC Muzen

- Most comfort home possible:
 - Temperature (equal, and stable every where)
 - Air-quality CO₂ <600
 - Humidity stable around 55%
 - As much as possible daylight
- Energy independent all electric providing:
 - Heating, cooling, mobility, cooking living
 - Running 350 days power neutral per day



Why this project

Rationals

- To break the egg and create the chicken (🥚 or 🐔 = 🐣)
- To inspire the ecosystem everybody talks but nobody dear to do it.
- As a biased person I convicts that this will be the next big thing in human live.
- Energy transition is a beautiful thing, but is has become a chain of disappointments that need to be fixed
- Business case: make people happy, angry people are very expensive. (😡 ↔ 😊)
- Force the next step to physical energy communities (Second Grid)



Content

Scope of the project

- Demonstrating a multi vendor DC system based on Current/OS
- Test the eco system what are the missing items to enable mass scale implementation.
- Find regulation rules to provide information to regulators to speedup the energy transition in a fair way.
- Inspire the current ecosystem.
- Lighting by PoE in a home 1kW lights installed
- Distributed technical IoT, IT(switches) and Electrical panels 350V->48V.
- Solar direct connected to the DC distribution 90 panels of 475Wp power clamped to 27kWp
- Battery system direct connected tot the DC distribution 114kWh.
- AC standalone microgrid 22kVA islanded or when grid connected the POC is extended to 22kVA in place of 15kVA
- DC standalone microgrid 40kW
- Demonstrating that installation can be simple expanded for example future kitchen appliances.
- Different grid connected modes:
- Economical efficient optimize income no respect to the system, 3x25A utilised to optimise profit.
- Energy efficient according policy keep the 15 min energy consumption 0 the 3x25A utilised to reach the goal when the AC microgrid is grid connected.
- Power efficiency keep the AC incoming line current 0 control ILC to compensate paste currents when the AC microgrid is grid connected.
- Limited connected <1kW single phase 230V<4A to overcome shortness if the islander mode is out of balance.
- Operate the HVAC based on energy availability of the solar system.
- EV DC charging 30kW semi fast charging from the DC microgrid
- EV AC charing from the AC microgrid.
- Possible to be 350 days a year independence of the grid.
- User is removed from the energy system, but to supply max comfort.
- No cloud services. No remote control services
- No Cyber risks.
- No privacy risk and involvement.
- System read only market, and whether forecast.
- No digital control for the power management.
- Local energy optimisation, without a central EMS, by distributed smart devices that control stand-alone.



The Home before

Energy data of the home before the renovation ¹⁾ 12 Ton CO₂
 Year 63 MWh raw energy

- Build in 1970
- **Heating:** Gas heating with hot air (average gas consumption 4000m³/year)
- **Electric Consumption:** 3x 25A connection 3.5MWh/year
- **Generating:** 20x 250W solar system with 2.5kW inverter 3MWh/year production
- **Mobility:** Driving total (40.000 km/year 1:18) 2222 Liter
- Total energy cost € 12.286,-/year (😱💰👉👉)



		Consumption		Conversion		Raw energy kWh	CO2/Unit	CO2 kg/year	Price	Cost	Connection cost
Heating		4000	M3 gas	10	kWh/M3	40000	1,8kg/M3	7200	€ 1,70	€ 6800,00	€ 700,00
Electric consumption		3500	kWh	60%	Efficiency	5833	0,4kg/Kwh	1400	€ 0,27	€ 945,00	€ 430,00
Electric generation		-3000	kWh	60%	Efficiency	-5000	0,4kg/Kwh	-1200	€ 0,27	-€ 810,00	
Mobility	40000	2222	Liter diesel	10	kWh/L	22220	0,114kg/km	4560	€ 1,90	€ 4221,80	
Total consumption						63053		11960		€ 11156,80	€ 12286,80

¹⁾ CO2 excluding food and travels, only mobility, heating and electrical



The Home after the renovation

Energy data of the renovation home ¹⁾ 0.16 Ton CO₂ Year 0.667MWh raw energy

- Complete renovated in 2025
- **Heating:** Geo coupled HVAC with low temperature floor heating COP 8 (estimated 4000 kWh)
- **Electric Consumption:** 3x 25A connection 3.5MWh/year (Net consumption 400kWh is missing in December/January due snow estimated, and celebrations)
- **Generating:** 90x 475W solar system with 27kW microconverters 30MWh/year production, combined with storage 350 day energy neutral
- **Mobility:** EV (40.000 km/year 1:5) 8 MWh
- Total energy cost € 538,-/year 😊 saving € 11.748,-/year without selling the energy or using the battery for other services and living in a super comfortable home
- Moving from 12.000 kg CO₂ to 160 kg CO₂ per year and raw energy is reduced from 64.000 kWh to 667 kWh per year ¹⁾
- If overproduction is used by others the and if it can be bring to the market for € 0,1/kWh can have a total value of € 3000,-/year in that case I have saved € 14.748,-/year and the CO₂ will be in that case -11.800 kg/CO₂ That's makes the Home energy label A++++ (market value is increased by € 40.000,-)
- If the saving is made cash for a a business-case the investment for the energy system can be 120.000,- 3% intrest (including market value) to have a ROI of 6 years

	Consumption		Conversion		Raw energy kWh	CO2/Unit	CO2 kg/year	Price	Cost	Connection cost
Electric consumption	400	kWh	60%	Efficiency	667	0,4kg/Kwh	160	€ 0,27	€ 108,00	€ 430,00
Electric generation	-30000	kWh	60%	Efficiency	-50000	0,4kg/Kwh	-12000	€ 0,10	-€ 3000,00	
Total cost										€ 538,00

¹⁾ CO2 excluding food and travels, only mobility, heating and electrical



USB-C sockets

Very convenient 😊

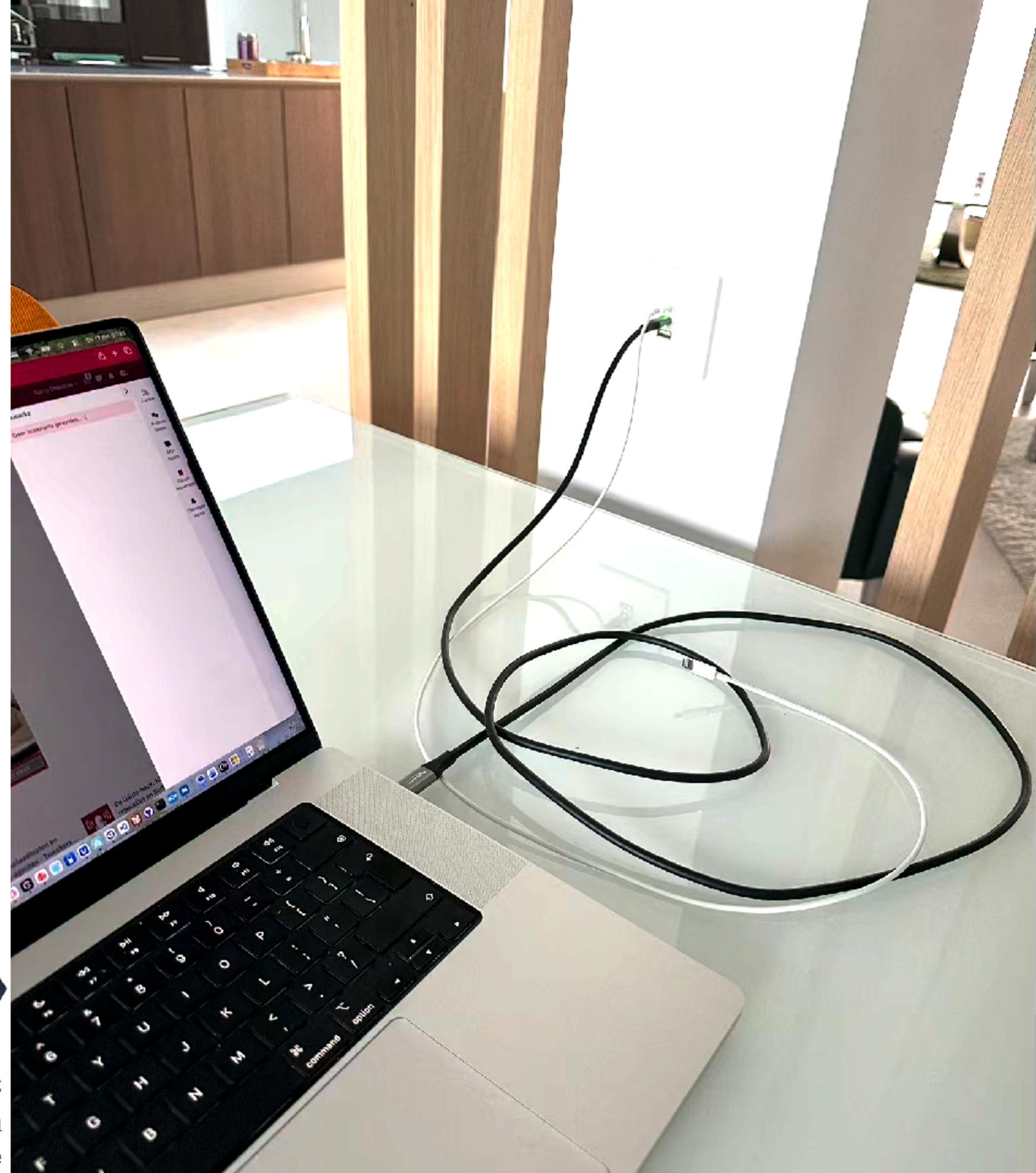
- In the EU the trend has started to deliver mobile phones and laptops without a charger, and this is a very good development. For me, the endgame is USB-C wall sockets.
- We use 12 of them in our personal home DC Muzen installation and it works perfectly. The wall socket has:
 - 1× USB-C PD 240W
 - 1× USB-C 100W
 - 1× USB-A 20W.
- We have these sockets built into the wall at the dining table, above the bedside tables in the bedrooms, and at all workplaces.
- This solution is only possible in DC. An AC charger simply does not fit — thermally and physically — inside the wall. But in DC these sockets fit easily as a replacement for a legacy AC wall outlet.



