

# Buildings as carbon sinks

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# Soletair Team



**Mr. Ari Piispanen**  
Co-founder,  
Sales Director  
Serial entrepreneur,  
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**Dr. Cyril Bajamundi**  
CTO, Partner  
Background in  
Direct Air Capture  
and chemistry



**Mr. Petri Laakso**  
CEO, Partner  
Background in  
renewables and  
advanced  
manufacturing



**Dr. Pasi Vainikka**  
Co-founder  
CEO at Solar Foods



**Dr. Kimmo Rauma**  
Chairman of the  
board, Partner  
VP at Danfoss Editron

# THE CHALLENGE





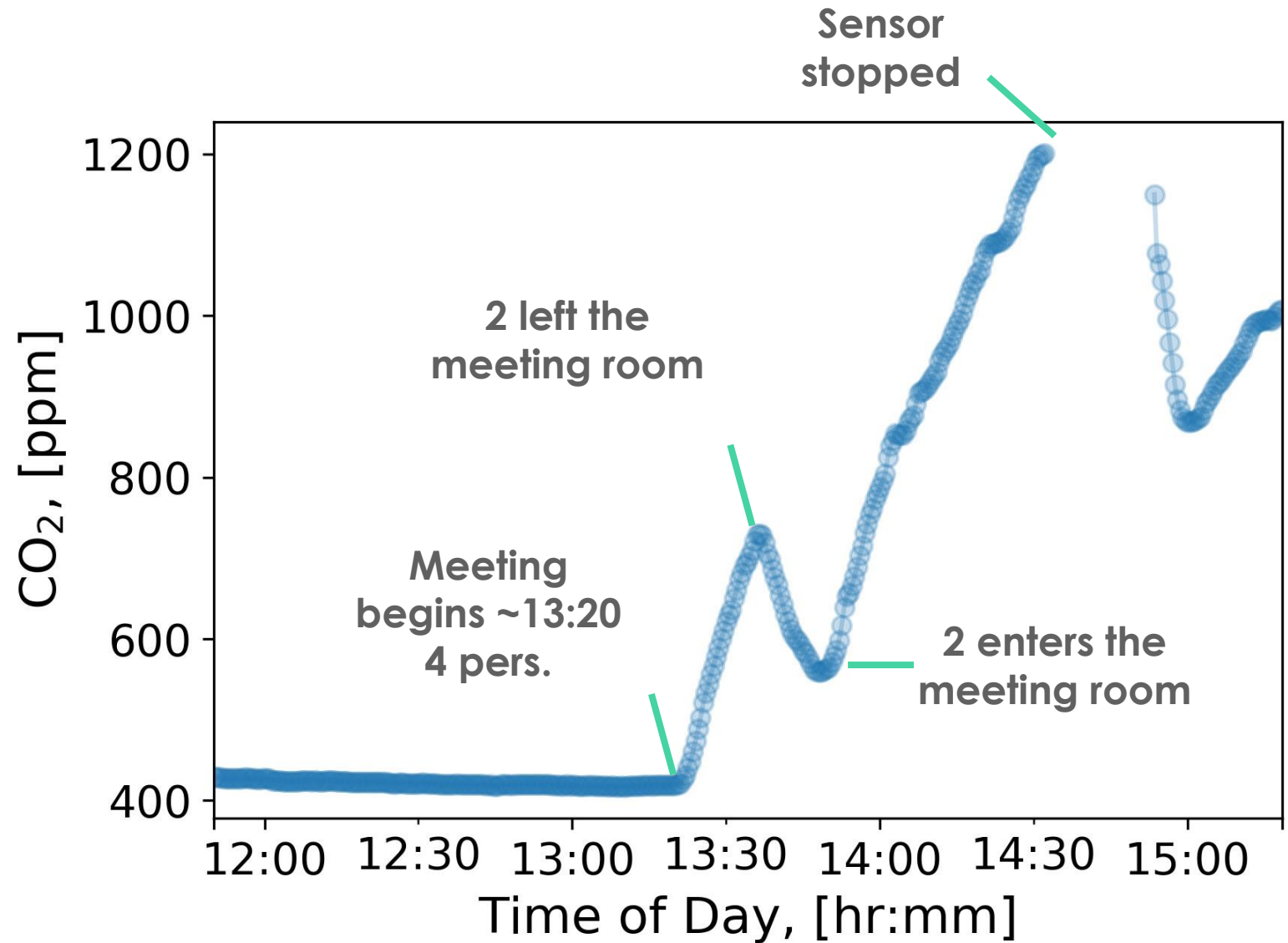
We spend **90%** of our time in buildings.



