

Meeting Tomorrow's Housing Challenges

23 09 2014

Craig White

@wood_for_good
white-design.com

@TweetEco

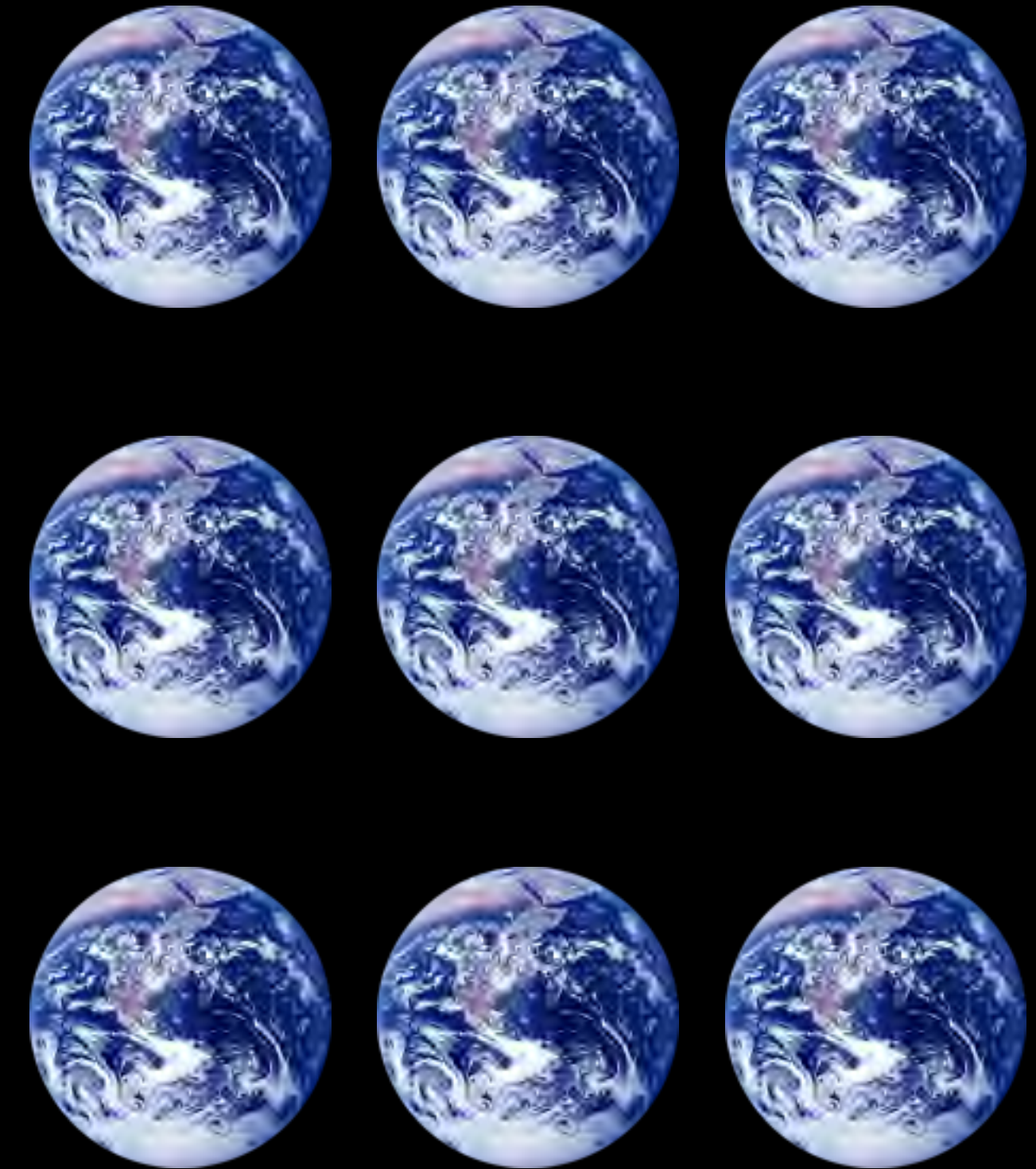
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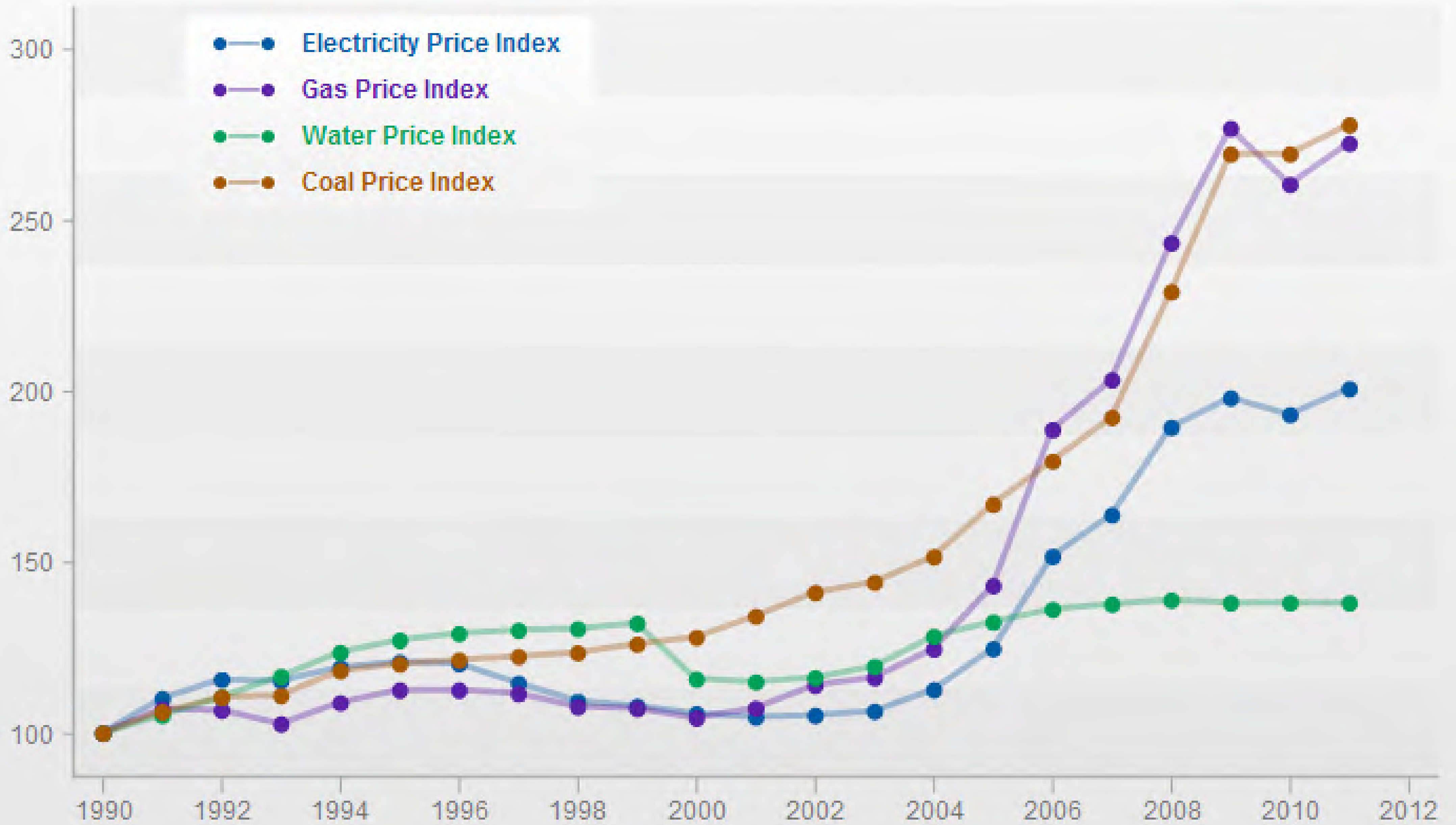


