

October 2019  
Nic Piercy

# Forward to Zero Carbon

E.ON City Energy Solutions

*e.on*

**Human development over 250,000+ years has been constant**

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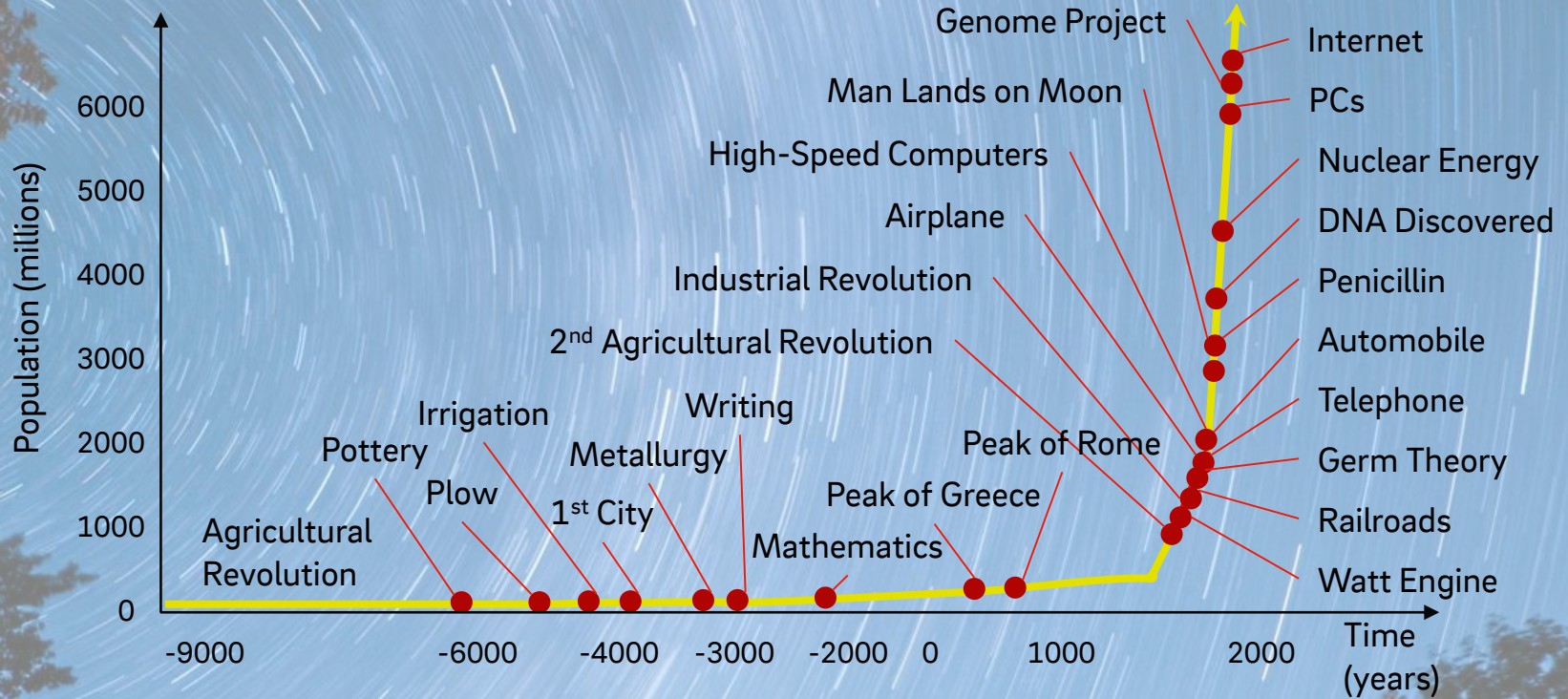
**Local + Linear**

**While development over the past 50 years has been frenetic**



**Exponential + Global**

# During this time, the rate at which changes are happening is increasing



# E.ON is further sharpening its profile in networks and solutions

## Energy Networks

E.ON  innogy



~1,7m km

One of the largest  
network providers in  
Europe

## Customer Solutions

E.ON  innogy



~50m

Largest European  
customer base

## Renewables



## RWE





# Urbanization challenge

**1950**

30 % of the world's population lived in cities

**2050**

Share is expected to rise to **66 %**

Cities will need to fit **2,5 Billion** more residents

# Cities and municipalities are leading the way towards sustainability

London  
**-100%**  
2050

Malmö  
**-100%**  
2025

Stockholm  
**-100%**  
2040

Hamburg  
**-80%**  
2050

Berlin  
**-85%**  
2050

# The new Energy world

Decarbonization

Decentralization

Digitization





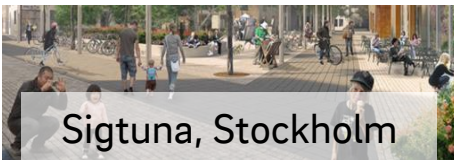
# With a strong international footprint, we deliver innovative energy solutions for our customers within cities and municipalities

