



Onshore power facilities for cruiser



Danube Business Talks 2021



Dipl. Ing. Andreas Reinhardt, MBA

Head of Energyservices LINZ AG



Energy Services Linz AG

Supply Area: Linz + 117 communities:

Electricity:

82 communities

Natural Gas:

30 communities

District Heat:

31 communities

Water:

25 communities

Sewerage:

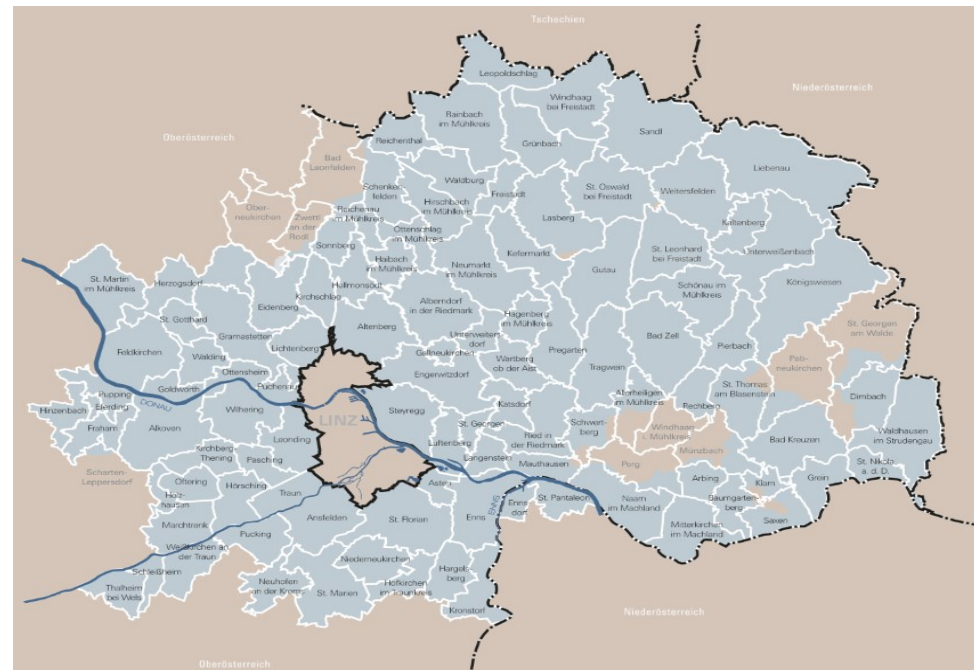
44 communities

Waste:

64 communities

Public Transport:

14 communities



E – mobile since more than 100 years



Electricity as “climate fighter”





Electrification shipping?



Linz: 16.216 movements registered



cruise liner drive electric – now!

electric generator power:

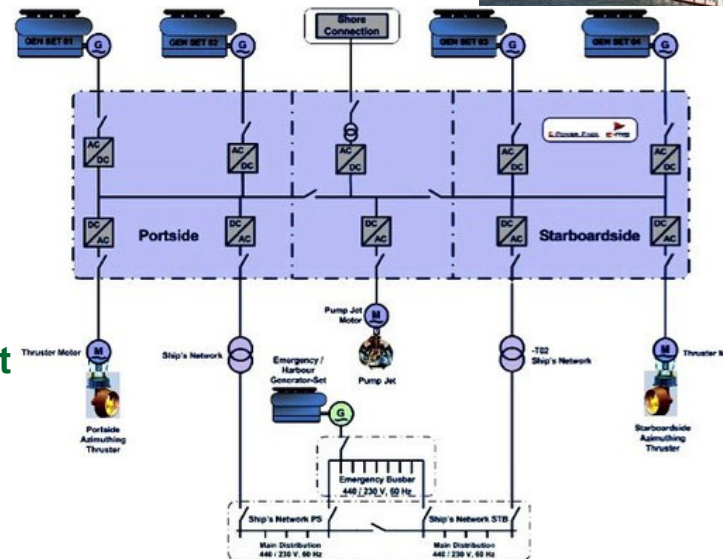
- 2 x 994 kW
 - 2 x 383 kW
- Total: 2.754 kW



air condition

laundry

propeller power unit



restaurant

Additional aggregates

front jet tube

on board power grid:

peak power 400V:

average power need:

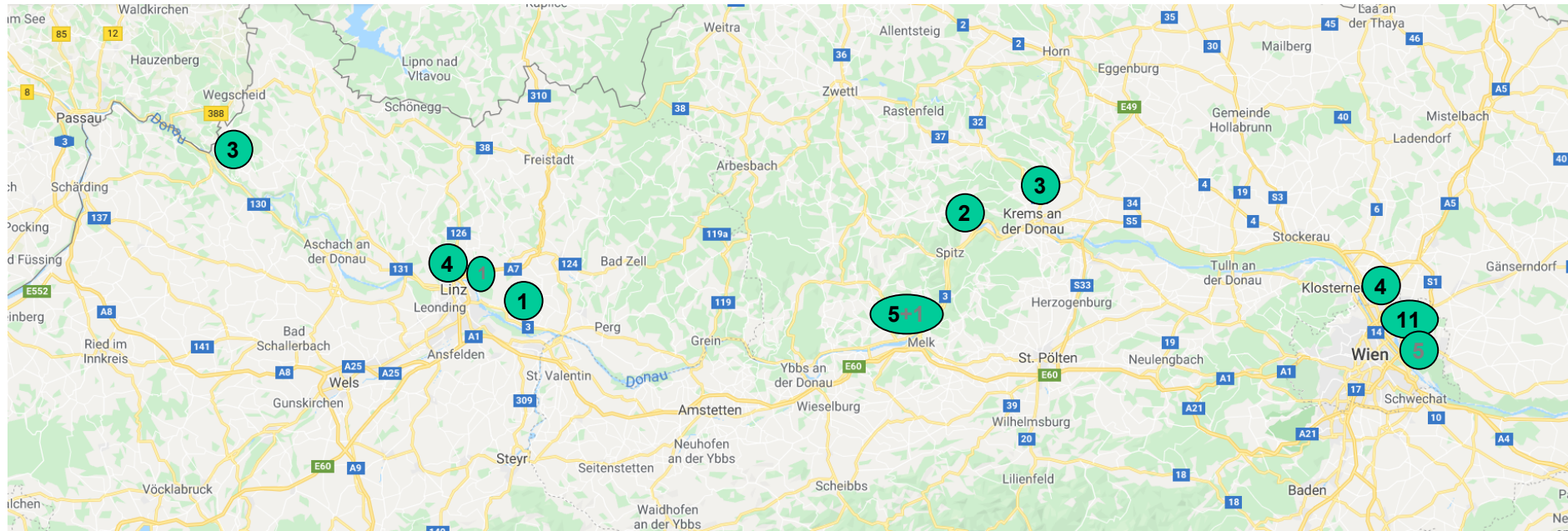
400V / 50Hz

500kVA

100 – 150kVA



“Hotspots” along danube in Austria



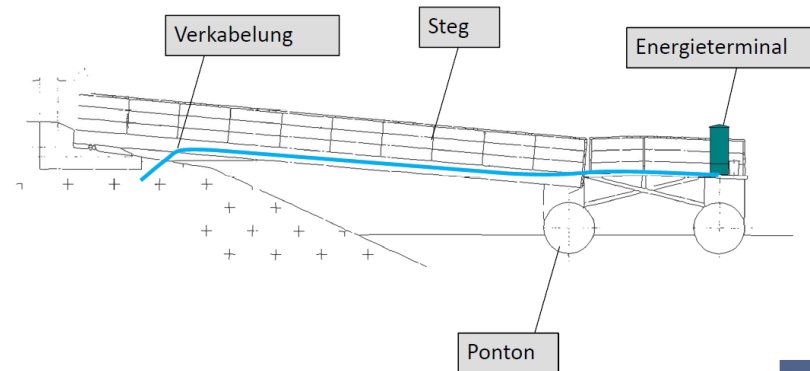
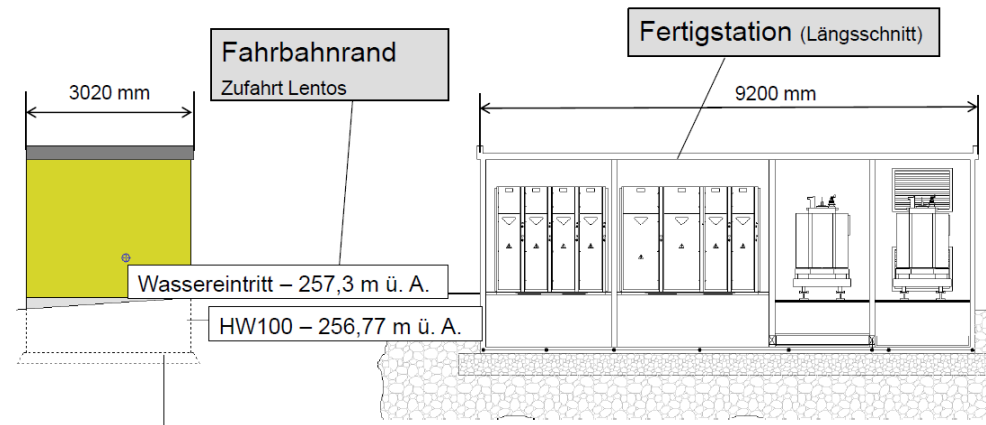
Concept electrification landing stages for cruiser along Danube in Austria - ministry of transport April 2019