1.9 hectares per person

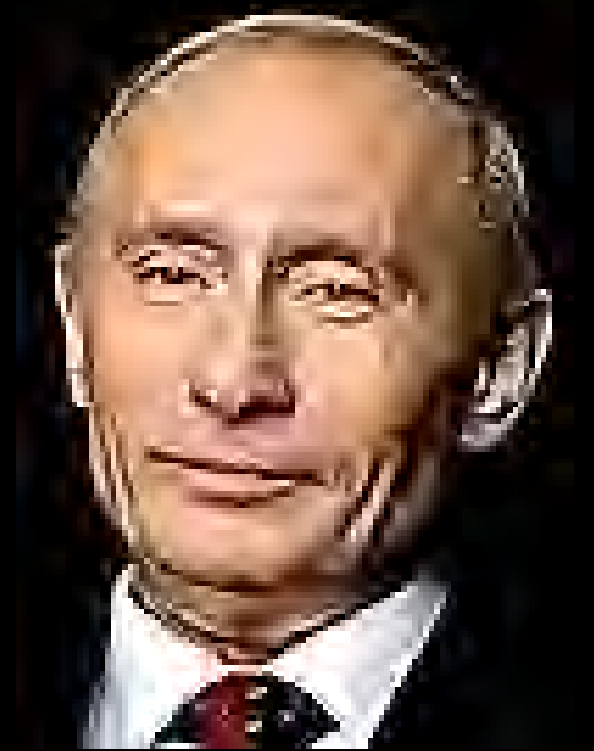


america 12 hectares
europe 6 hectares





40% from the
middle east

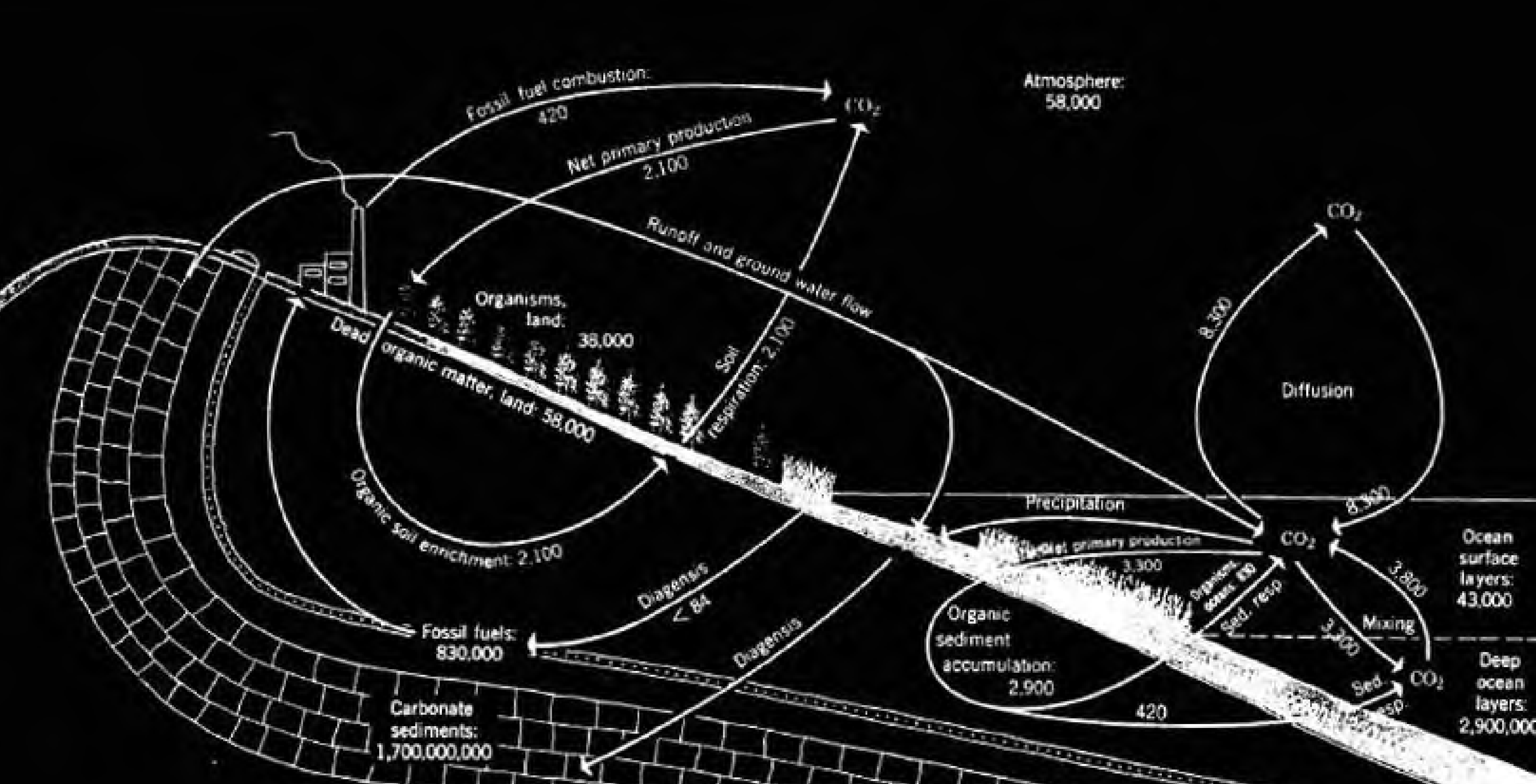


40%



by 2020 the UK will import 80% of its gas needs - from where?

