

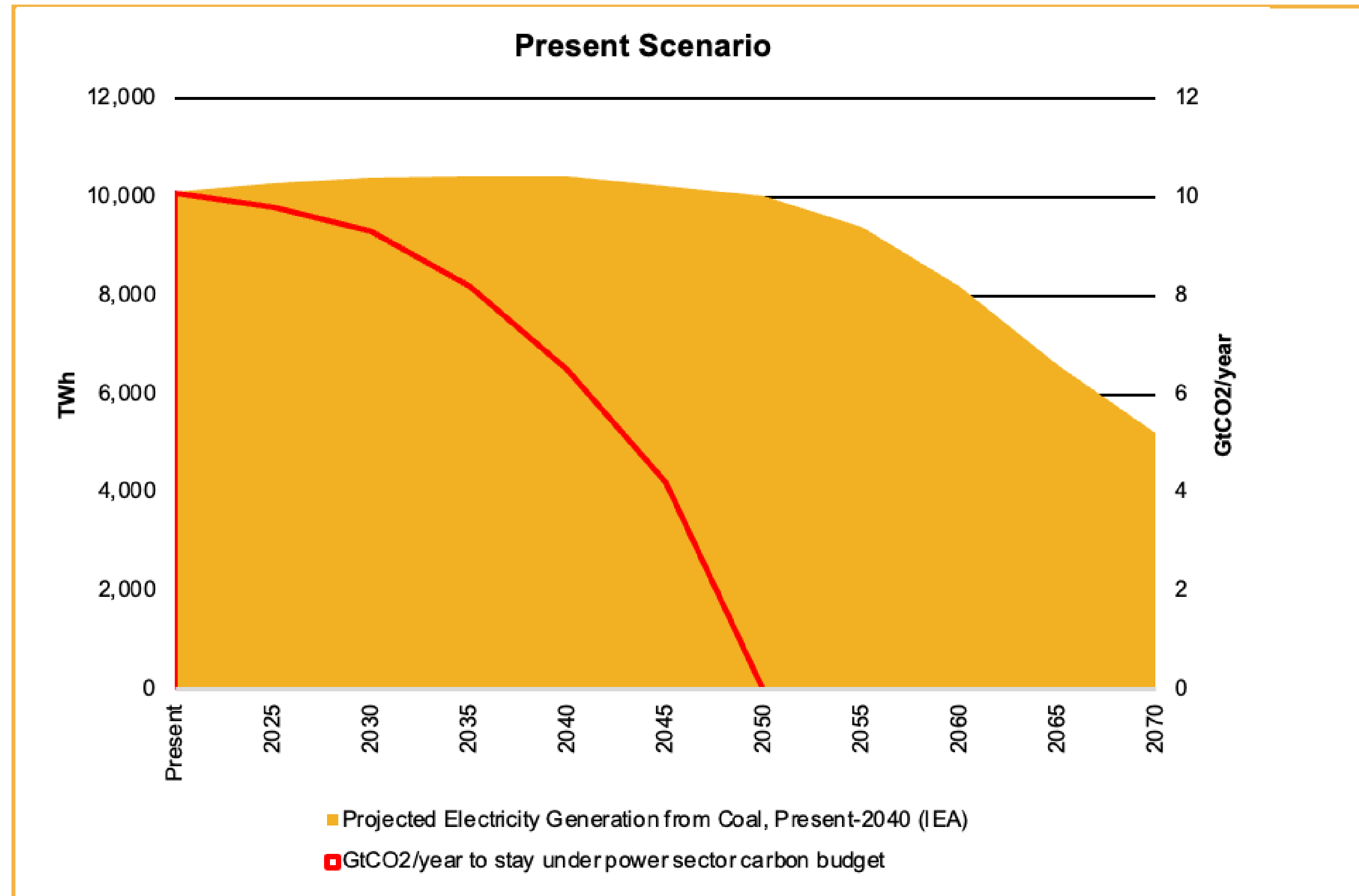
# REPOWERING COAL FLEETS

FAST, REPEATABLE, LOW COST, CLEAN POWER  
FROM EXISTING ASSETS

OCTOBER 2021

TERRA  
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# 'LOCKED-IN' COAL WILL EXCEED THE CARBON BUDGET

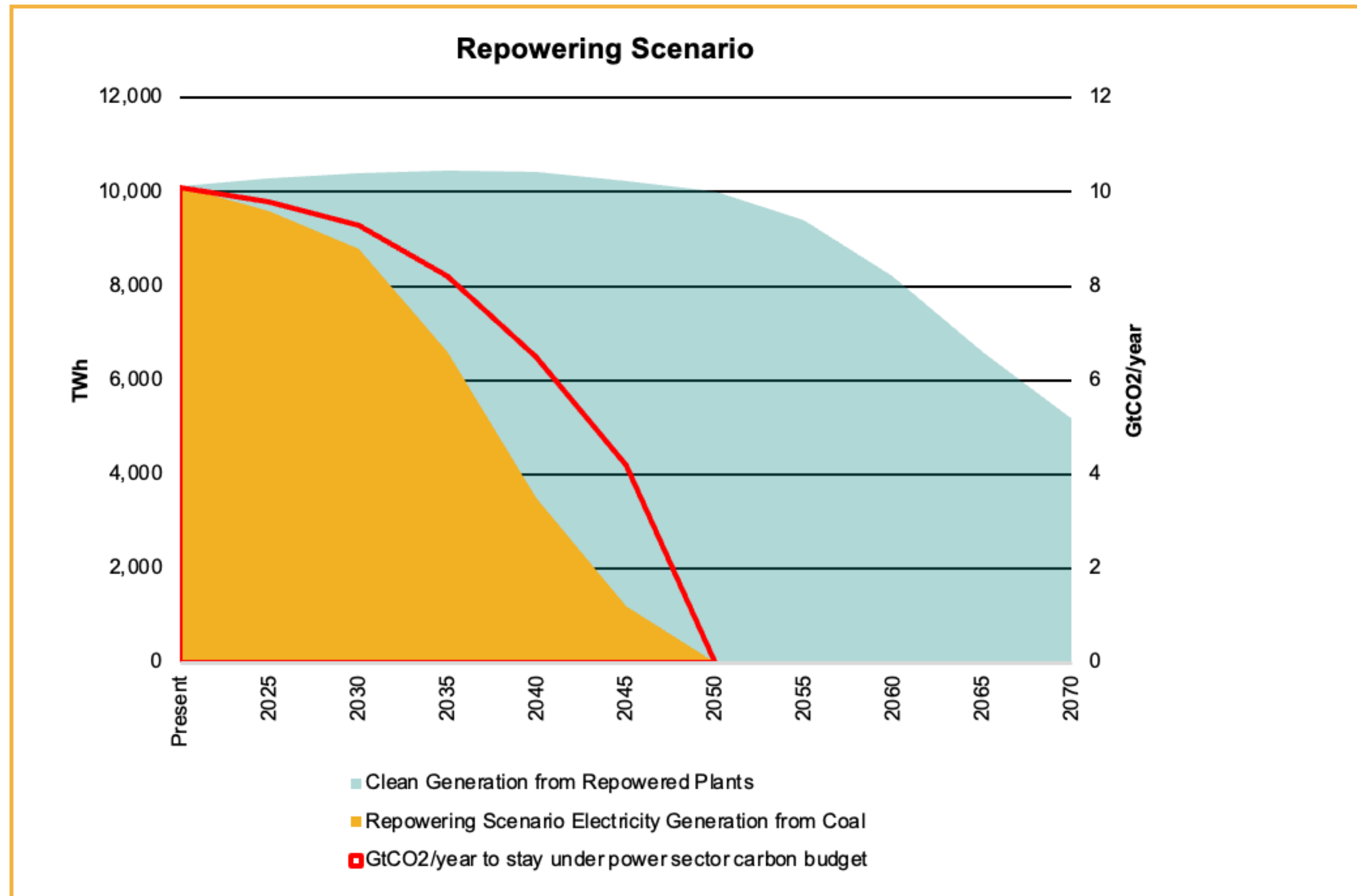


**Coal contributes almost half of total global carbon emissions**

**Half of the global coal fleet is less than 20 years old**

- More than \$1 trillion of capital invested in the existing coal fleet has yet to be recovered
- It is entirely unrealistic to assume that we will abandon these assets before the end of their useful life
  - Jobs
  - Electricity generation
  - Tax revenue
  - Reliability