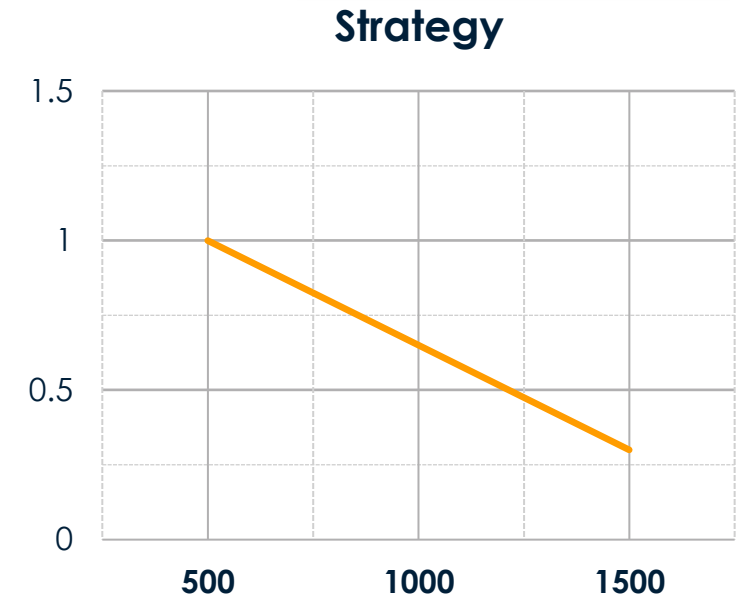
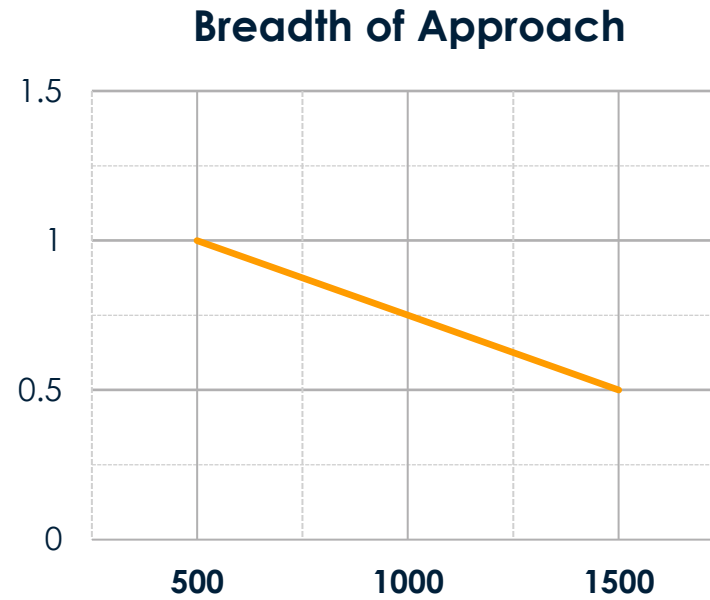
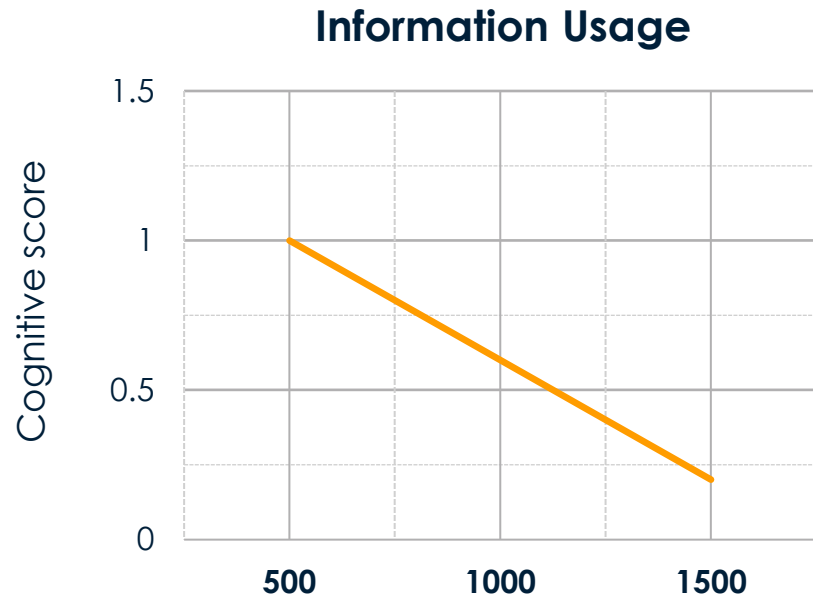
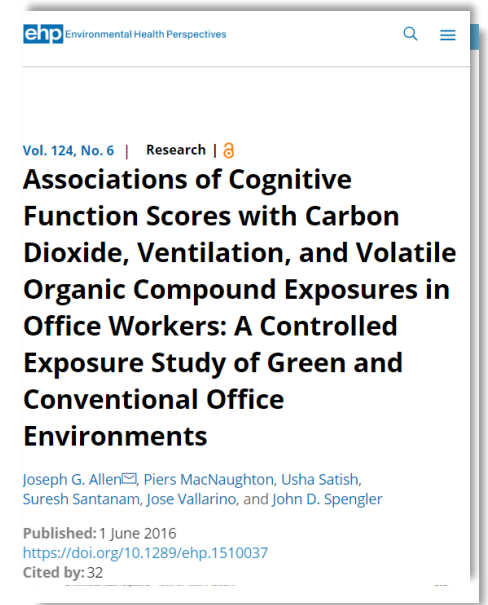
**90%** of office building's cost overall are the salaries of the people inside.