gas supply strategic risk



carbon cycle



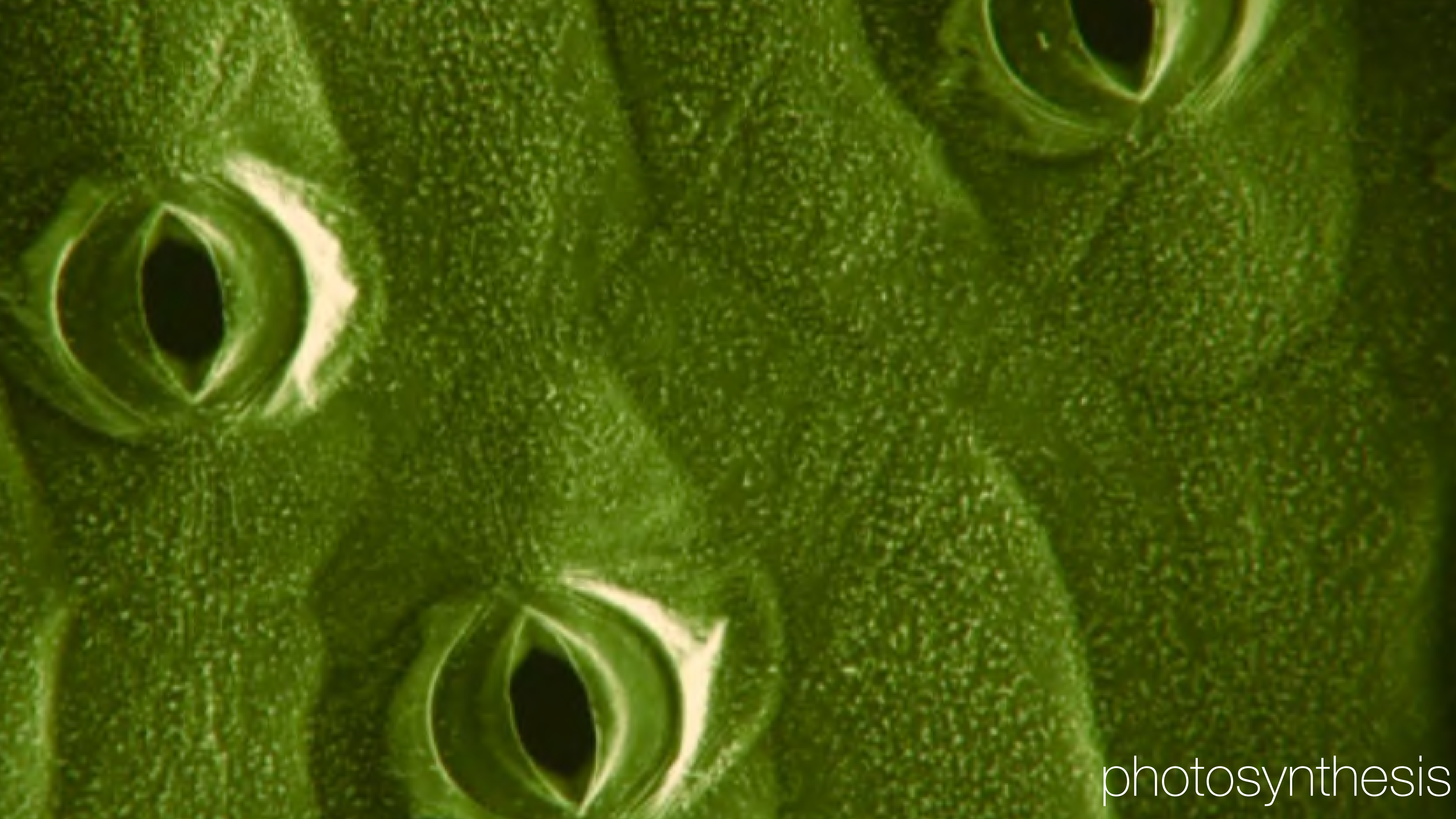
photosynthesis