# WHAT IF WE COULD 'UNLOCK' THE GLOBAL COAL FLEET TO MEET NET ZERO?



**Repowering separates the benefits of coal fleets from the emissions**

- Requires high volume delivery models
- Applicable to large variety of plant and site conditions
- Must be low-cost
- De-risked project delivery

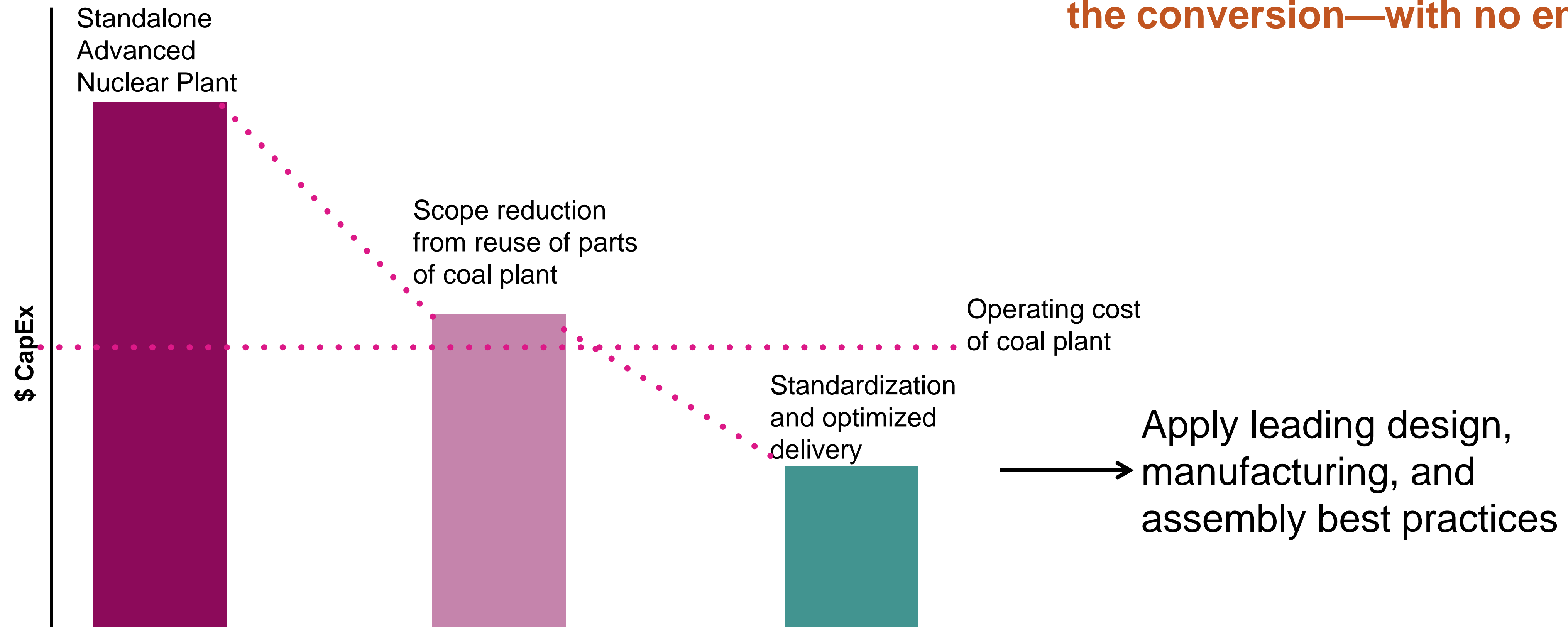
# REPOWERING COAL: GOALS

**Repowering coal fleets via a fast, repeatable system resulting in carbon negative plants that are cheaper to operate than before.**

- Reduce engineering costs
- Reduce risk to create a low risk, attractive financial investment opportunity
- Reduce construction time
- Reduce nuclear regulatory scope
- Create massive economic value from imperiled assets
- Deliver highly competitive plants after repowering
- Long term socio-economic benefits
- Decouple energy from emissions

# COST-COMPETITIVE COAL PLANT REPOWERING

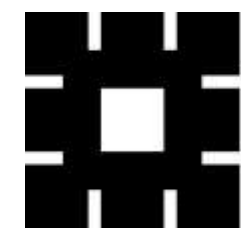
**Plant will be cheaper to operate after the conversion—with no emissions**