Technical implementation

Specification:

- 1-1,5 MW per landing stage
- 1-2 transformer per landing stage
- switchboard and metering
- Above high water mark
- Integration in high voltage grid
- Partly flexible cable connection to the pontoon





Technical implementation

Safe connection
lockable



25m cable: 25-50kg
Flexible mining cables



Energy terminal:

- metering
- Load break switch
- Remote communication
- Remote monitoring



Organizational aspects



annual disposition



Landing and
connecting



authentication
-> energy supply

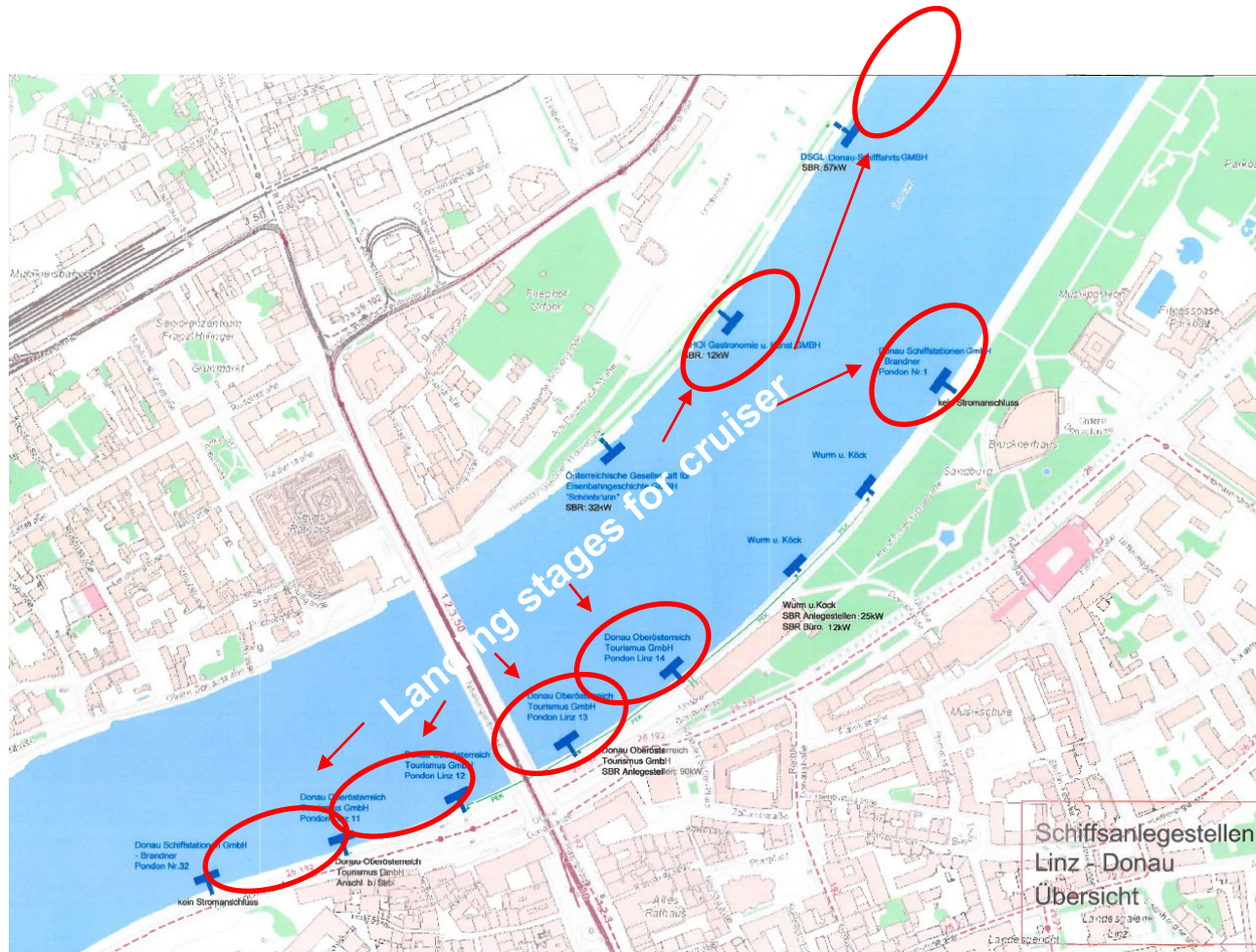


Monthly billing

Obligatory for landings longer than 2 hours

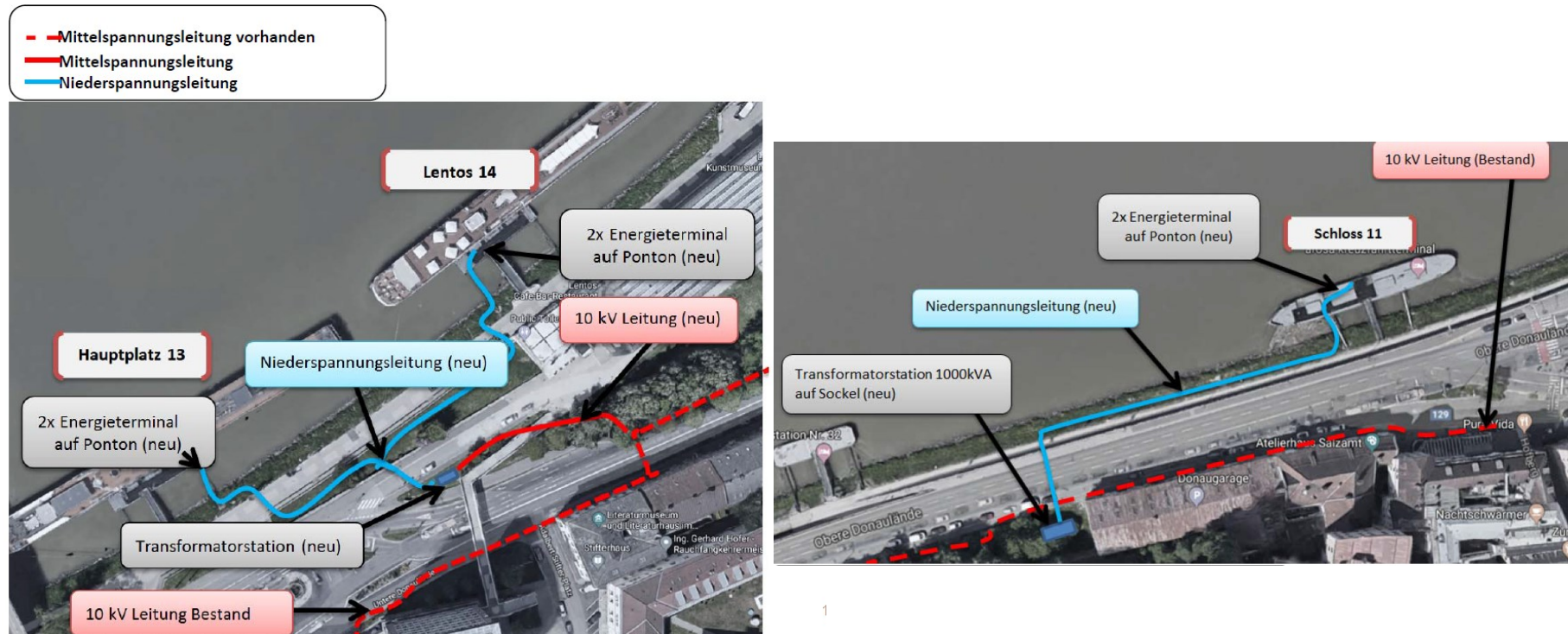


Development of landing stages in Linz 4 to 7





Challenges for onshore power connection



Minimize cabling length and traffic influence



Challenges for onshore power connection



The cultural heart of Linz!

We are operating in very sensitive areas!