USB-C Wall socket fits existing AC socket



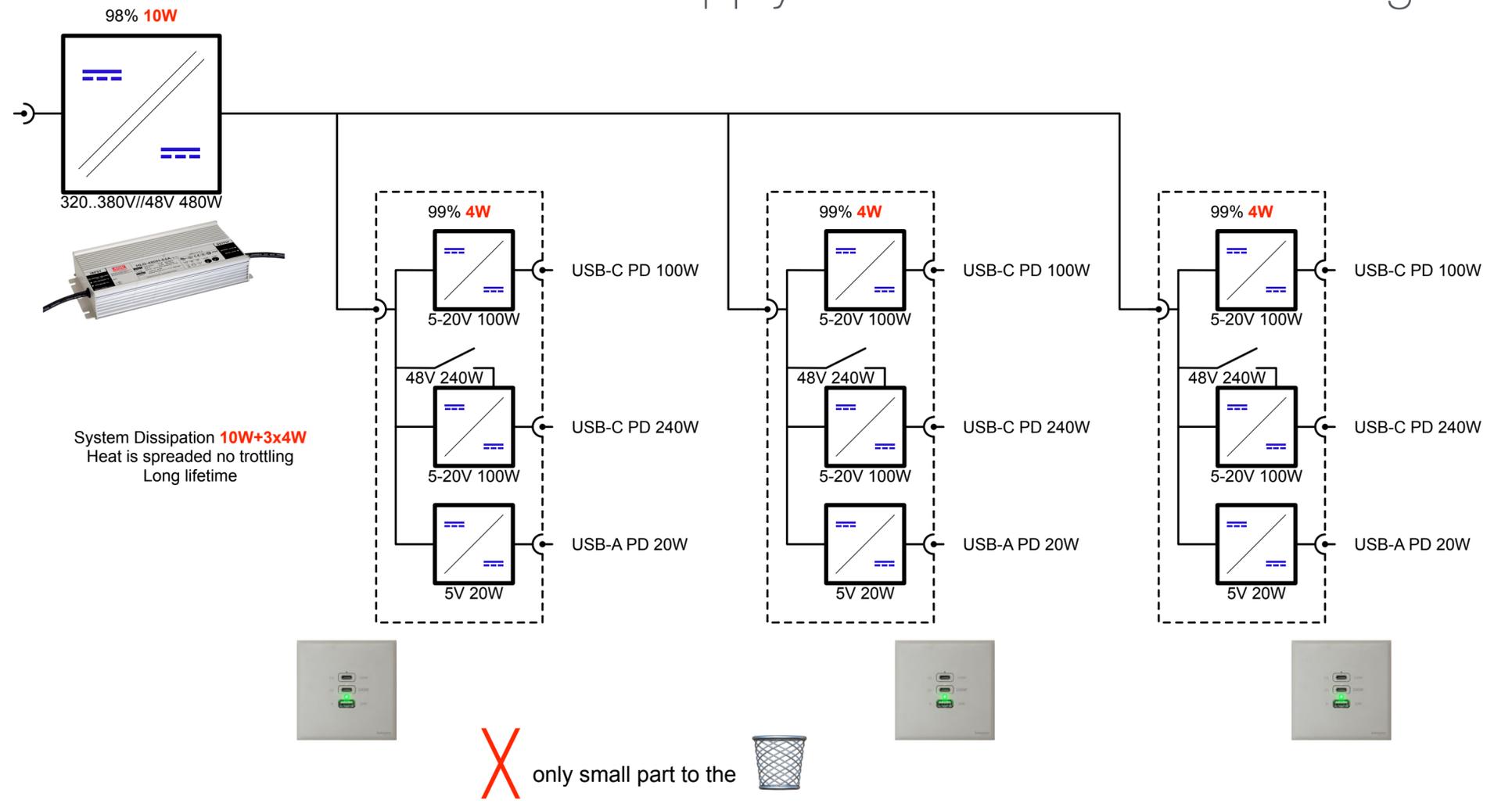
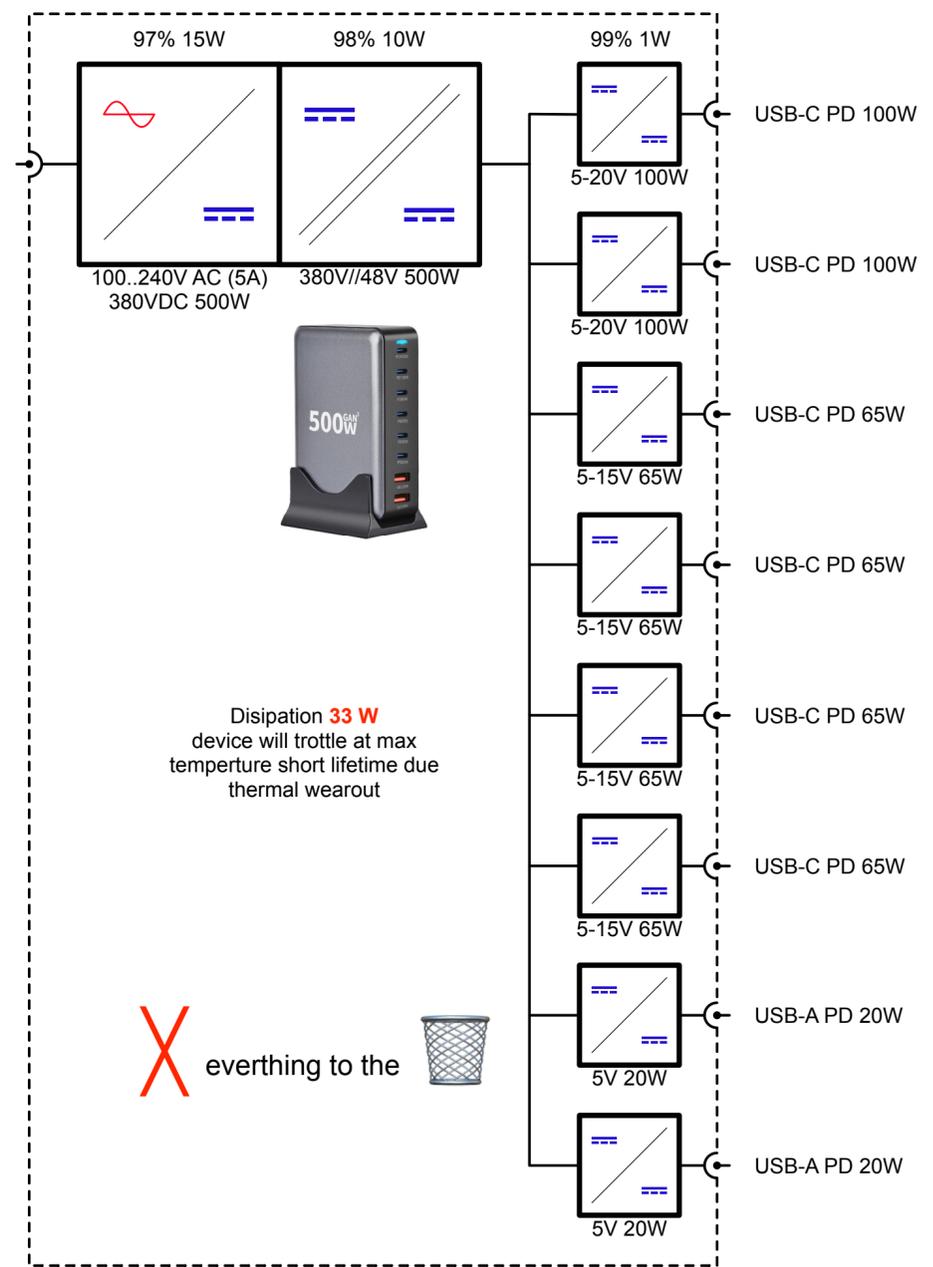
3x 100W PD USB-C
With high-speed data
for office use