# TEAM: TRANSFORMING A PROBLEM INTO AN OPPORTUNITY

- \$1.4 million project underway
- Global team of experts

TERRA  
PRAXIS



**Bryden Wood**



**University  
at Buffalo**



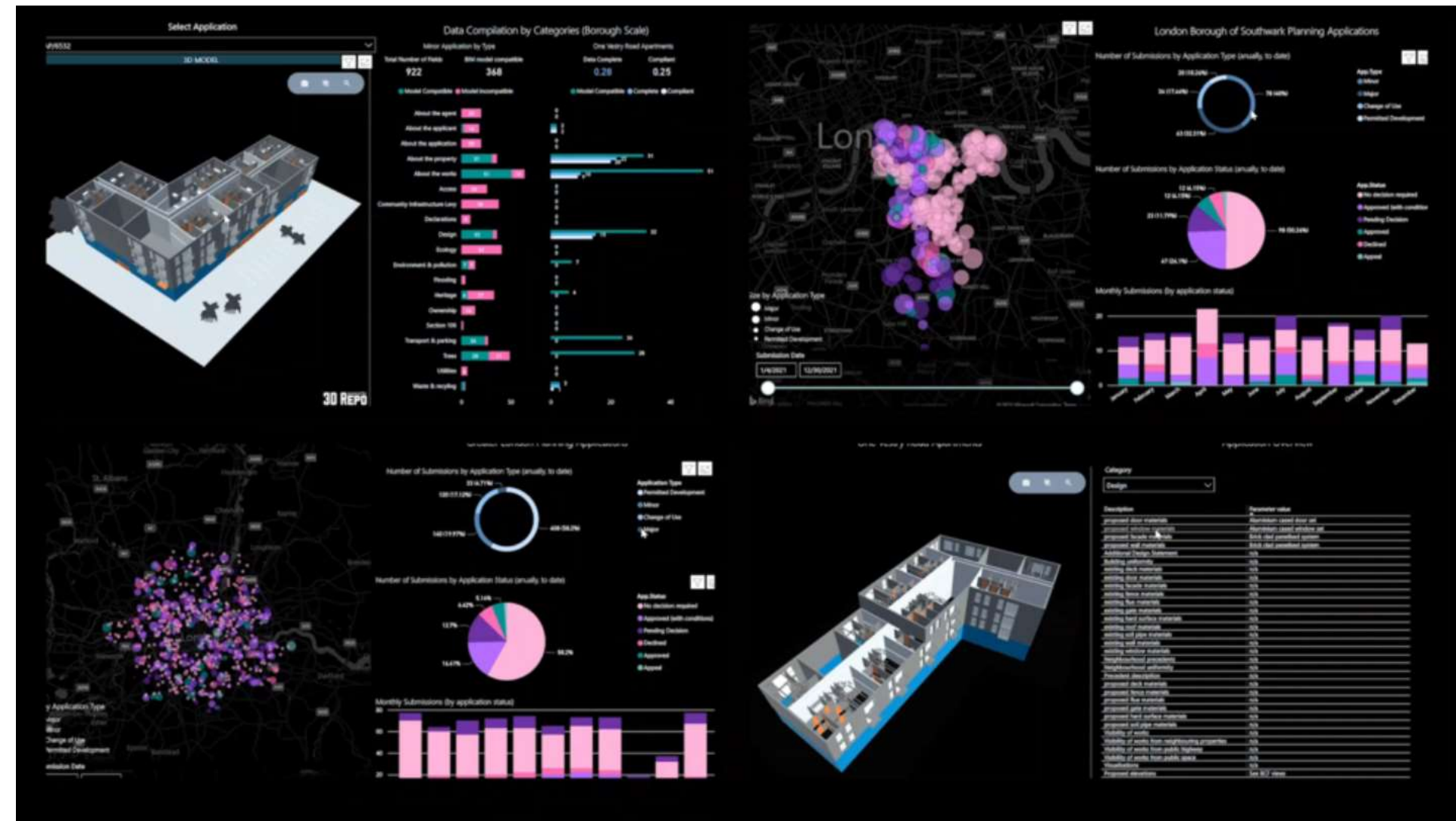
**Southern Company**



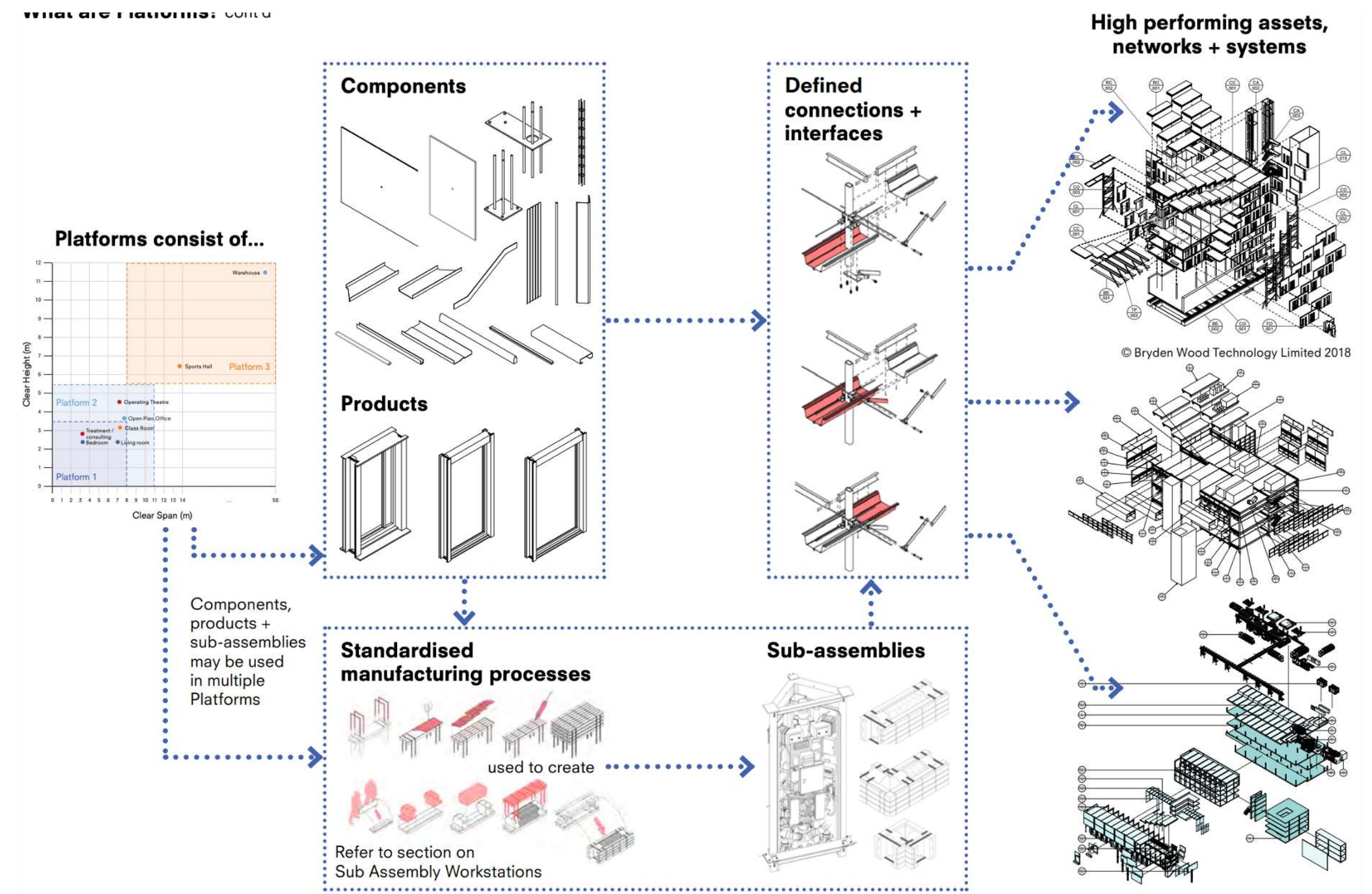
Microsoft



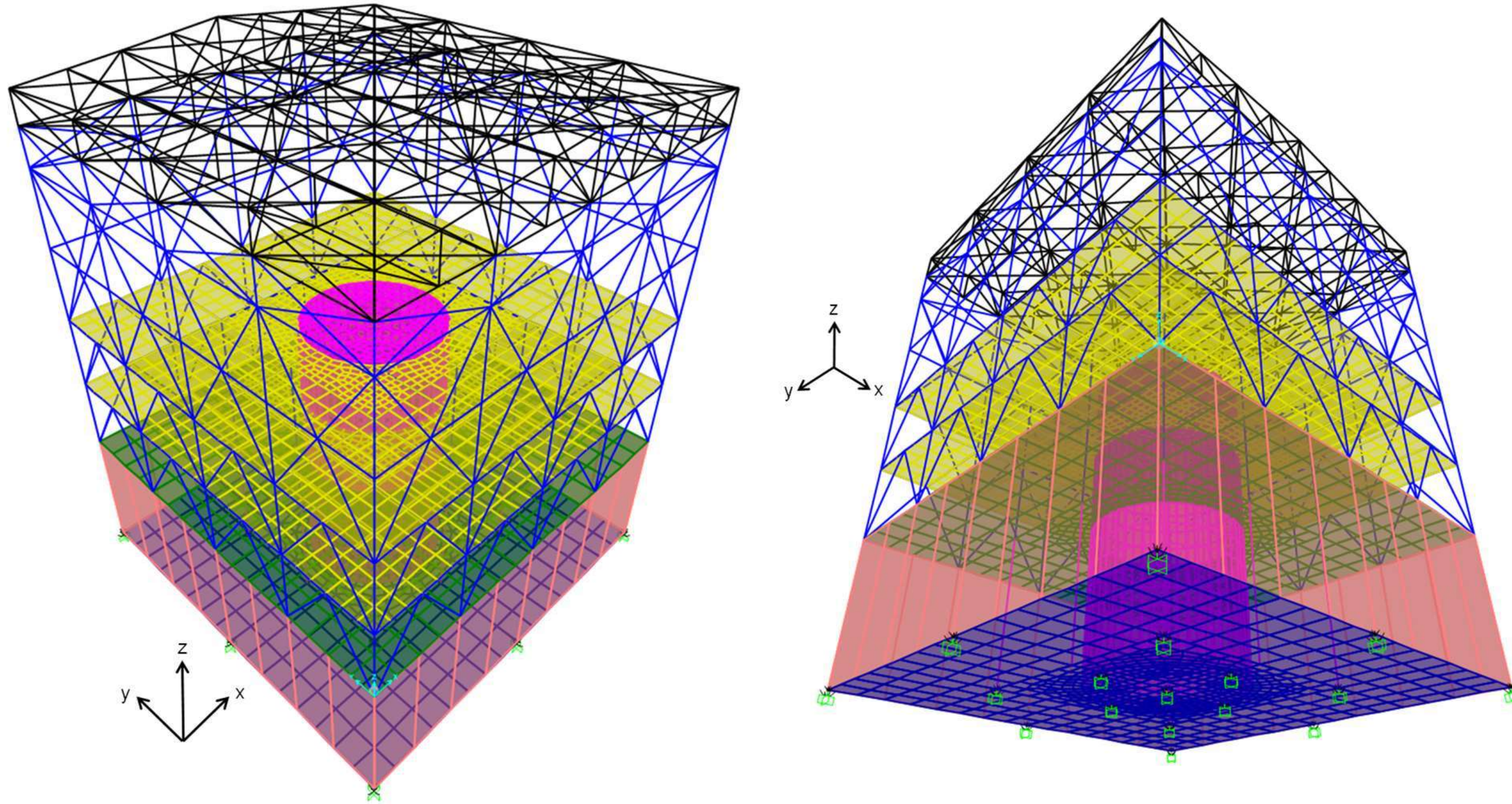
# AUTOMATED PLATFORM DESIGN FOR MANUFACTURING AND ASSEMBLY



These combined approaches have already reduced design time for a state-of-the-art data center from 10 months to 6 hours and reduced cost and construction time by 40%.