# Actual example 20.7m<sup>2</sup> meeting room



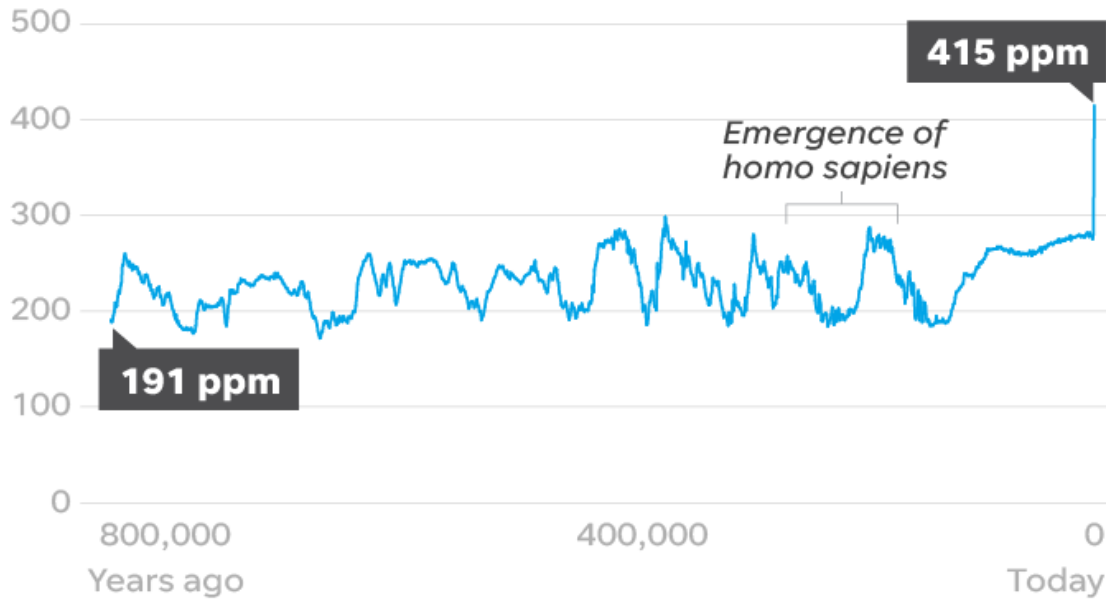
# Indoor CO<sub>2</sub> is proven to reduce cognitive function



