Concept for neu ways in mobility

CO2-neutral electricity in combination with future requirements in e-mobility

Created by **GP Photovoltaik & Handel GmbH**

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Location selection- Thiersheim – the right parameters wird considered

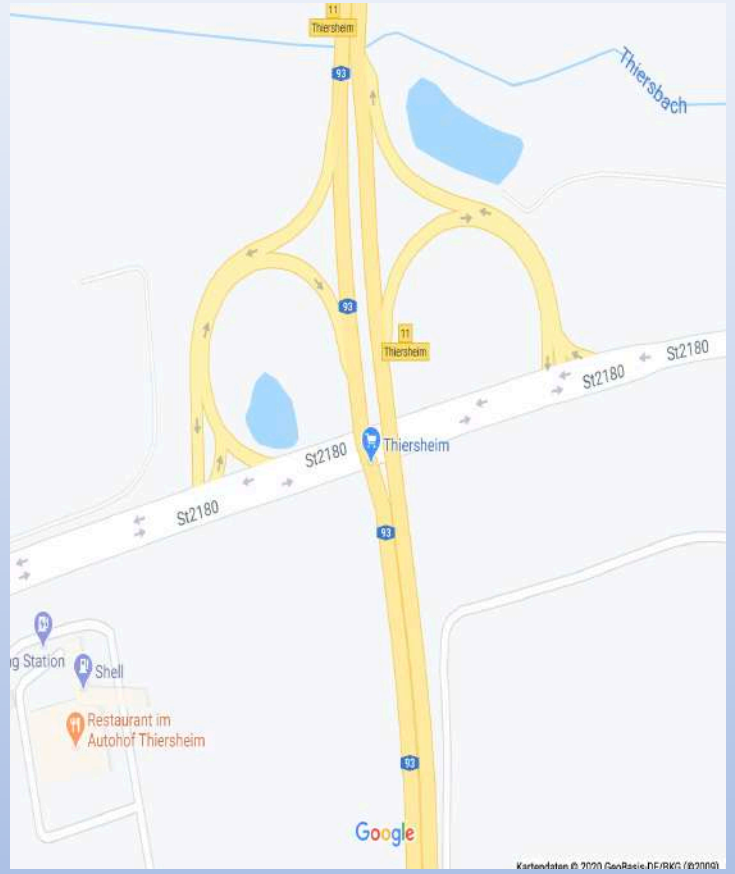
At the same time, in the course of the energy transition and the latest CO2 guidelines, the solar park in combination with the e-charging park is of great interest. Saving at 1.8 MW = 772,300 kg annually!

The location itself has been rated as **extremely favorable** - the A 93 is the main connection between Munich and Hof.

-> **High frequency** of use with a growing number of e-cars due to government grants and subsidies.
-> E-charging park can thus be reached in approx. **1 minute** from the motorway
- **no need to expand** the connection to your own infrastructure.

-> Entertaining charging through free WiFi, shopping, shop, café, restaurant, shop, hotel, expandable at any time -> **Station space expansions create additional jobs and increase awareness**

Basic data for analyzing frequency of use



-**Growing market** thanks to government subsidies for e-mobiles

- Need for a **sensible and feasible expansion of the infrastructure** - there is evidence that there is currently no comprehensive supply for e-vehicles. Supply is currently insufficient

- **Increase in e-mobiles** compared to the previous year already 33%, hybrids 27% (source: Federal Motor Vehicle Office KBA 2019) 500,000 e-vehicle registrations are expected for 2021.

-Development of the charging infrastructure with a concept: They offer an **optimal, ecological, decentralized cycle - solar power from the open space for e-charging of automobiles. Well thought-out charging management, through NAVI-based guidance and price information**

- The **level of awareness** of this location inevitably ensures a very high occupancy rate and will continue to increase.