Challenges for onshore power connection





Climate impact in Linz

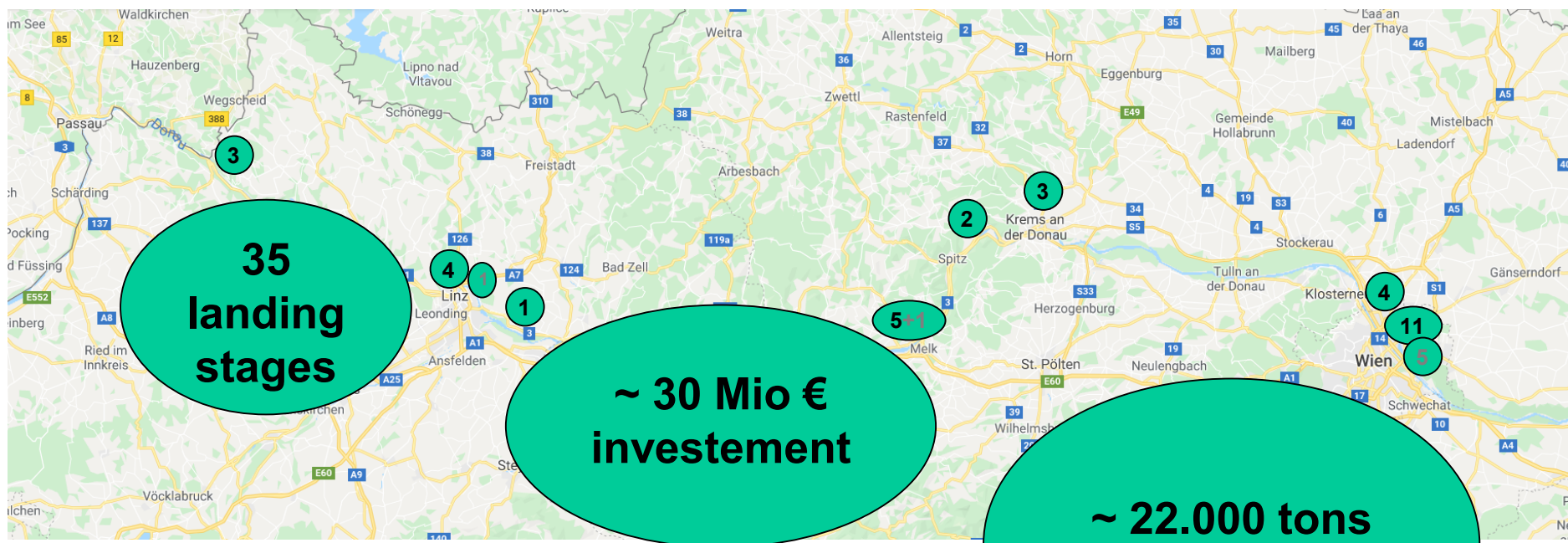
Average energy consumption per stay:	1,3 MWh
Fuel consumption per stay:	670 l
Comparable driving distance:	8376 km
Comparable car trips of 5km:	1675 trips



Electric energy consumption p.a.:	1,7GWh
Fuel consumption p.a.	0,9 - 1,6 Mio litre
Comparable with	11 - 17 Mio. fuel km downtown
CO2 equivalent p.a.	2400 - 4200 t CO ₂



Austrian wide rollout





**Thank you for
your attention!**