Use-case

USB-C Wall sockets

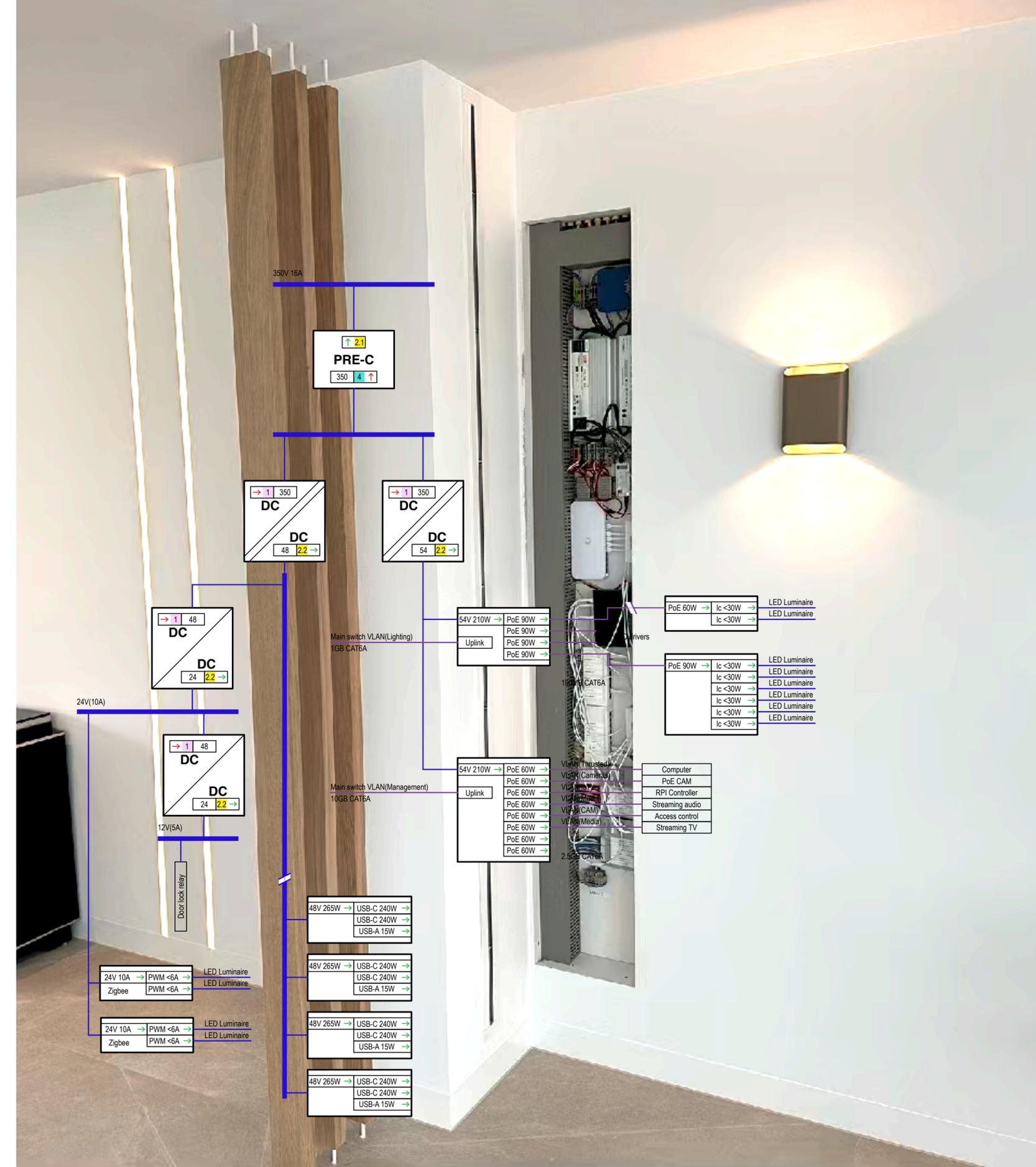
- Modular with electronic components will only waste one module compare to integrated blocks
- Lower operation temperature that increase lifetime
- Reduction of fire risk due spread of high power and more robust main converter in a protected place
- Smaller overall supply converter due overbooking



Technical spaces

Example of the local 48V panel in the living room the house has 6 of these panels

- Connected to the 350V system
- Local PoE switches 4x 90W + 8x 60W
- PoE connection for LED drivers
- Local 48V supply for USB-C sockets
- IoT devices
- Cooling provision
- Patch panels