photosynthesis



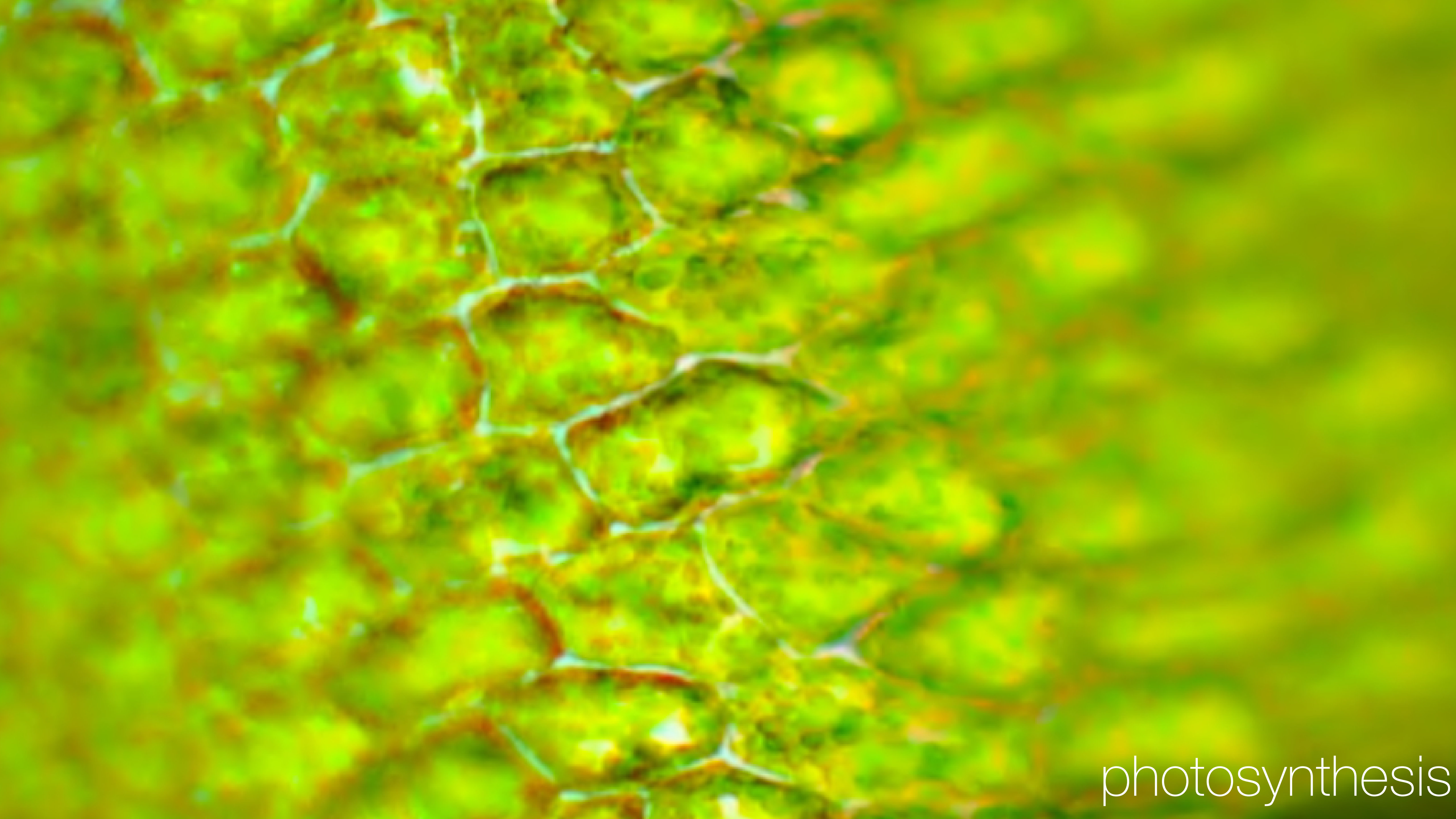
photosynthesis



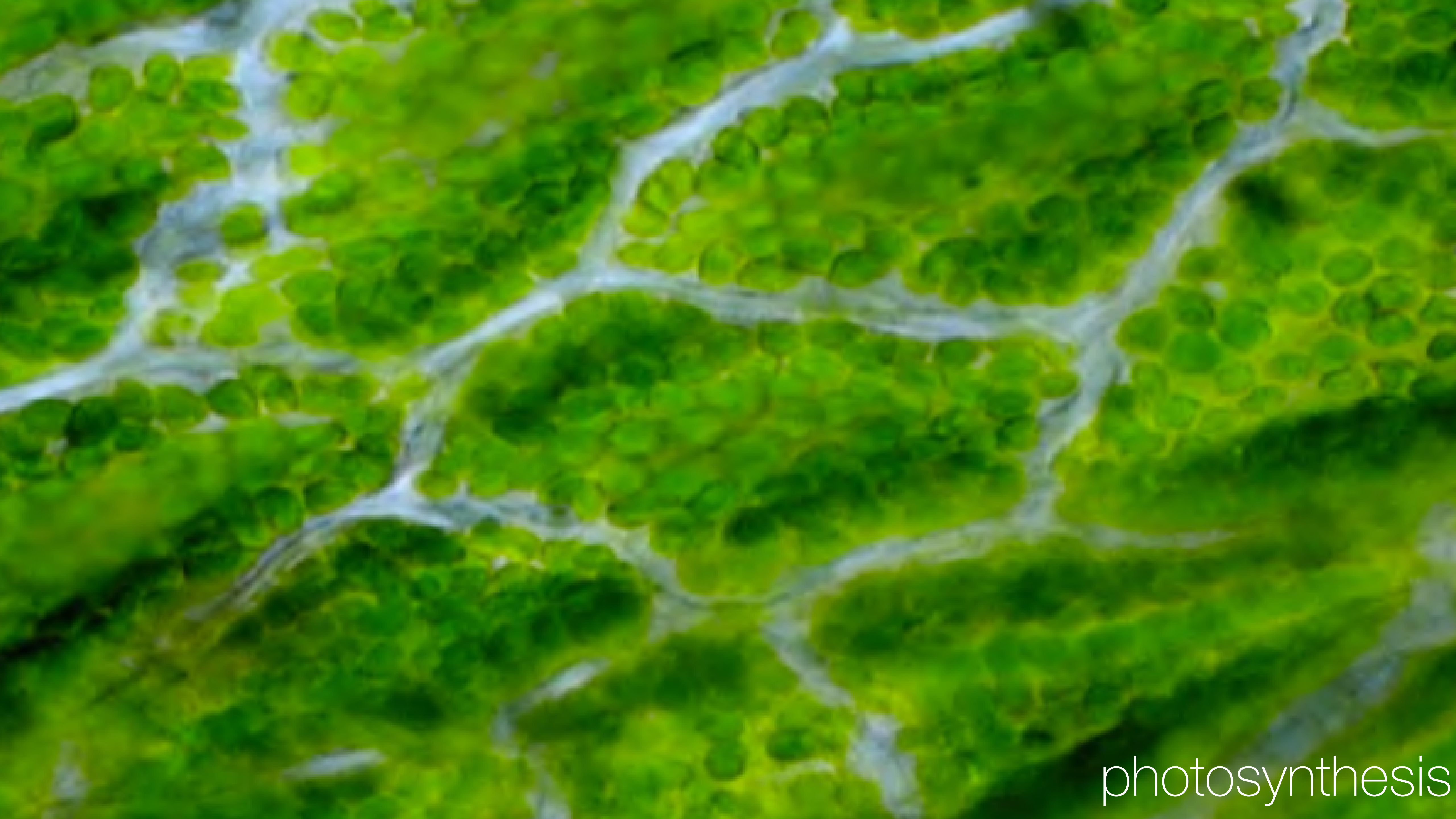