-**Future expansion options** are already planned today, **future-oriented and environmentally friendly.**

-- Adapt market situations -> steadily growing demand for **long-term jobs**

- Convenient charging, DIN plug options, payment options, billing for customers, optimal load management

So far <u>not a single public e-charging park of this size</u> and with this combination is available in Germany

target groups:

- **<u>Today:</u>**
- Business driver (car)
- Private driver (vacationer)
- Commercial fleet vehicles
- Commuters / car pools

Future
Additionally:
- Buses
- truck
- Cars with e-trailers

- **Great promotional effect for the region:**
- Generation of **100% solar power directly on site!** Thus no supra-regional route expansion is necessary. Can **also be expanded with wind power.**
- **Annual CO2 savings amount to 773,000 kg (with a PV occupancy of 1.8 MW)**
- The CO2 savings of e-cars <u>are not yet taken into account here</u>!
- If necessary, these savings can also be used in future in **"Green Certificates"** for tax / capital purposes. -> Price can be passed on to customers
- **PEAK - Eliminate costs** are reduced (network loads are spared)
- **Drive-through loading systems** - thus designed for the automotive industry of the future Opportunity / possibility also as a **"BürgerEnergiePark**" or. **Public participation**.
- **Environmentally friendly use** -> **a model for a balance between nature and technology**
- Source of income through advertising, **long-term stabilization of income**

PV east-west orientation - max. Making performance usable

Construction phase 1: 1.8 MW PV + cafe + charging stations

- PV solar park 1.8 MW with an **annual production** of 1,450,000 kWh
- Buffer storage
- **Connection to the public network**

Benefits of alignment

-Up to **10% more** yield, higher CO2 savings
-The east-west orientation ensures a **continuous power supply** throughout the day

-> Inexpensive charging current ensures **high customer interest** -> The **information** is **automatically sent digitally** to the customers via the app, navigation system, etc.
-> **Excess feed-in** - return at night
-> supply guaranteed **24 hours** If funding is desired, this concept corresponds exactly to the **future guidelines of the EU** (thus KFW loans, state funding and grants, building specifications are already taken into account during implementation

-> possible but not absolutely necessary
-> Gradual construction / expansion of the park and the surrounding area according to ideas / requirements of the community and environmental requirements

Why Charge Point AC+DC

Benefits for customers

- **Uncomplicated** handling when **loading and paying**
- Via GPS, mobile phone, etc. - **Real-time information** about availability, **reservation,** prices, future-oriented by Microsoft developers Availability
- **24 hours a day - standby service** in the event of technical or software failures (additional remote monitoring)
- **Dynamic energy management**
- **EICH-COMPLIANT** - in the future nationwide standard - already integrated here - so no further modifications
- **VDE, EMC, DIN and safety conform**, also harmonics conform High **conversion efficiency 95%**, minimal losses
- **Can be used** between **50 ° / -30 ° Celsius**
- **Small dimensi**ons, minimal space requirement, expandable
- Can also **be printed with your own advertising** - space for advertising space -> **income**
- **DC charger (fast charger)** short dwell time - approx. **Max. 30 min**.
- Also **AC charger for car sharing or group drivers**
- Upgradable with **express chargers up to 500 kW**
- already available today Accessible with trailers

Safe invest ensures stability and further investments

Setup of this project with an independently set electricity sales price based on Total level of previous systems of this type This is only on the basis of the electricity produced in-house - if there is more demand, this results in increased sales! • Year 1-5 utilization conservative:

Share of e-filling stations 20%, excess feed-in 80%
Approx. production per year → 1,783,957 kWh * 20% for the first year = 356,791kWh
Share of electricity sold to e-mobiles * 0.35 euros = 124,877 euros
thus direct marketing share 80% of 1,783,957 assuming 0.01 cents (market premium) = 14,271.6 euros

Running time	workload divided up Total-production in kWh 1,783,957	A) Part sale via e-charger in %	Profit in euros Part A at a sales price of kWh at 0.35 euros	B) Part Surplus marketing in %	Profit in euros part B Sales price direct marketing 0.01 euros	Total summit in Euro
1. Jahr	356791 kWh	20,00%	124.887 Euro	80,00%	14.271 Euro	139.158 Euro
2. Jahr	535187 kWh	30,00%	187.315Euro	70,00%	12.488 Euro	199.803 Euro
3. Jahr	713583kWh	40,00%	249.754 Euro	60,00%	17.840 Euro	267.594 Euro
4. Jahr	891979	50,00%	312.193 Euro	50,00%	8.920 Euro	321.113 Euro
5. Jahr	1337967	75,00%	468.289 Euro	15,00%	2676 Euro	470.965 Euro
6. Jahr	1783957	100,00 %	624.385 Euro	0,00%	0	624.385 Euro

Further advantages of the charging park – win-win-win (customer, municipality, investor)

-We currently have approx. 3,000 Fastcharger and approx. 500 HPC nationwide. **The demand** for HPC chargers is around **100,000 charging points** nationally alone (assessment basis is 10-20 million e-vehicles)