Technical basement

The heart of the home

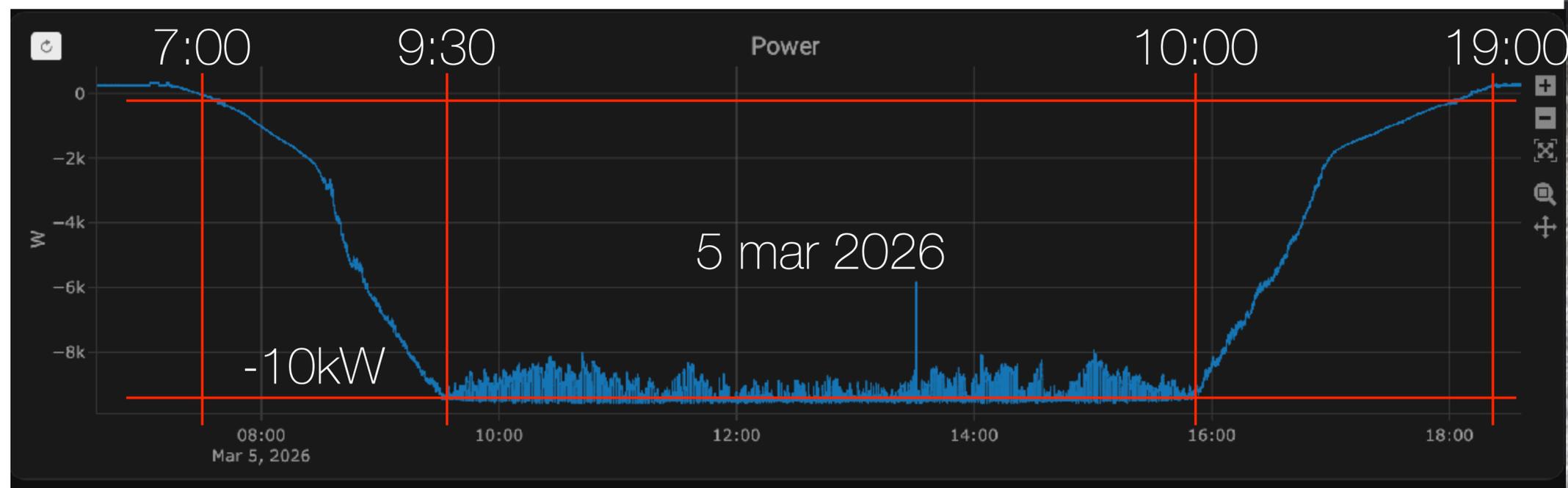
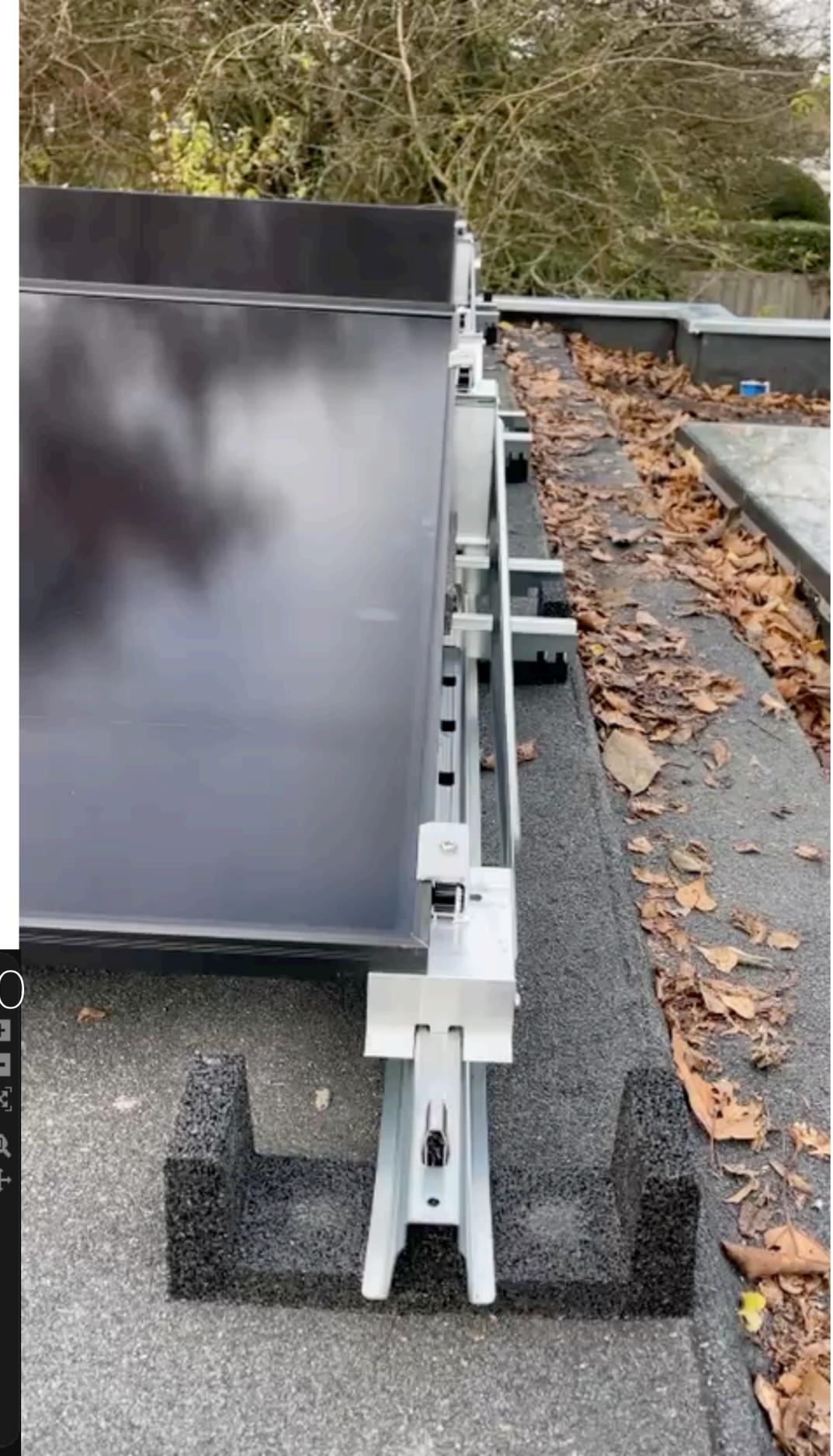
- 1kW ILC unidirectional
- 11 kW ILC bidirectional
- 114 kWh Battery system
- 12 kW thermal HVAC Water/Water geo
- DC protection
- Air system



Solar system

Oversized optimized for low light production when energy is valuable

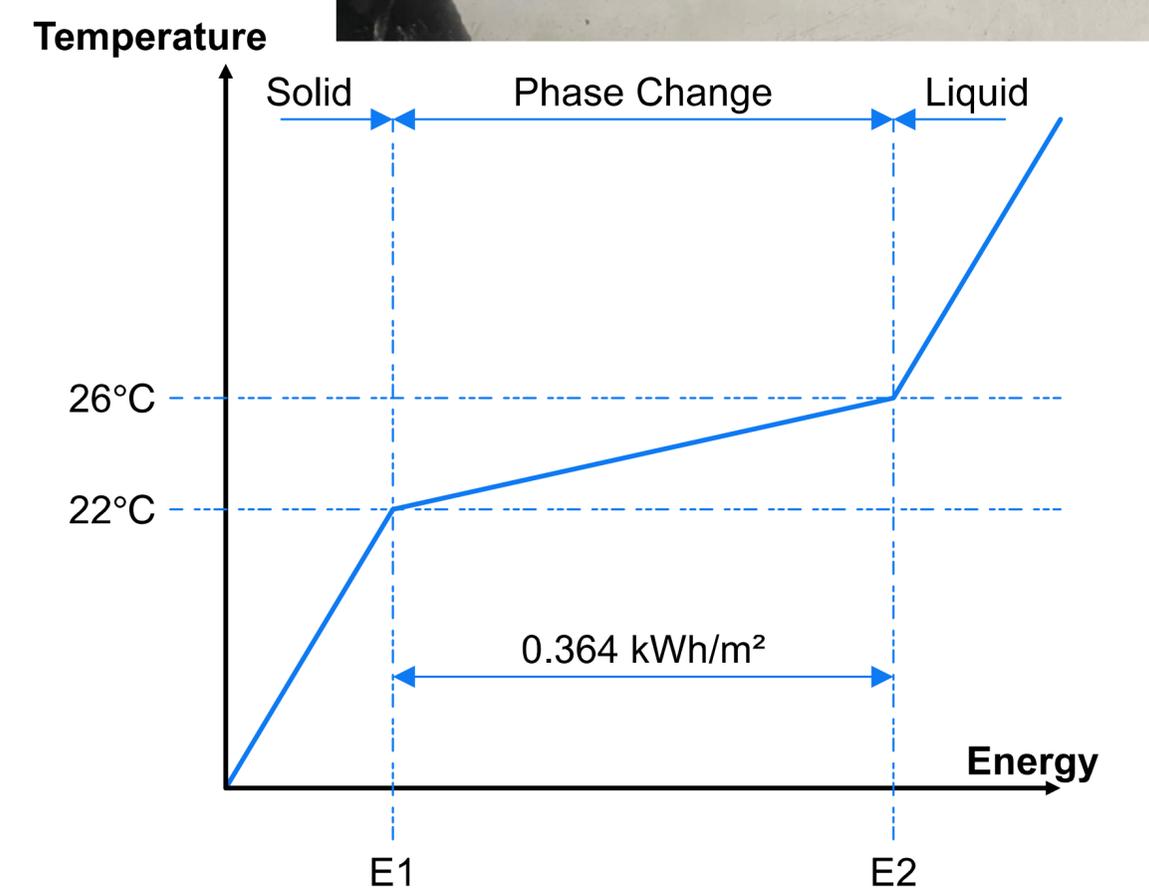
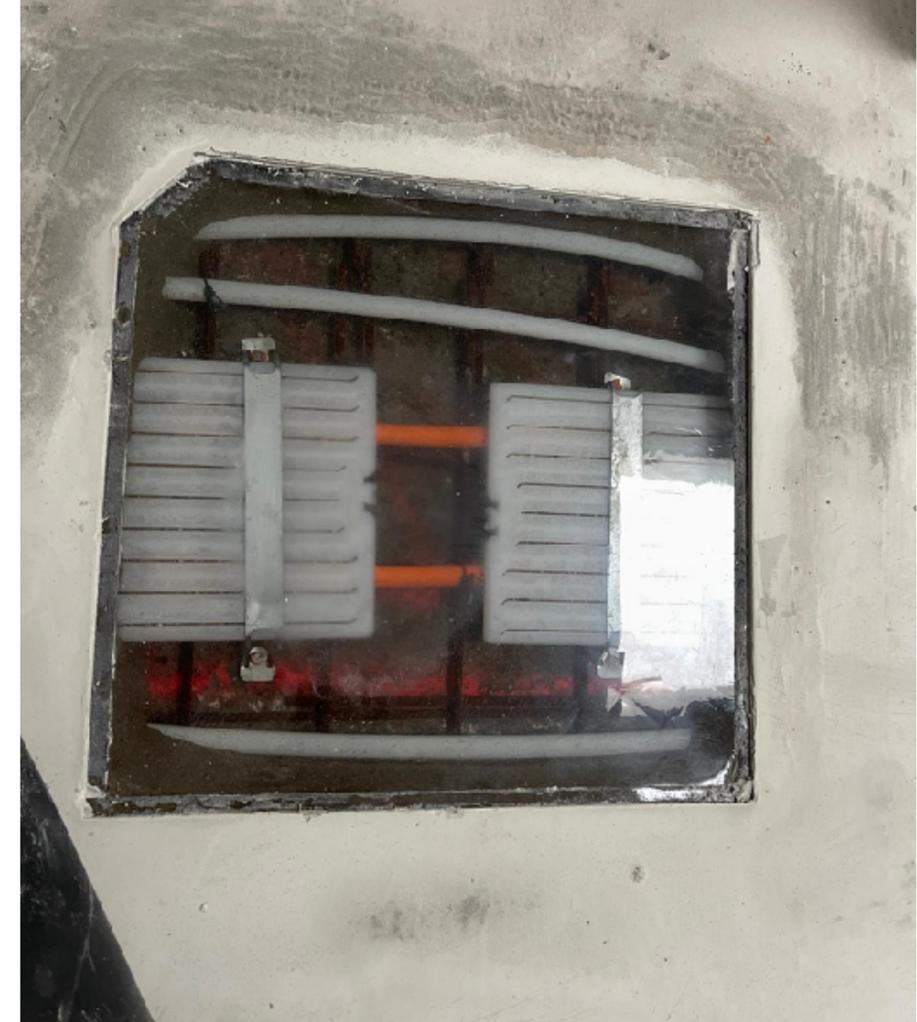
- 90x 475Wp panels
- 90x DC/DC converter per panel
- Optimized for low light conditions and reduce the peak
- PELV low voltage <60V on the panels
- 350V DC distribution protected and can be disconnected for maintenance of safety requirements