**Large-scale urban developments based on municipal strategies**



**City energy solutions based on renewables to fulfill highly ambitious zero-carbon targets**

**Integrated solutions for city districts**



**Power-based heating & cooling integrated in low-temperature district systems**

**Decentralized, local energy solutions**



**Innovative technologies (e.g. power-to-heat) in decentralized energy supply solutions**

# The Western Harbor - E.ON's first Sustainable City project (2001)

100% locally renewable energy

Prosumers

Power, Heat, Cooling, Gas



# Hyllie – The most climate smart city district in the Öresund region

10,000 apartments and >10,000 office workspaces

Test bed for innovative energy solutions

Heat, power and cooling grids with integrated smart grid platform

Energy balance with 100% renewable or reused energy

100% renewable district heating and cooling

> 70% local renewable electricity supply

- 13,500 t CO<sub>2</sub>



# Werksviertel München

Integrated energy solutions for heat, cooling, electricity and additional solutions (incl. eMobility)



**88k m<sup>2</sup>**

City quarter

**40%**

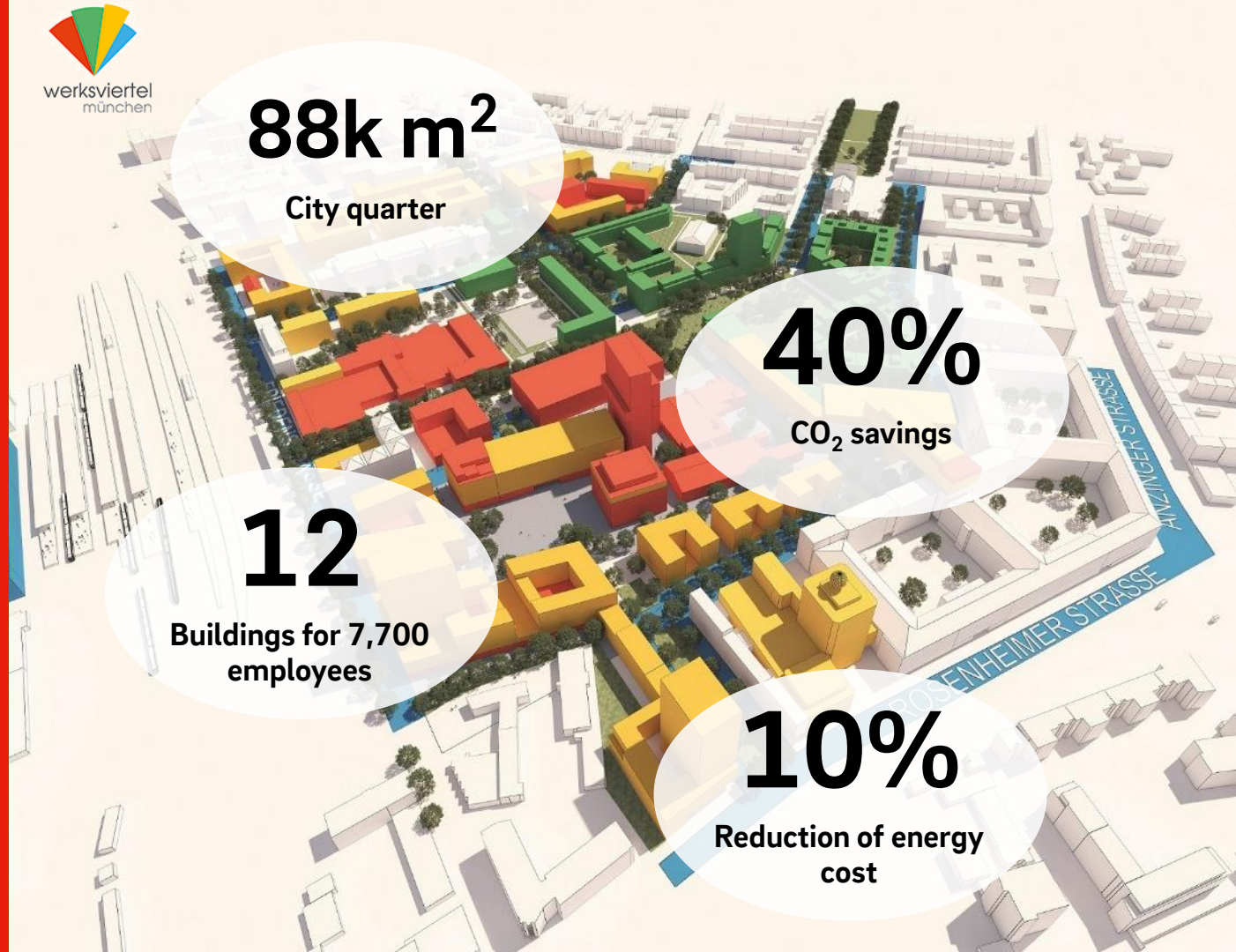
CO<sub>2</sub> savings

**12**

Buildings for 7,700 employees

**10%**

Reduction of energy cost





**Smart and  
sustainable living in  
the middle of  
Munich.**

# Elephant & Castle

Zero carbon heat  
in London:

Efficient district  
heating network by  
coupling of  
renewables,  
thermal storage  
and smart grids



**100 %**

Renewable heating  
supply from 2023 on

**25%**

CO<sub>2</sub> savings

**30 %**

Lower heating and hot  
water costs





# The waste hierarchy

1

## Reduce

The first step is to reduce the amount of waste we create by e.g. consuming fewer things.



2

## Reuse

Give away or sell the things you no longer use. Repair what is broken.



3

## Recycle

If reusing is not possible, recycle the material.



4

## Energy recovery

What can't be recycled should be recovered for electricity and heat.



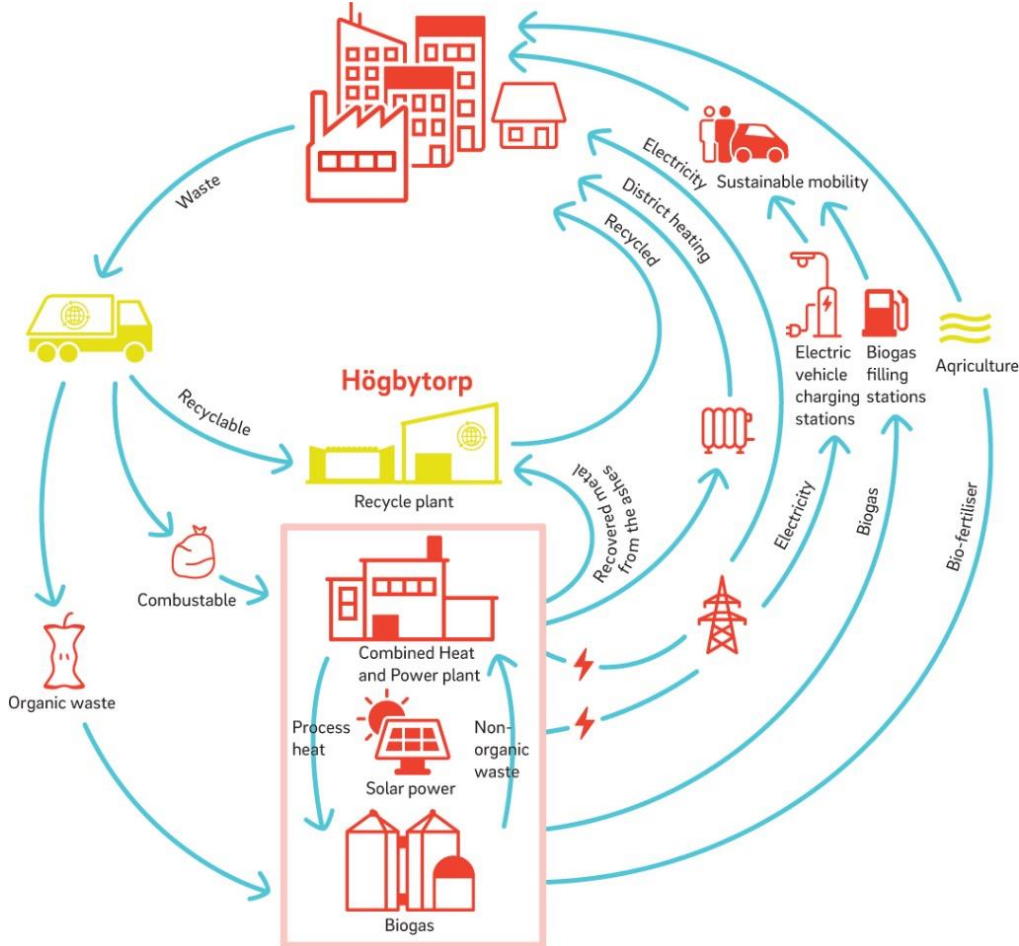
5

## Disposal

Waste that should be phased out from the recycling system should be put on a landfill.

**Our lifestyle choices impact the amount of waste on the planet.**

# Högbytorp - A recycling plant of the future



Electricity, heating and biogas from rejected residual products

CHP plant and the dry ash output enable metals to be recovered

Generated biogas will be enough to provide fuel for 4,500 vehicles



# Högbytorp

Recycling plant of the future – for an expanding Stockholm – with a brand new business model

**50%**

Increase  
of renewable & recovered  
energy

**99 %**

Efficiency of  
CHP

**650**

GWh total annual  
output



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Tomorrow is .on