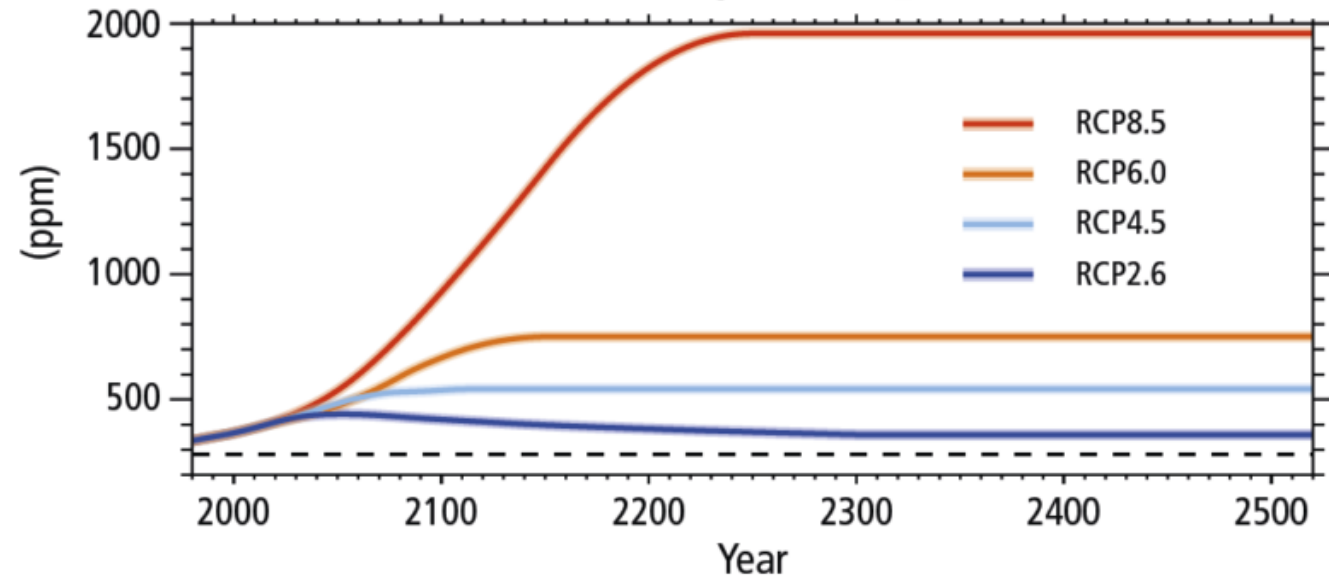
by 20% for by every 400 ppm

CO<sub>2</sub> Concentration (ppm)