Thermal storage PCM

The next level of comfort

- Increased thermal inertia (800 blocks in the home)
- Decouple room temperature and thermal source, when the HVAC is heating the energy is stored in the PCM
- Better heat spreading, more equal temperatures
- Sun heat radiation is stored in the PCM
- Winter the SOC of the floor is 21 °C = 0% and 24 °C is 100% (capacity ~ 100kWh thermic in dT of 3°C)
- Sum the SOC is reversed 21 °C is 100% and 24 °C is 0%
- During summer the floor is cold by the geo source to mention the source.
- There are 2 loops orange is storage and the white loop is fast control
- The number of tubes are 2x as normal. This reduce the water temperature to heat with improve the COP



Impressions



- Bathroom, DC smart lighting
- Smart ventilation



- Living, DC smart lighting
- Smart ventilation
- USB-C connectivity



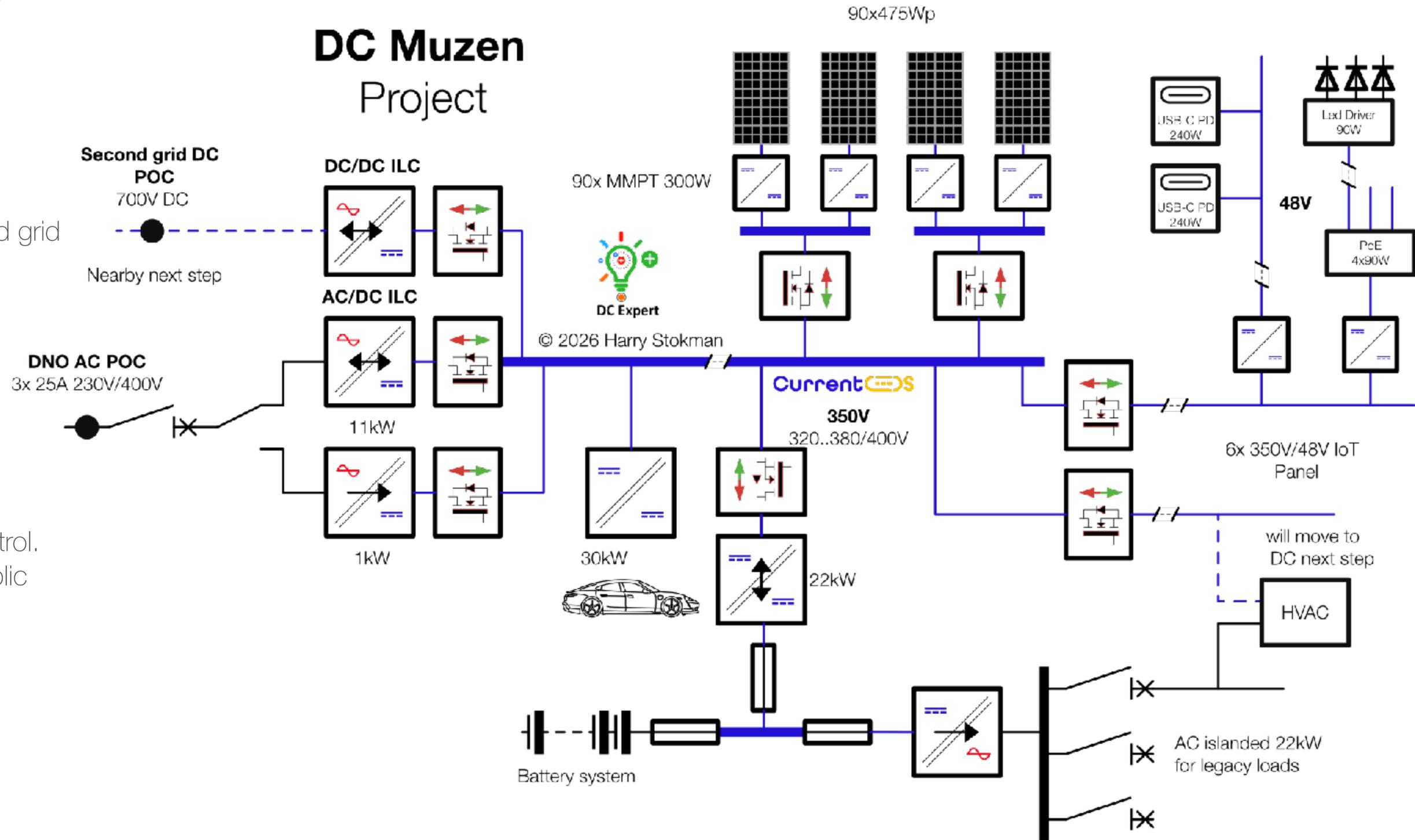
- Toilet, DC smart lighting
- Smart ventilation

Line Diagram

Simplified

DC Muzen Project

- Connection prepared from second grid
- AC + DC microgrids
- Solid-state protection
- Distributed sources
- In The microgrid there is no control. The 11kW ILC can react on public information
- Two type of grid connections:
 - 1kW unidirectional ILC
 - 11 kw bidirectional ILC

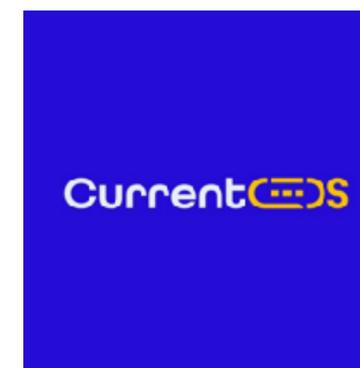


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Partners in DC Muzen

Partners involved in the technical part of the DC Muzen



by Schneider Electric



Is this correct from the human prospective

What do I do wrong 🤔

- I start to polarize the neighbors, I have invested and made my home different:
 - Drive for free on my own energy while everybody else is paying € 0.6/kWh
 - Independent on energy cost rising, my neighbors are social housing lower income a few of them are in energy poverty and the municipality needs to support them. It feels like there is hunger but my waste bin is overflowing. **(Over production for 7 households 20MWh/year to supply)**
- I help the grid operator to free capacity, but the grid operator still need to invest, my subscription fee will still rise so my investment didn't help.