-**Ensuring optimal distribution** at the charging stations. With the right hardware on LIS and thus the future. AdHoc with NFC payment, drive-through

-**Today already thinking about tomorrow** - plans and developments with the BEM (Federal Association of E-Mobility e.V.) presented

-At the same time, the power plant **produces clean solar power directly on site**. No long-distance routes necessary

- Annual **CO2 saving amounts** to **773,000 k**g, if necessary, this saving can also be used in future in **"Green Certificates"** for tax / capital purposes. **Requirements** are already **given** here

-Development / expansion as required - creation of **long-term income** and **permanent jobs**

-Make use of **ecological advantages** - design areas that are optimally profitable for the community

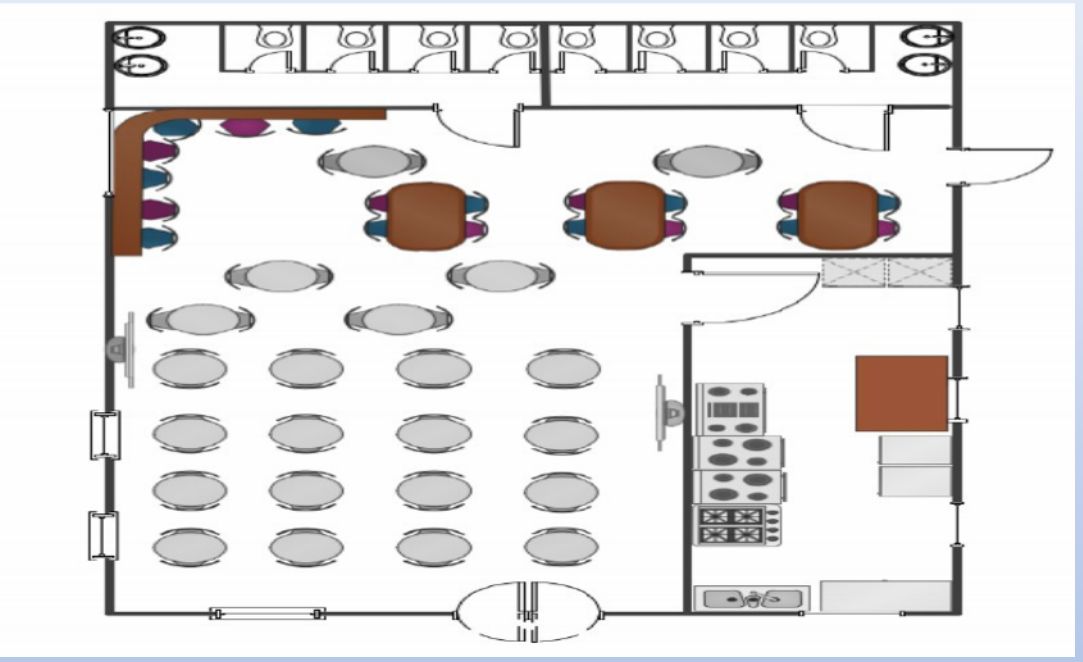
-**Double use** of the available space - **pioneering position** thanks to experience

-pioneer for Bavaria, concept can be duplicated, minimal traffic noise due to the attraction of electric vehicles (nature and technology - optimally combine)

Immediately adaptable via real-time price adjustments to every market **situation -> attraction of the "charging customers**" through advertising, apps, etc. - consequence of peak times equalization, daily prices, traffic can be regulated at night, low-noise customers because e-mobile, reference concept, showcase project, etc.

A reference project can make a politically beneficial contribution to structural development and maintain a role model function

Travel and charging with comfort: "Sunshine Cafe"



With the new carport system, future users can park in the **immediate vicinity** of a café, hotel, etc.
thus no additional **expenditure for infrastructure** is necessary here.
Roofing and short distances ensure quick and weathe-independent access

Waiting times in the **“Sunshine Café”** can be comfortably bridged and offer future users of the charging infrastructure the opportunity to go to the toilet**, free WiFi access**, and shop - **with breaks from driving, relaxing and entertaining.**

Diverse advertising measures possible to quickly **increase awareness and an additional source of income**

"Family order drinks and snacks - e-shop half price" “
If you stay in the" Green Hotel "- recharge your batteries for free"