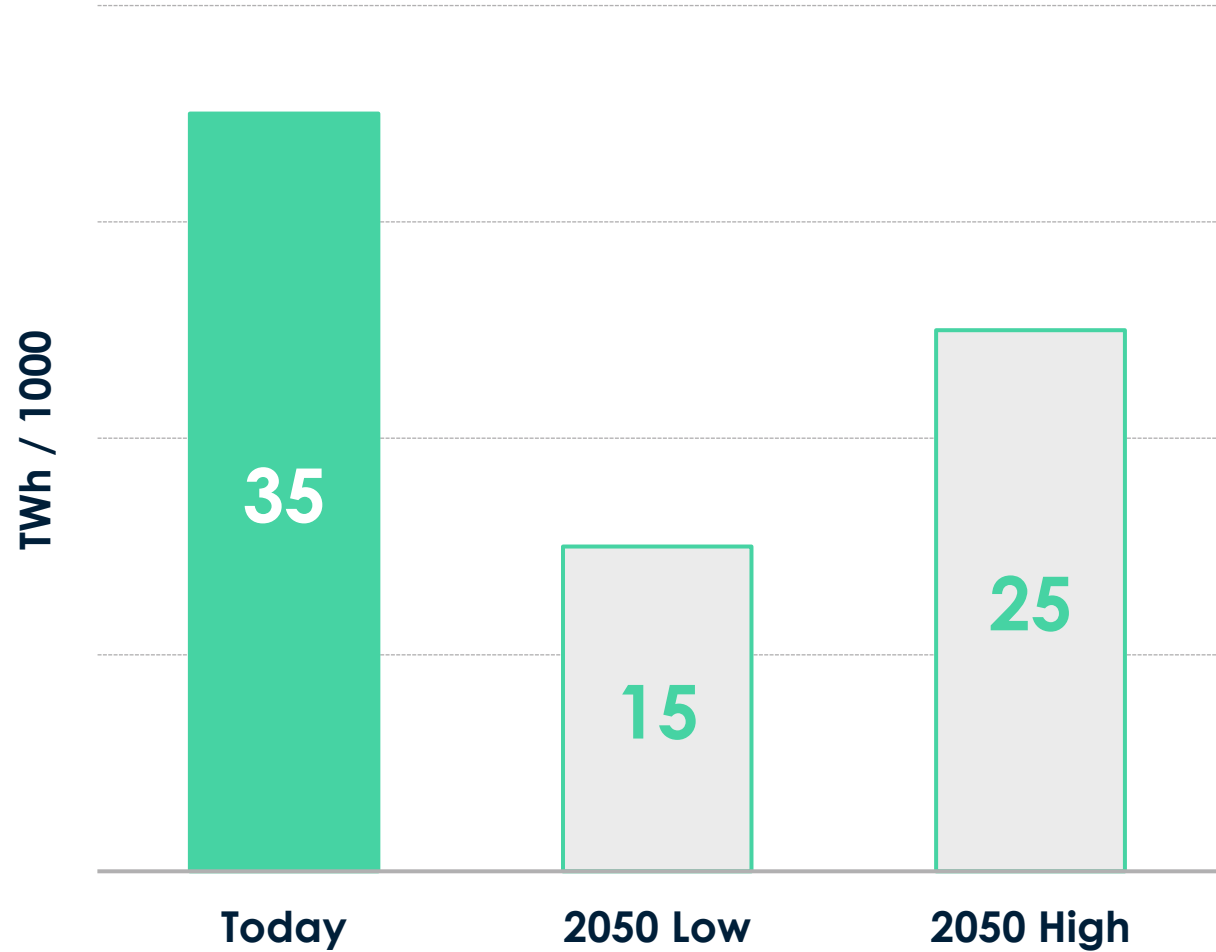
# CO<sub>2</sub> history projections



SOURCE World Data Center for Paleoclimatology, Boulder, and NOAA  
 Paleoclimatology Program  
 USA TODAY