How to fix to issues created

We need a new **family D** not A

- The Family A need to be converted to Family D
- We need to bring fairness into the system
- A system is there for serving not other way around
- Because **A** & **C** polarize and **D** & **C** depolarize

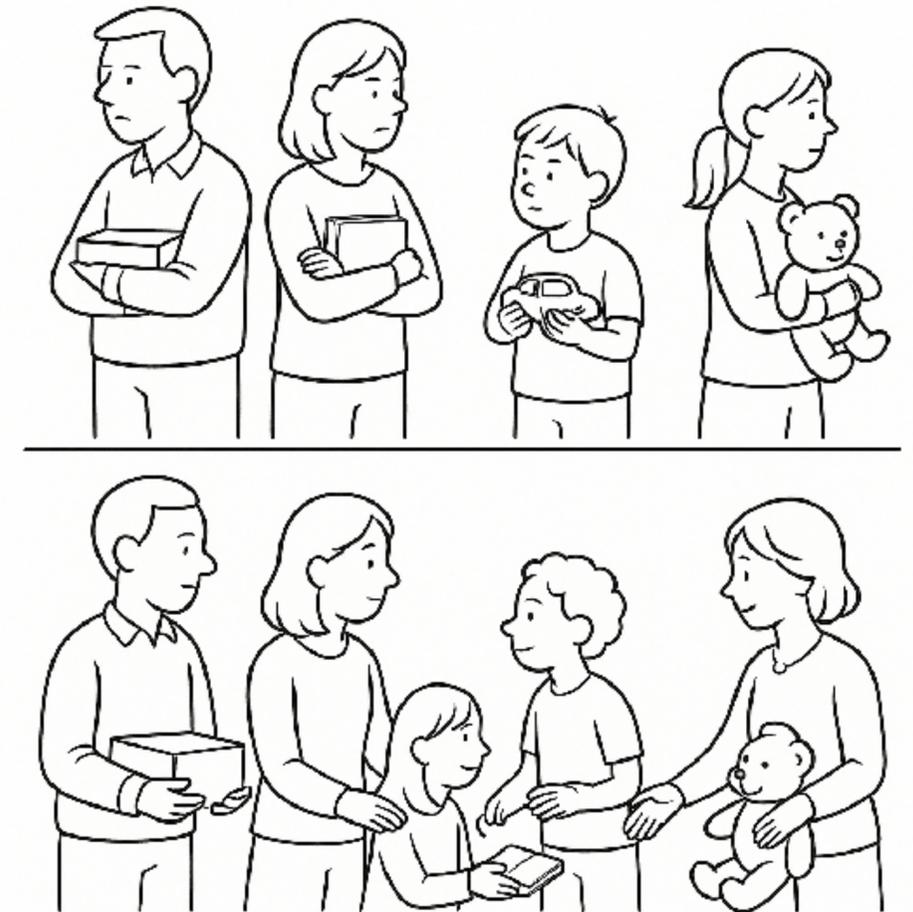
The solution in my humble opinion 😊 the second grid where Family **D**, B and **C** live happy together the second grid



That's why project DC Muzen is the beginning of a bigger plan

Introduction of the second grid

- As a family A person I want to improve my contribution to the society, to make an personal upgrade to move from A to D
- The Family D is a more sophisticated Family A that understand to me sustainable in private space, you will realize that sustainability is not a bout CO2, trees or energy efficiency it is about the whole environment, that also includes other people.
- Family A is more powerful than they realize, and that power is used to support the local neighbors to be full sustainable and include the social domain.



Most reliable system for more than 1000 years

Example of second grid Principe

- DC microgrids analogy is water management
- Prevent system failures
- Drive local decisions
- The decision maker faced the consequences
- Autonomous from the politics
- Low central control
- Current/OS is based on this model