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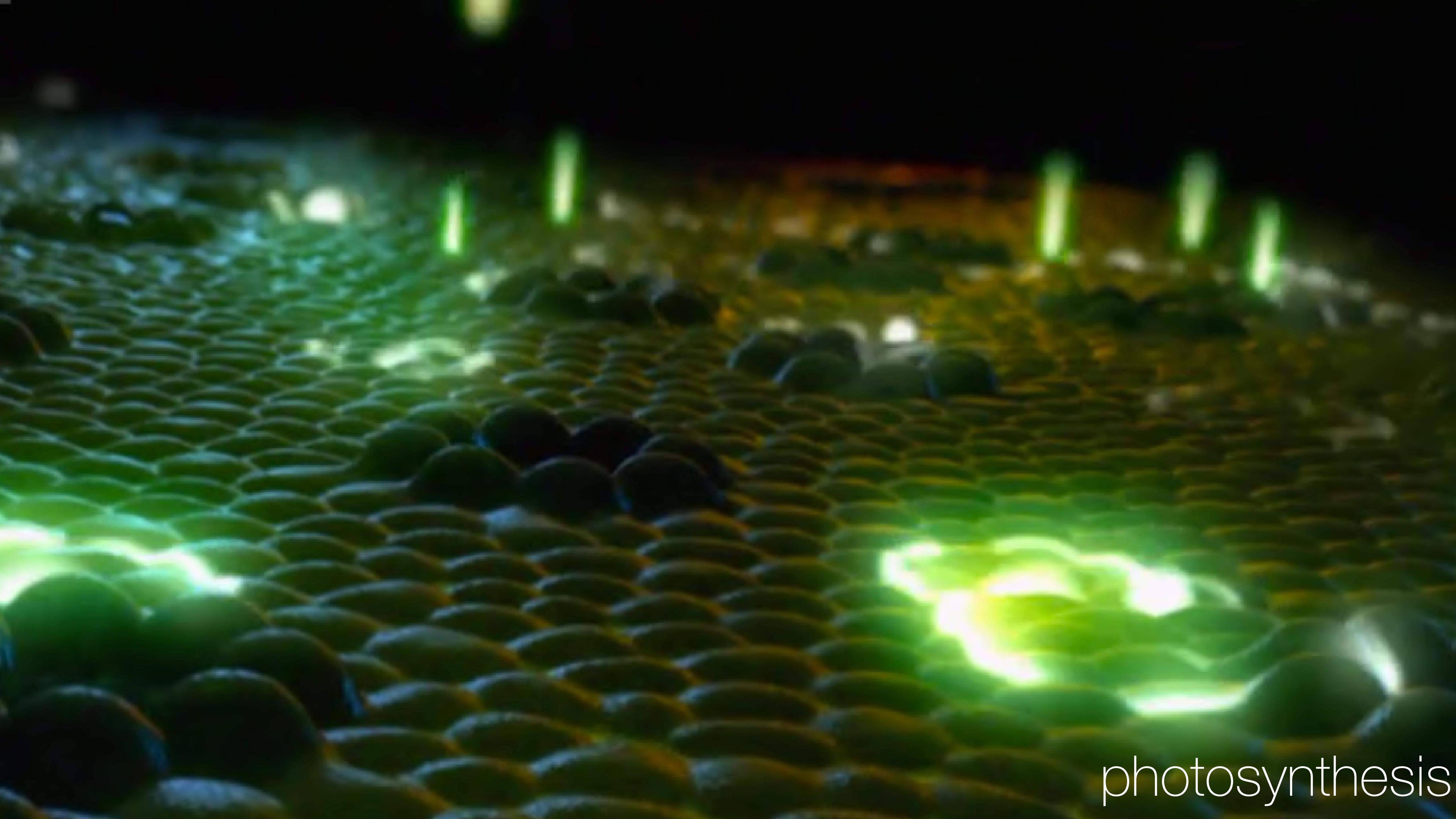
photosynthesis