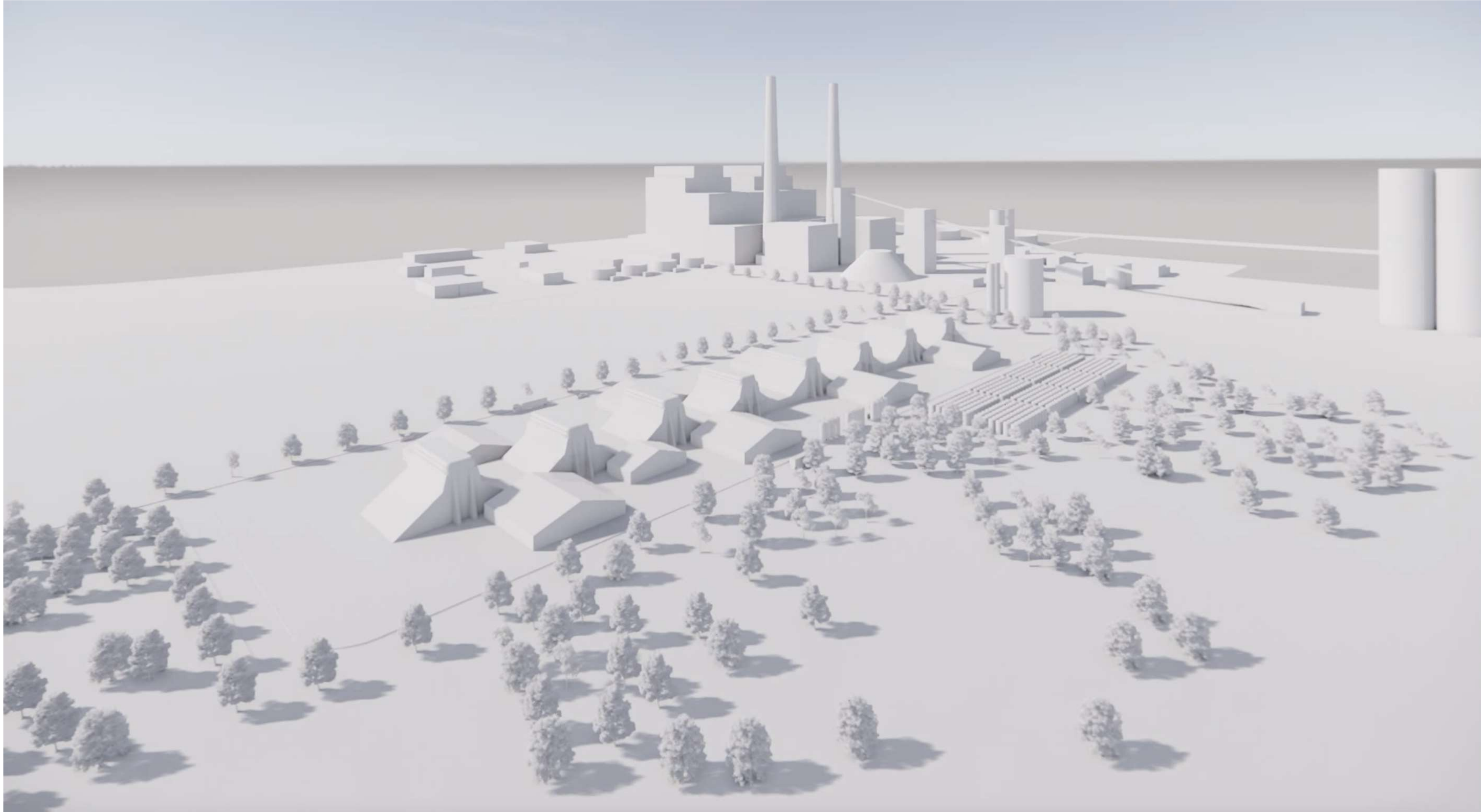


# STANDARDIZATION AND SEISMIC ISOLATION





# DESIGN SPRINT 1



# FINISHED PRODUCT AND SUBSEQUENT OPPORTUNITIES

## FINISHED PRODUCT

- Flexible, dispatchable clean power generation to complement renewables



## SUBSEQUENT OPPORTUNITIES

- Co-generation of power, heat, and hydrogen
- Lower operating costs
- Atmospheric carbon capture
- Synfuels production
- Clean energy based economic development
- Attracting new energy intensive industries: metals processing; data centres; chemicals

# CLIMATE X PROSPERITY

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