Optimal use of space and a harmonious landscape

well thought-out concept with experienced real estate company **–**

harmonious integration into the landscape

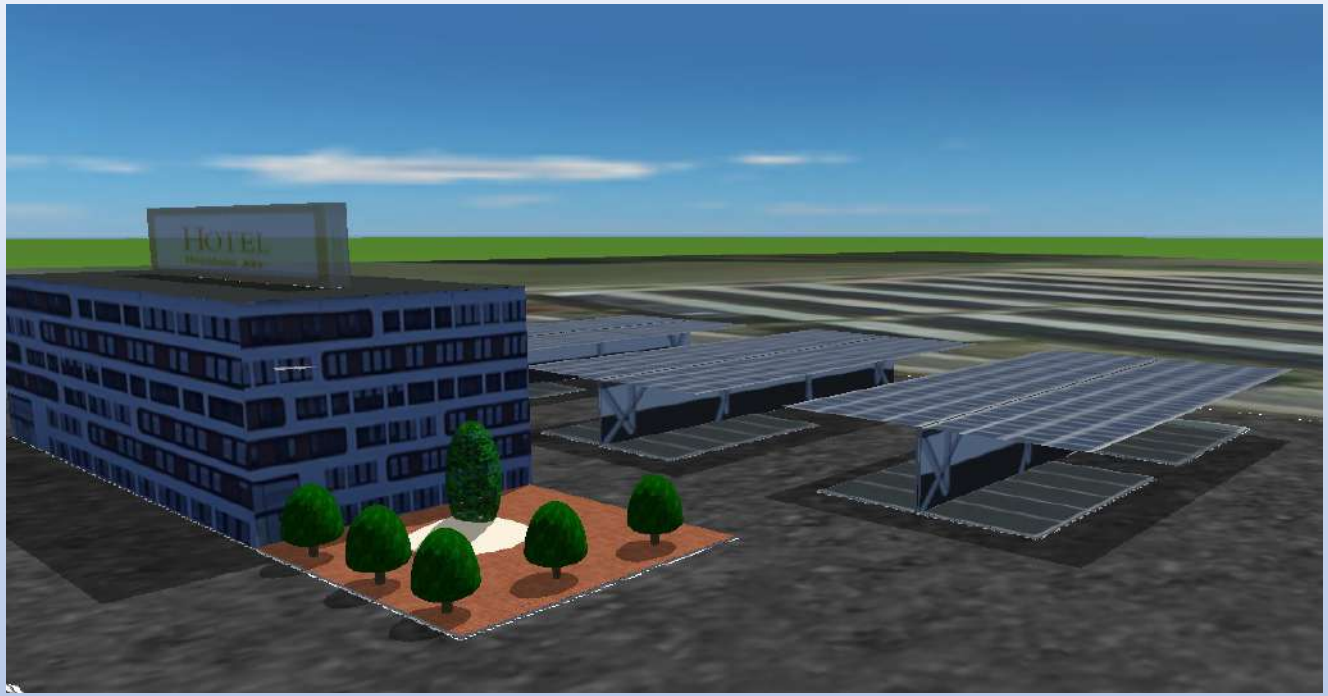
- the components used are **eligible and bankable, recyclab**le and in line with **the latest VDE & DIN standards**
- The architecturally open design ensures a **pleasant, inviting flair to linger**
- Space for **greenery,** grids optimally placed and thus integrated **harmoniously into the landscape and surroundings** - no style break

-> Varied supply of PV electricity

„Green-Hotel“ with restaurant, shops, etc.