photosynthesis



photosynthesis



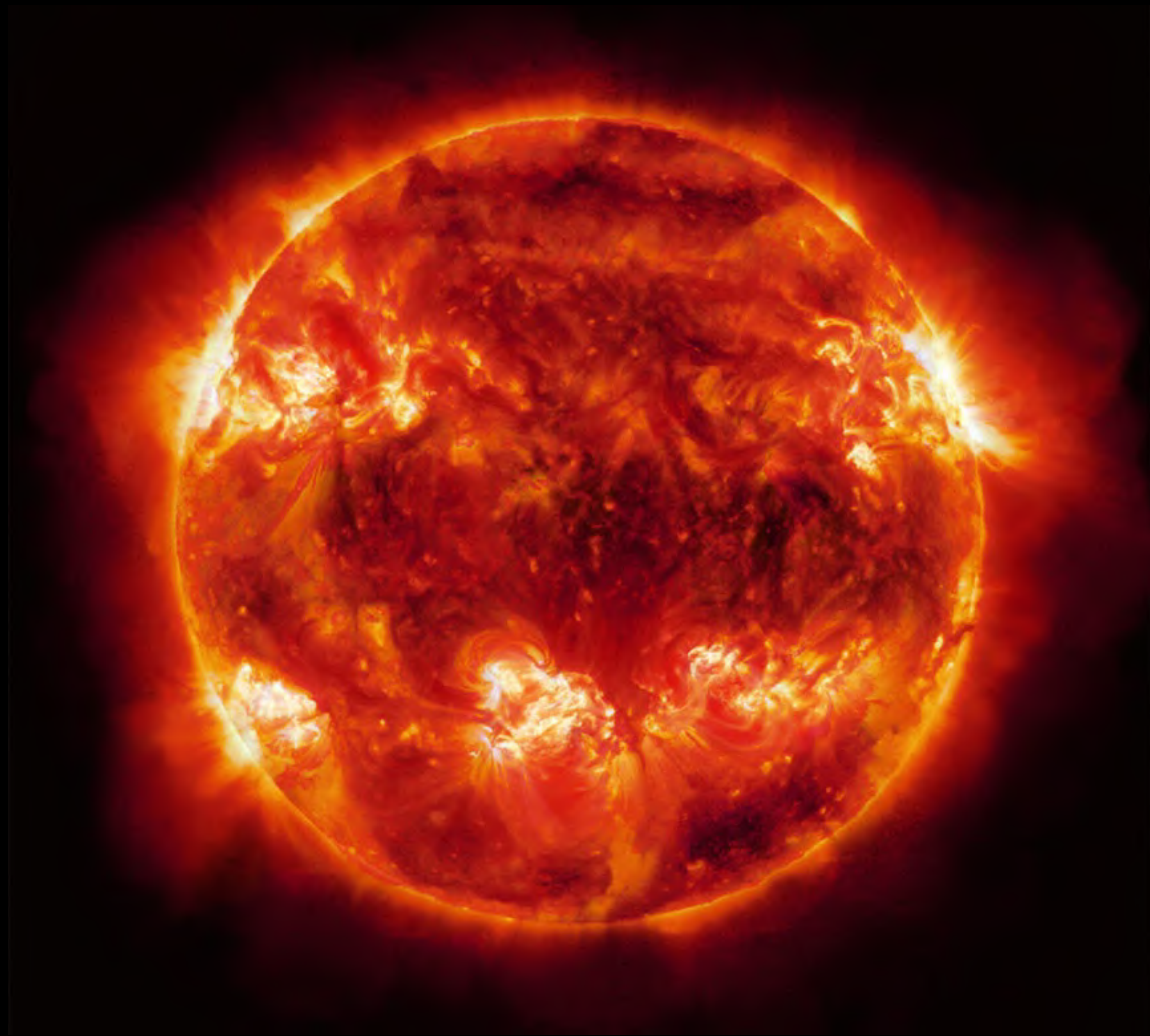
photosynthesis

photosynthesis 100 tn Watts pa