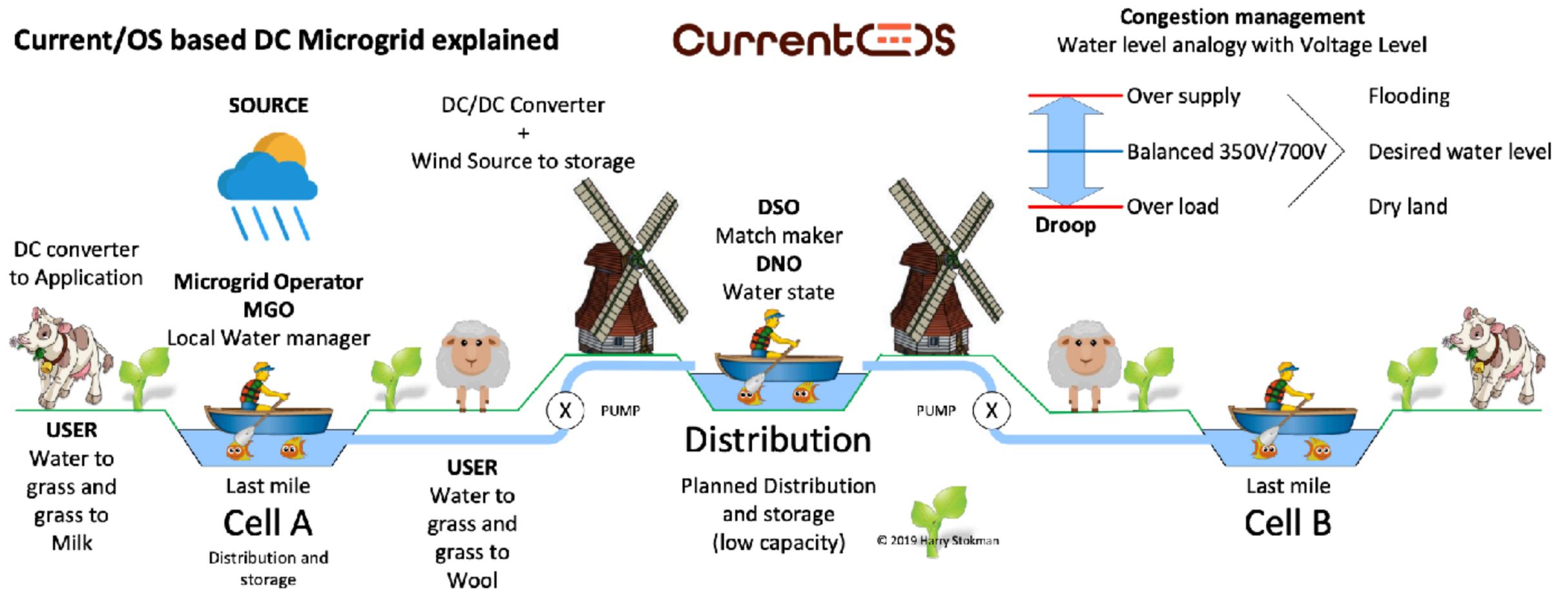


Polder principle

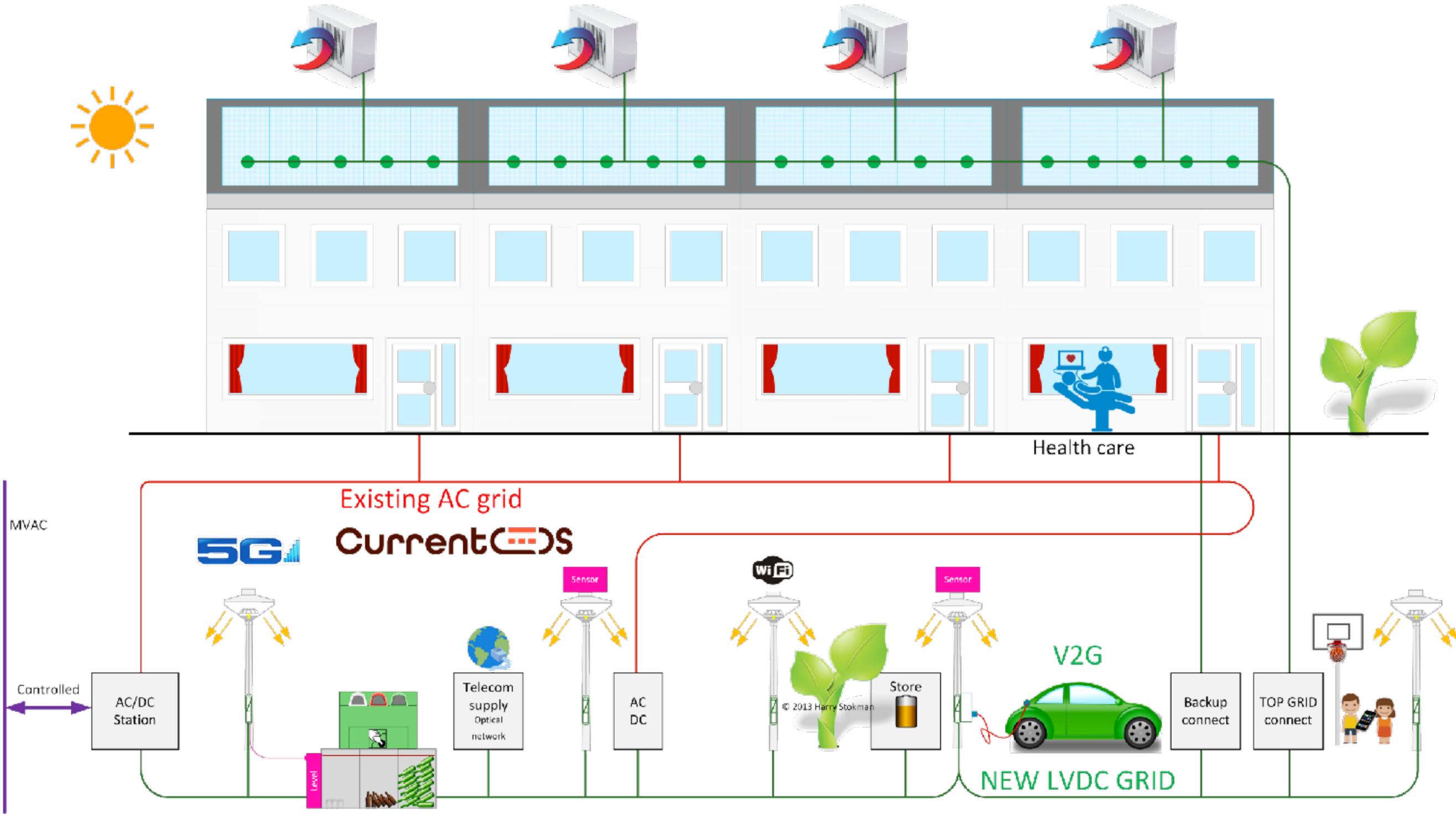
How the dutch create engagement in the local area

What has Current/OS and Water management in common:

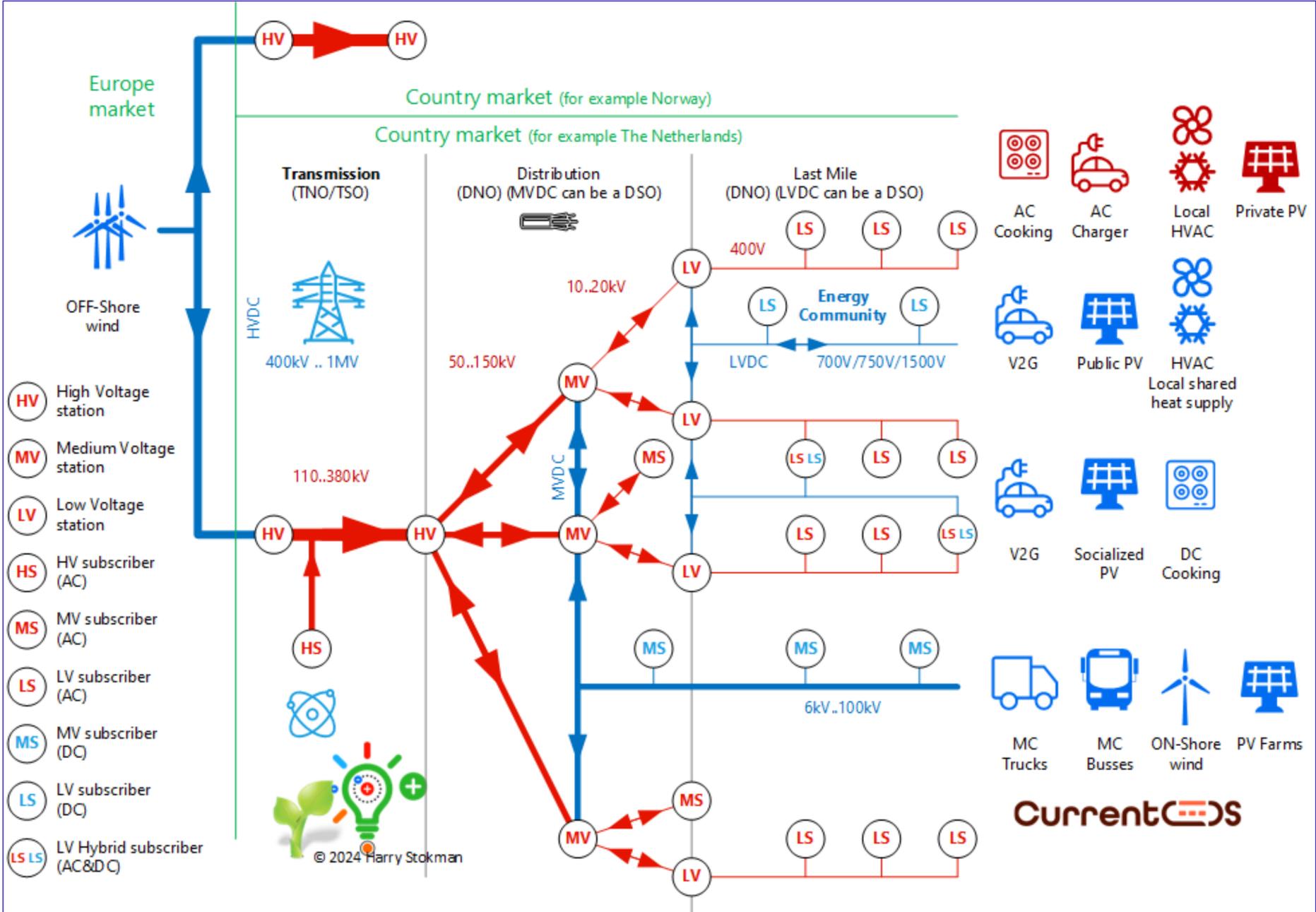
- Local control (based on (water/Voltage level))
- Democracy (freedom to decide)
- Engagement (take care)
- Trust (remains local)
- Privacy
- Safety (dry feet, electrical safety)