# Global liquid fuel demand for transport in an advanced electrification scenario

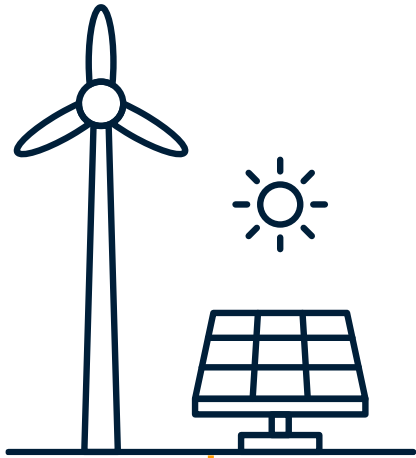




# THE SOLUTION

# Fuel from air – P2X principle

## 1. Electricity



Electricity

## 2. Air

Air ↓

Direct Air Capture

CO<sub>2</sub> ↓

H<sub>2</sub>O ←

O<sub>2</sub> ↓

H<sub>2</sub>O ↓

Electrolysis

H<sub>2</sub> →

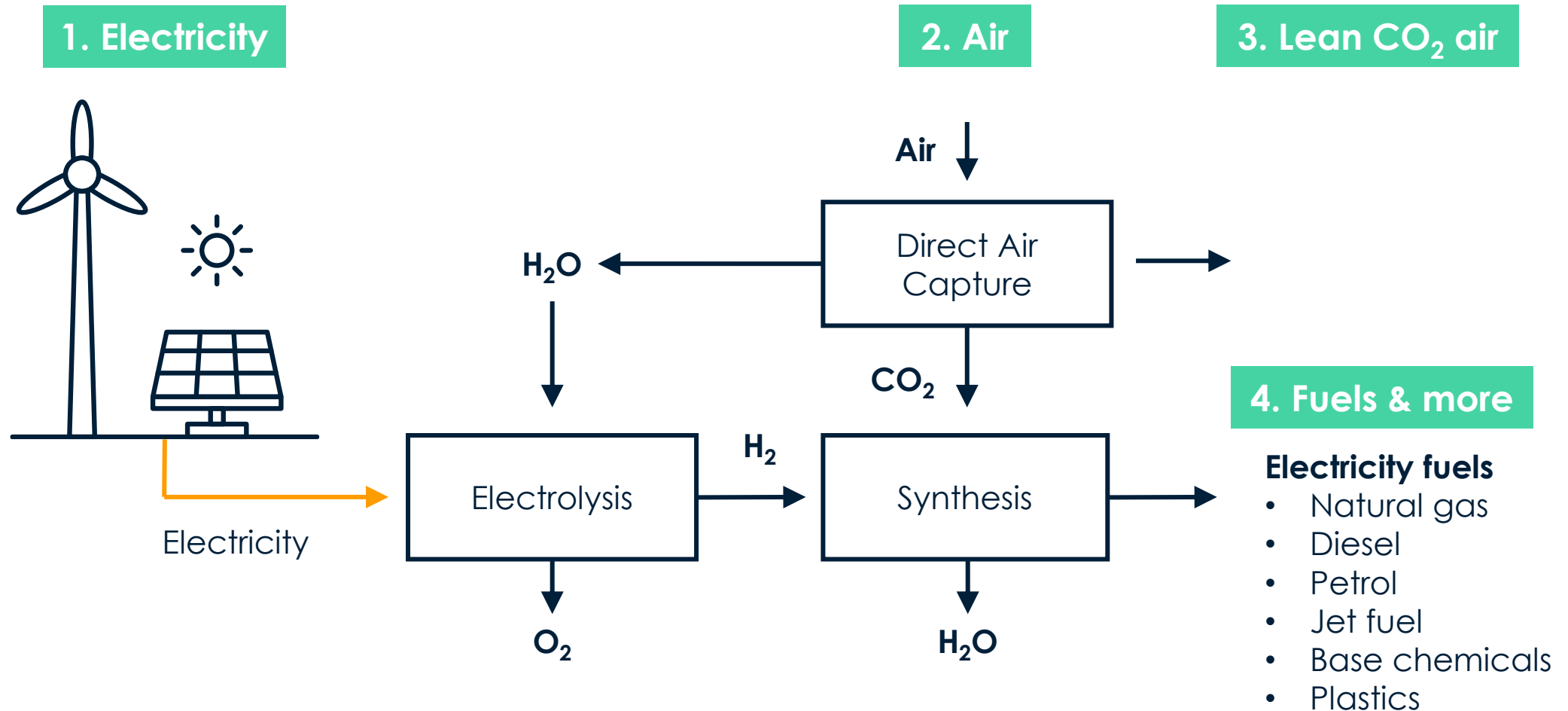
Synthesis

## 3. Fuels & more

### Electricity fuels

- Natural gas
- Diesel
- Petrol
- Jet fuel
- Base chemicals
- Plastics

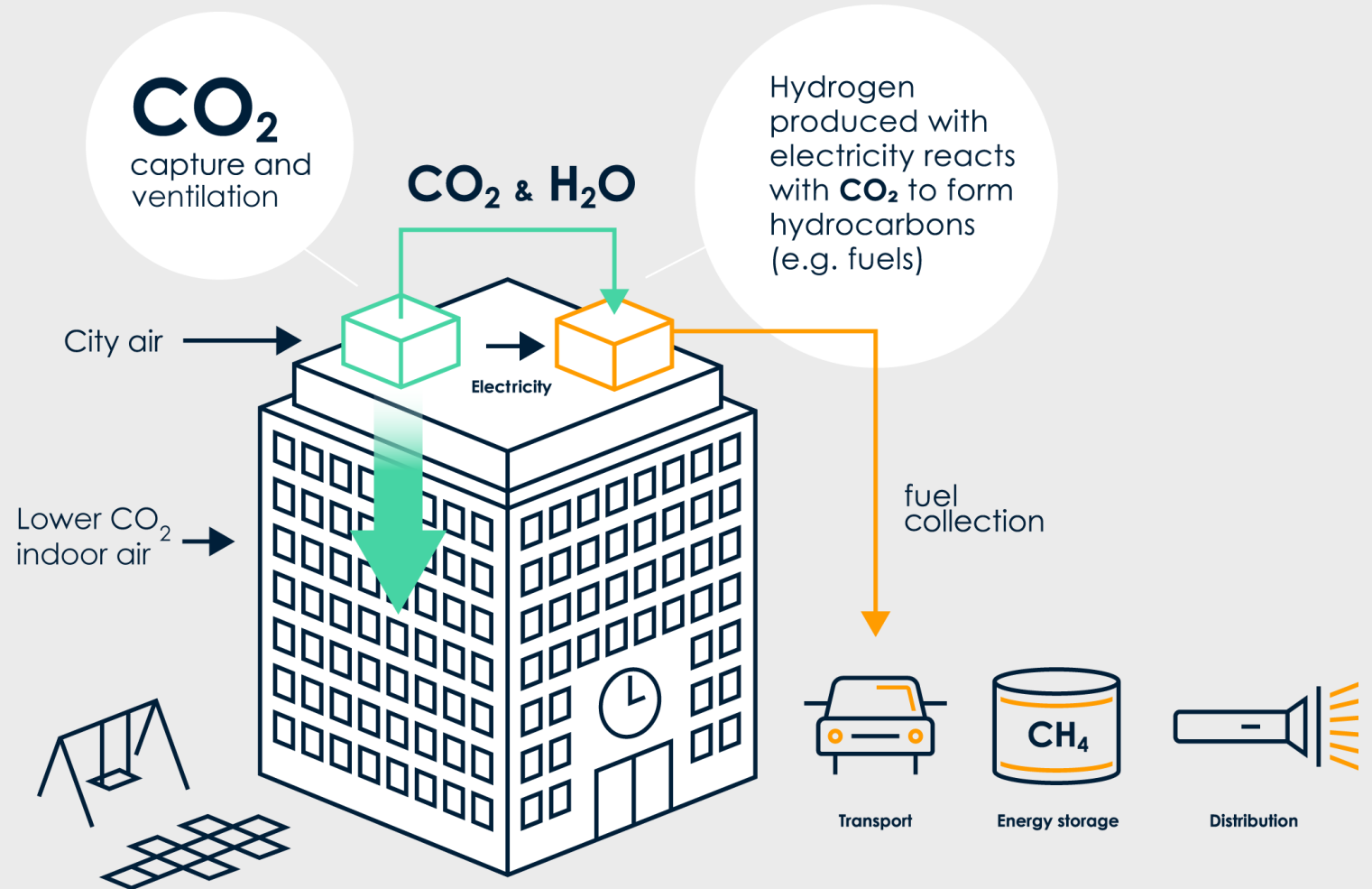
# General Principle – Carbon<sup>minus</sup>



# Buildings as CO<sub>2</sub> sinks

## Carbon <sup>minus</sup>

- CO<sub>2</sub> and H<sub>2</sub>O can be captured from the air using renewable electricity
- Lean air is fed to building ventilation
- CO<sub>2</sub> and H<sub>2</sub>O + RE used to produce fuel



# CO2 capture in HVAC room





# Market and Business Model

# Market size

- Real estate is by far the most significant store of wealth (\$275 trillion)
- Direct Commercial Real Estate Investment Globally \$700 Billion pa
- Soletair Power's solution adds approximately 1% to the total capital = Market size max 7B€/a
  - **This market starts 2020 and grows to 100M€/a by 2030**
- Retrofits of existing buildings will be the BIGGER business
  - **Market starts 2020 and grows to 1B€/a in 2030**

This is possible by combined equipment and service sales + aftersales





# Business Model

## Two global business models



Equipment sales for building ventilation connected CO2 capture with a cost plus model + aftersales

- Unit cost 300-800k€ depending on ventilated floor space
- With fuel option 0.5 - 1.3M€