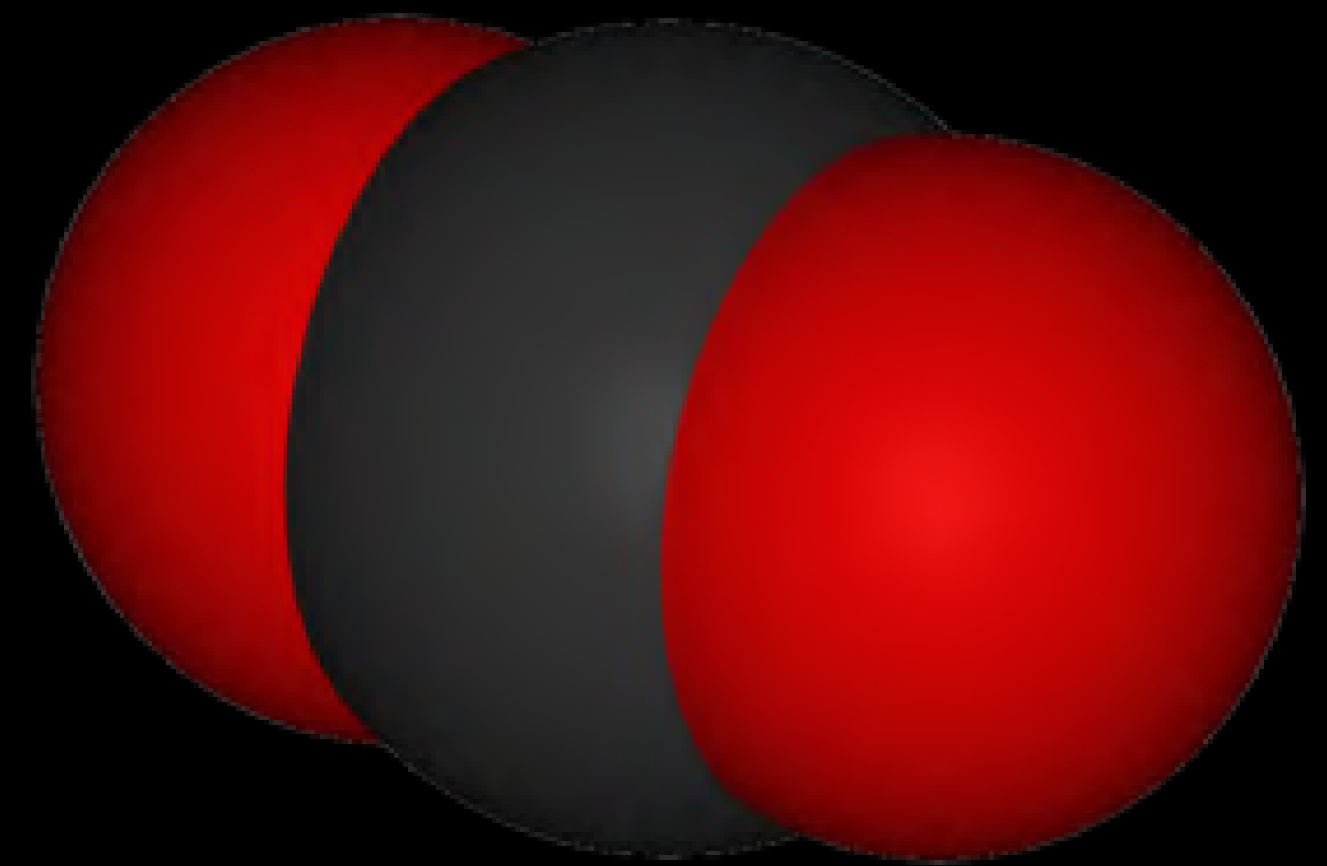
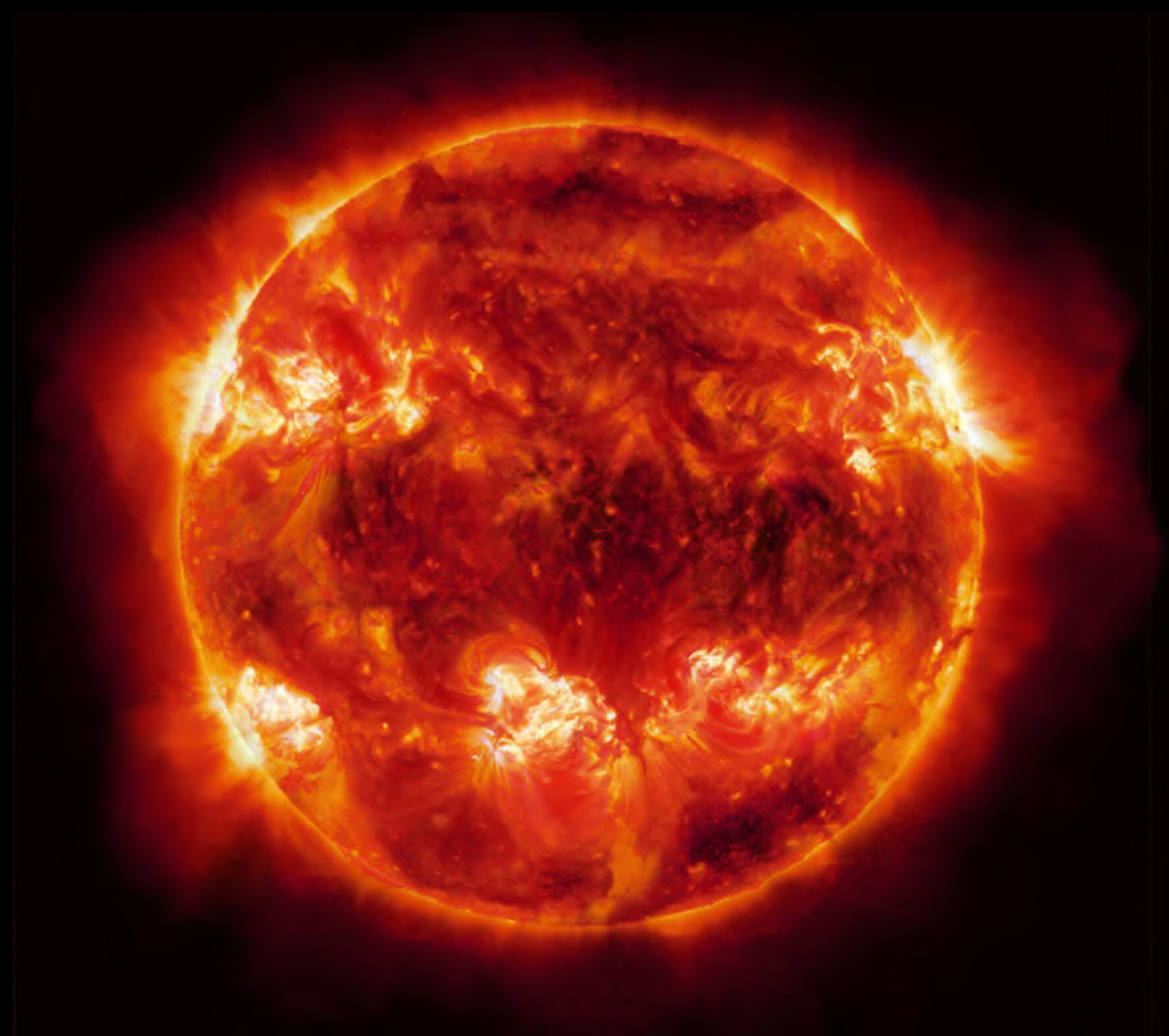
40 times the energy use of USA