High level picture Second grid



Second grid in the system



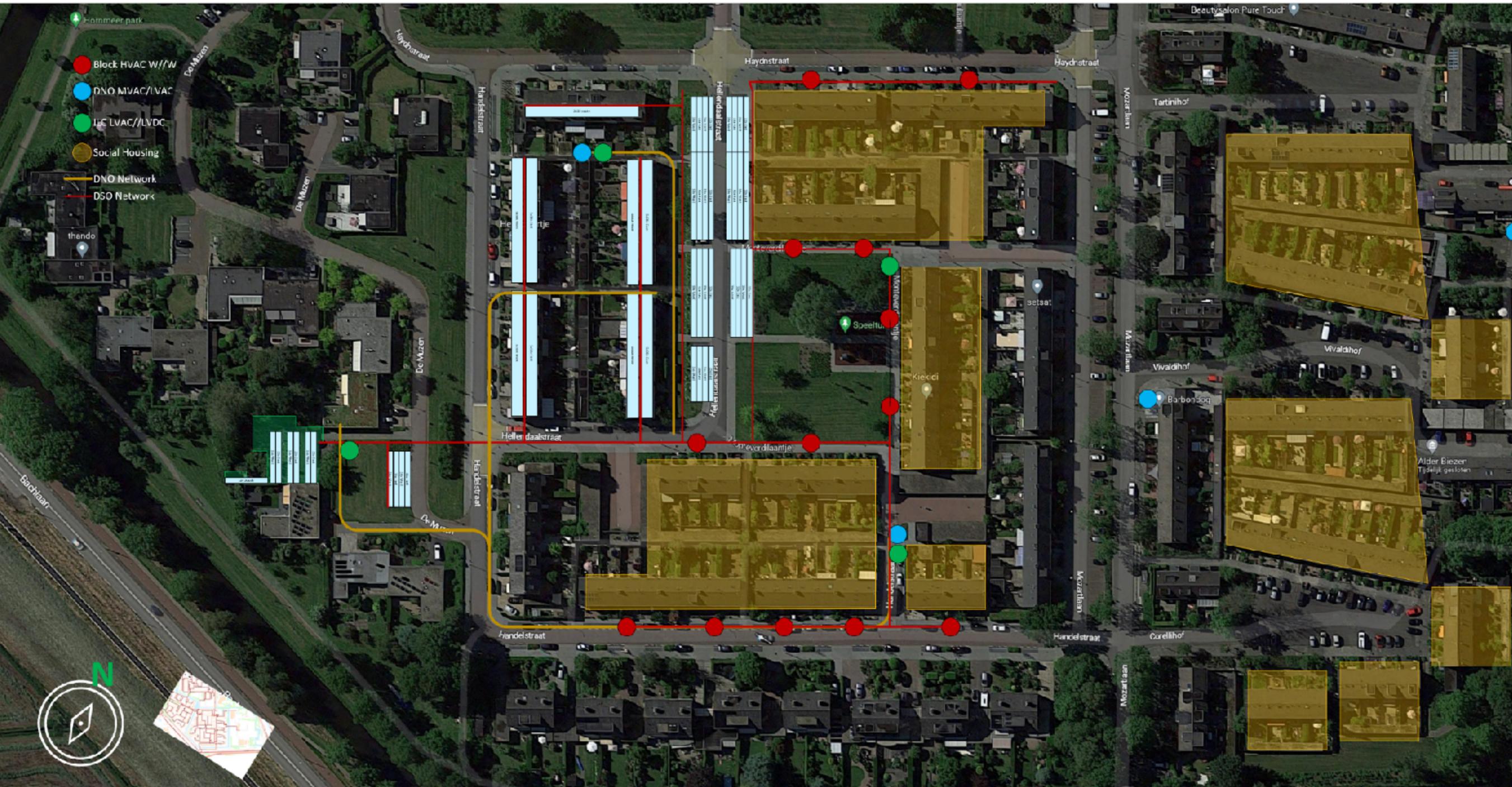
Blue Lines: Represent an isolated DC power system supporting the AC power system.

Congestion Relief: The system alleviates pressure on existing AC lines.



Physical Community (Second Grid)

Work in progress to realize



- Dutch Regulator ACM must be on board
- 8 M€ budget possible
- Minimal 2 locations is Europe
- Involvement of 2 DNO's
- Involvement of the local municipality
- Involvement of eu manufactures
- Provide resilience in case of black-outs



Demonstration

Work in progress to realize



- 65x Social houses **Eigenhaard** single owner
- Centralized parking
- Current house gas heated
- Fam A houses at the borders
- 1MW solar possible
- 140x parking places
- 8x HVAC 110kW electrical
- 60x EV chargers possible
- 2x LVAC connection
 - 1x Homes
 - 1x Homes+ shops

Possible on the existing 2x400KVA transformers
about. 1.5MVA additional capacity created

Highest local consumption

200kW AC peak support on existing installations
for cooking



AI (hyper scalers) 😐

Current/OS

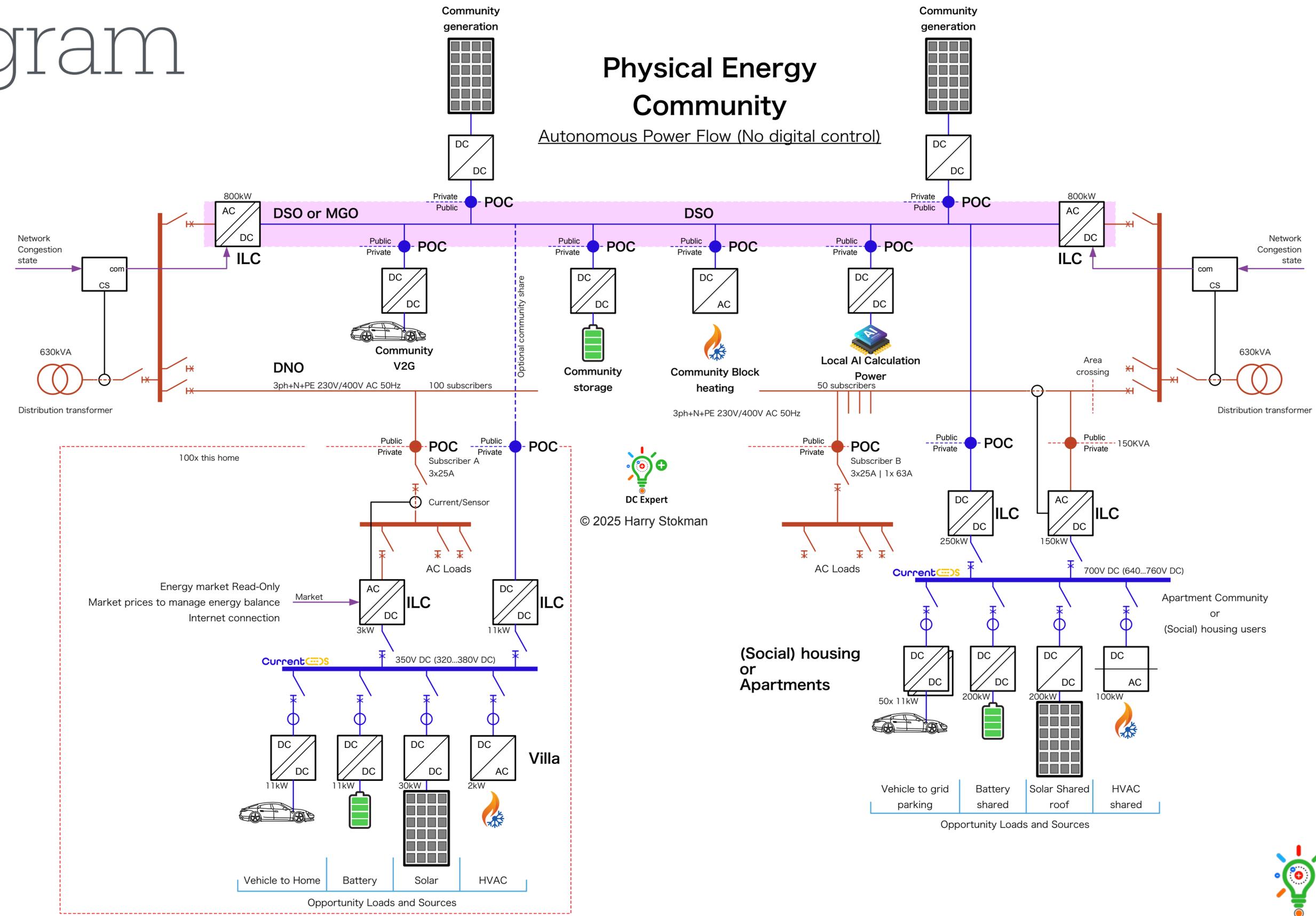
- Current/OS has agreement with NVIDIA, Microsoft, Google, Meta, Amazon to organize the DC distribution in AI Data Centers Hyper scalers)
- 1GW and 2GW Data centers with 1MW/m² IT Racks 1000 ... 2000 of these racks combined.
- In the US 20x of these centers will be build next 3 years 1600 B\$ budget
- In Europe we can't do it that way.
- In the EU we have a budget of 130M€
- AI is important because company primarily process will be changed, In the EU we need to force to be independent of US, to much geo tension.



Line diagram

Second grid

- No impact to the existing AC network
- Transition from gas to all electric in existing houses
- Cost estimated 20% compare to grid expansion, excluding the renovation and application equipmentment
- Continuity of essential services during blackout or cyber attack
- Bring fairness in the area
- Local engagement





Thanks

For your attention

If you willing to be part of the DC eco systeem

Contact:

Become a Current/OS member <https://currentos.org/join/>

Linkedin. <https://www.linkedin.com/in/dcgrid/>

Mail harry@dc.expert

For more information about how current/os works please visit [Youtube](#)