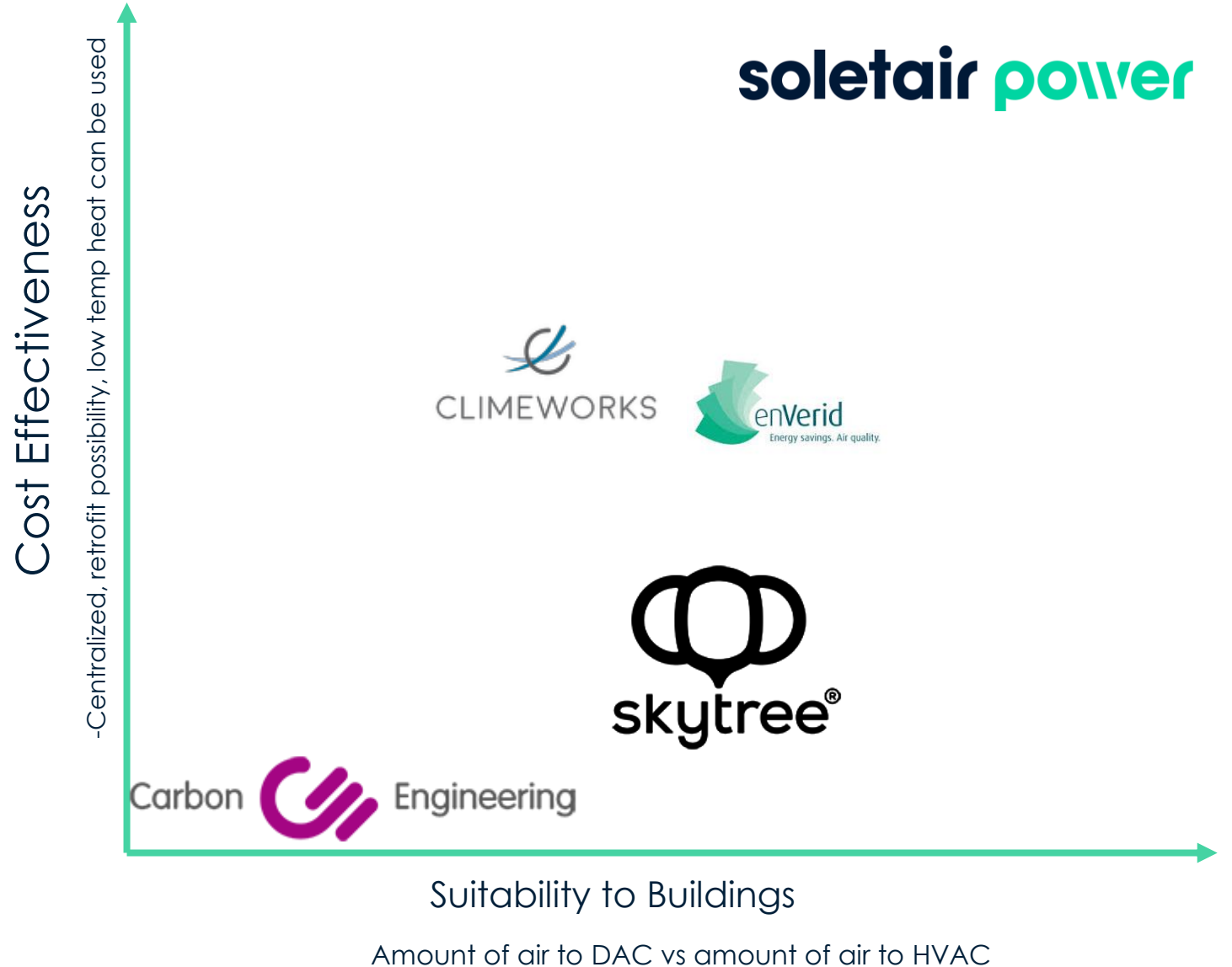


Sales of best performance indoor air for employees eg 1-2€/day/employee



# Competition

- Competitors sell CO2 when Soletair Power is selling best indoor air for employees
- Others have such technology that it cannot be applied to building ventilation
- Speeding up ventilation is not an option since one needs to increase 50-100% to get the same effect. Buildings do not have the capacity to do that.



# Impact



# Reduced CO<sub>2</sub> levels = Productivity Gain



Based on research, on average, a **400-ppm increase in CO<sub>2</sub>** is associated with a **20% decrease in typical cognitive scores**



**Loss: from 6,000 EUR to 10,000 EUR per person per year** (gross salary basis)



# Milestones 3-year plan

1. Dubai (showcase) delivery 9/2020
2. First Commercial DAC ready by 12/2020
3. Financial round Series A during 2021
4. Delivery of commercial Wärtsilä Hub DL 12/2020
5. Delivery of two full size office installations during 2021
6. Financial round Series B for commercial scale up 2022

# Thank you listening!

## BREATHE IN THE FUTURE

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[soletair-power-oy](https://www.linkedin.com/company/soletair-power-oy)



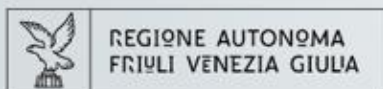
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# S3UNICA

## Interreg Europe



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Development Fund



Agencia Andaluza de la Energia  
CONSEJERÍA DE HACIENDA, INDUSTRIA Y ENERGÍA