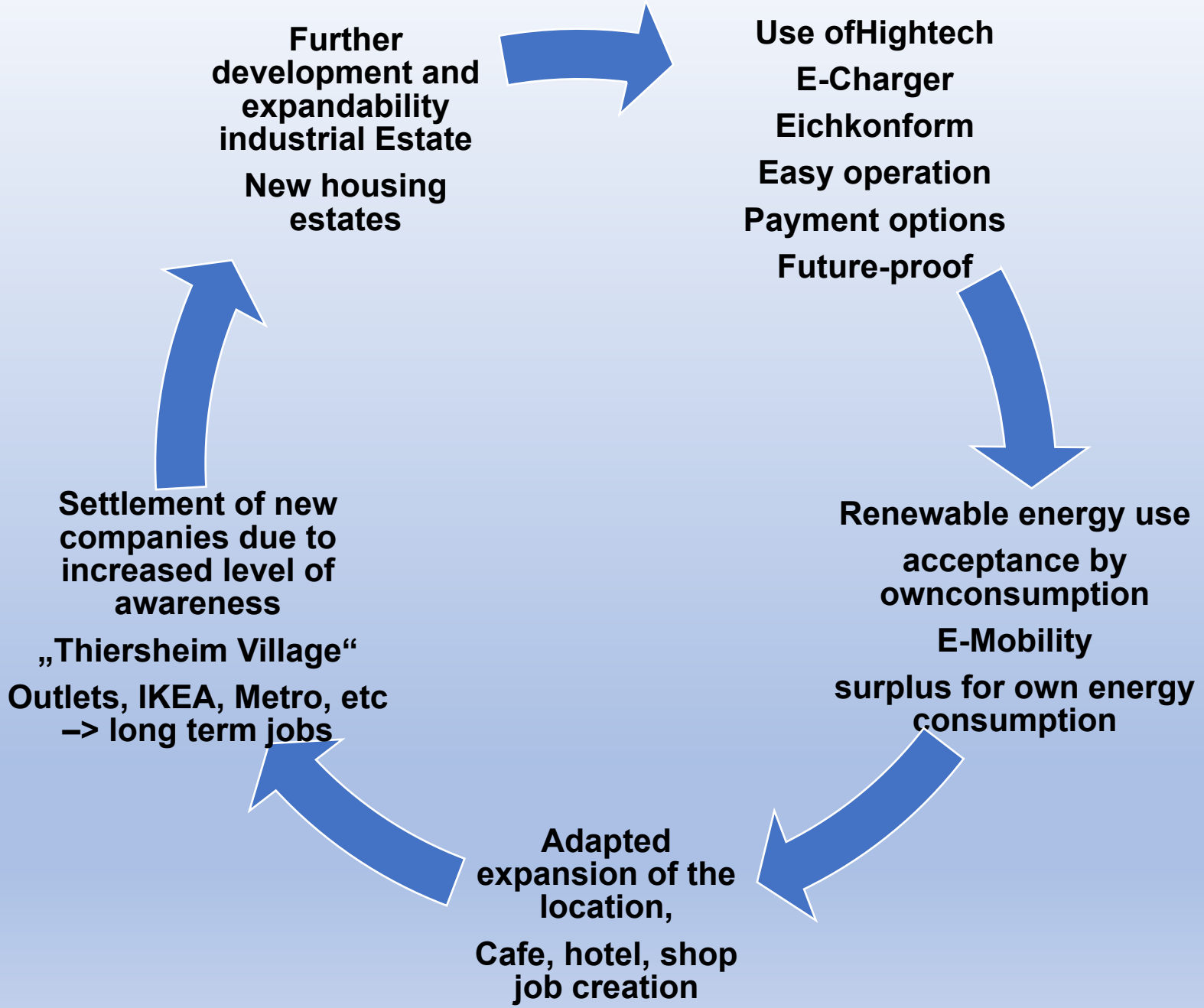
The combination does it:

- By attracting low-noise e-mobile users, there are inexpensive overnight accommodations:
- Approx. 18,000 sqm optimally used through double use
- PV area: between 2.4 - 3 MW possible
- Hotel area, restaurant, shop, cinema, etc. E-charging spaces 50 spaces
- Cafe space: 40 spaces + seats



- **Creation of long-term employment - reception, service, cleaning staff, kitchen staff, gardeners, electricians, regional suppliers for hotel linen, food, beverages**
- **Rest periods** can be regulated by selling "expensive" night electricity. Thus **less frequentation** at night and guarantee of a relaxed stay
- **Favorable self-consumption electricity prices** for hotels - the discount is passed on to customers
- relaxed atmosphere ensures customer acquisition **(LIKE FUNCTIONS)**
- **Drive-through charging stations** are already planned for the future (cars with attachments, buses and trucks)

Conclusion:


Further development and expandability industrial Estate
New housing estates
Use ofHightech
E-Charger
Eichkonform
Easy operation
Payment options
Future-proof
Renewable energy use
acceptance by ownconsumption
E-Mobility
surplus for own energy consumption
Adapted expansion of the location,
Cafe, hotel, shop job creation
Settlement of new companies due to increased level of awareness
„Thiersheim Village“
Outlets, IKEA, Metro, etc –> long term jobs

Possible development

- **„Green Village „**
- With malls, Outlets,
- IKEA, Metro, cinema, usw

Inevitably, **the Mag**net **"Green Village"**
Attract visitors and residents thus it results increased demand for residential and commercial space
At the discretion of the municipality, individual expansion options are open

Further planning example:

Settlement example hotel, restaurant, cinema, outlets
-> various expansion options
-> CO2 savings at 2.4 MW = every year about 972.000 kg

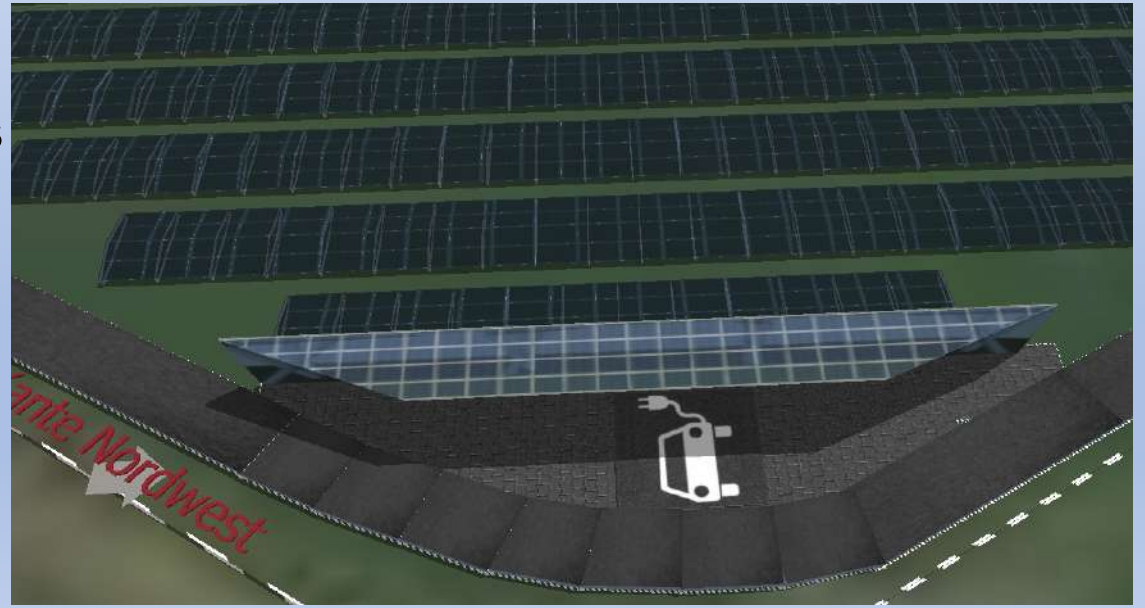
“Disadvantaged area” certificate ensures Invest Secure acceptance by new traders

Unique selling point – first time in Europa

Planning make optimal use of the entire usable space

- **Ring one-way street** - planning according to the specifications of the municipality (total or individual areas outlined)
- **Use roofing carport system** (for further energy generation (bays and streets covered) see example curve - also planned on the long sides

- Inexpensive load management because the chargers are connected in series
- E-bus fleets (example of the municipality for public transport **(source of income)**
- E-trucks, cars with e-trailers (parking spaces also **rental potential** to haulage companies
- Possibility also for **maintenance access**



Set planning standards

- Easy arrival, departure and parking options
- Parking bays for charging - minimal trailing curves
- Suitable for buses and trucks with trailers
- No sloping parking spaces Maximum
- use of space Safety for people and material (fencing and safety barriers)
- Space for greenery, playground, park, pond, etc. low-noise ambience for relaxation
- Landscape architects (guarantee of compliance with nature and building regulations)

FUTURE -already today with a common concept

- **No state subsidies necessary but possible, as all requirements are considered**

-> Independence & self-determination on a regional

- **level EEG-independent** structure possible -> therefore **no monetary burden on the state**

- **Serve emission targets in three ways:**
  -> enormous contribution **to CO2 reductio**n through **PV** and attraction of **e-automobile customers**
  -> Renewable **energies share** of the nationwide power supply **must meet 65% by 2030**

- Investor search by GP Photovoltaik & Handel GmbH,

Stability and security planning attracts Invest

-> no independent commitment required by the municipality, purchase of cheap “green electricity” to ensure / or EEG eligible for funding, designation of “disadvantaged area + obligation to purchase new businesses to be settled -> Promote the location interested in expansion for growth and sources of income

- >Construction site supervision by recognized specialist companies

-> Ensuring optimal implementation of the planning

Thank you for your attention

and we look forward to your support

to make our contribution

to the development of the regional economy

with a vision of comfortable, but highly environmentally friendly concepts that fit into the country's image

Your Gerhard Perzl & colleagues