110 bn tonnes of carbon

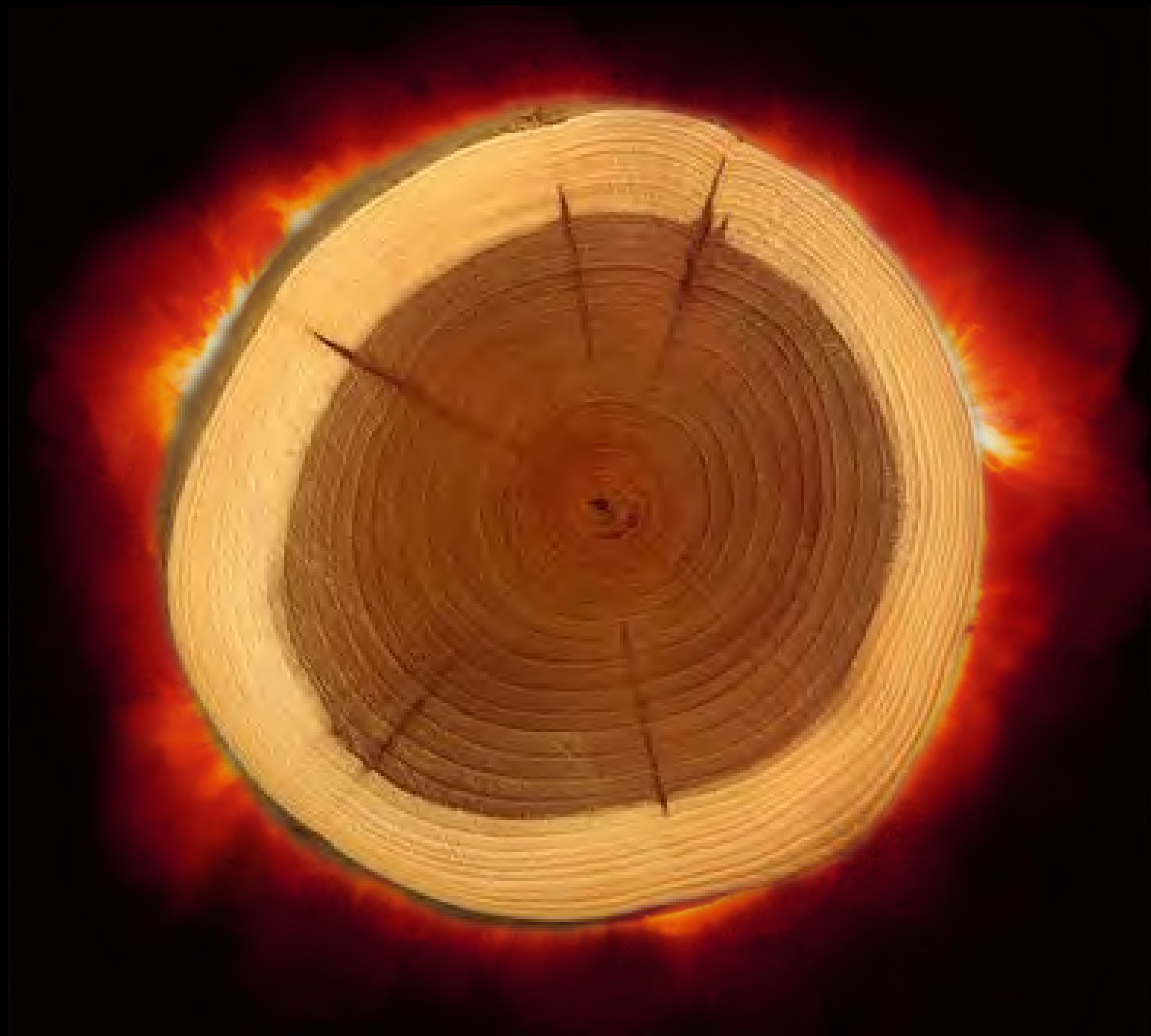
404 bn tonnes of CO₂



photosynthesis



photosynthesis - sunlight + water + CO₂ = cellulose



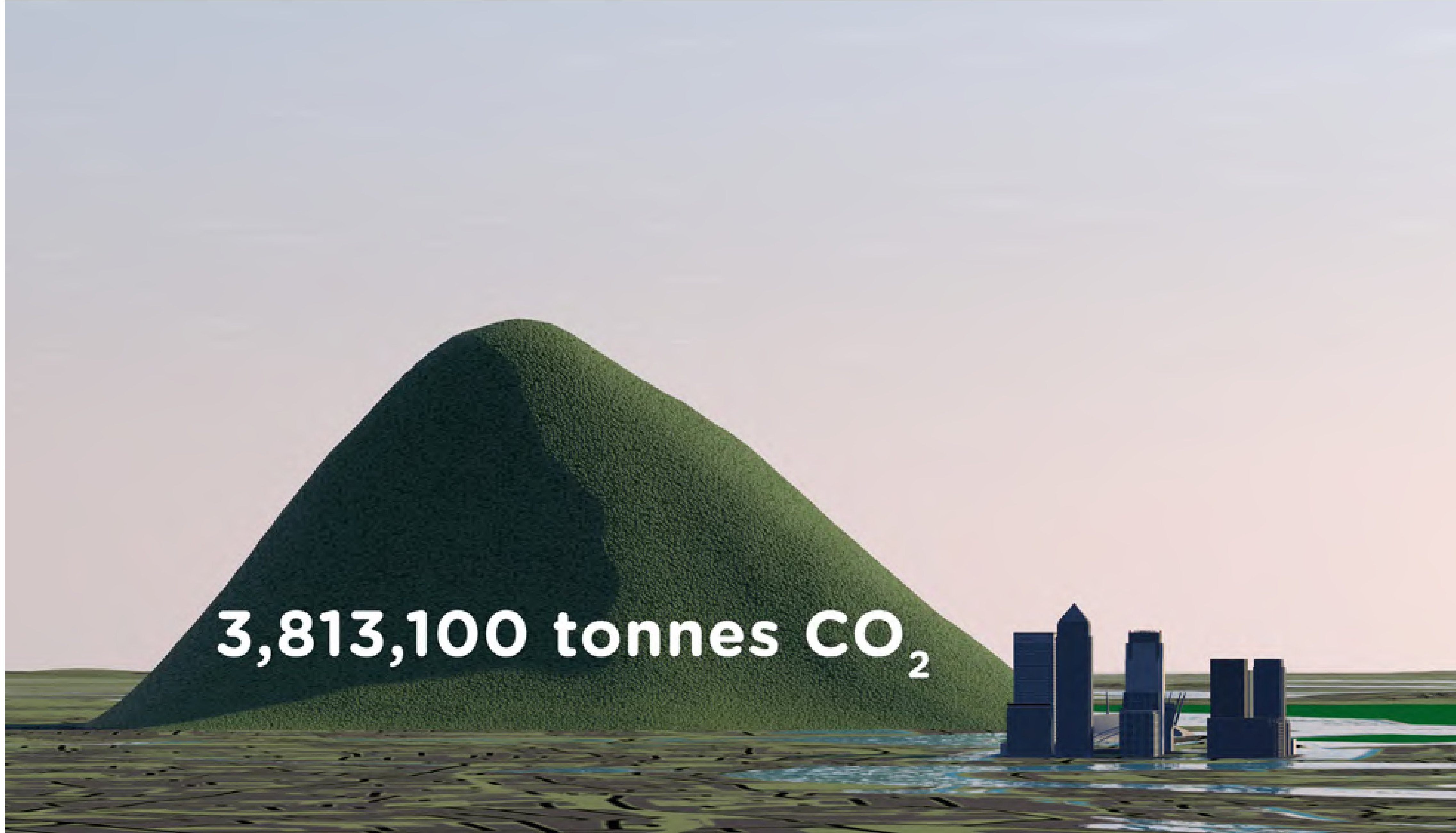
800 kg of CO₂ per m³

Carbon stored in a typical house
(using wood products where possible)



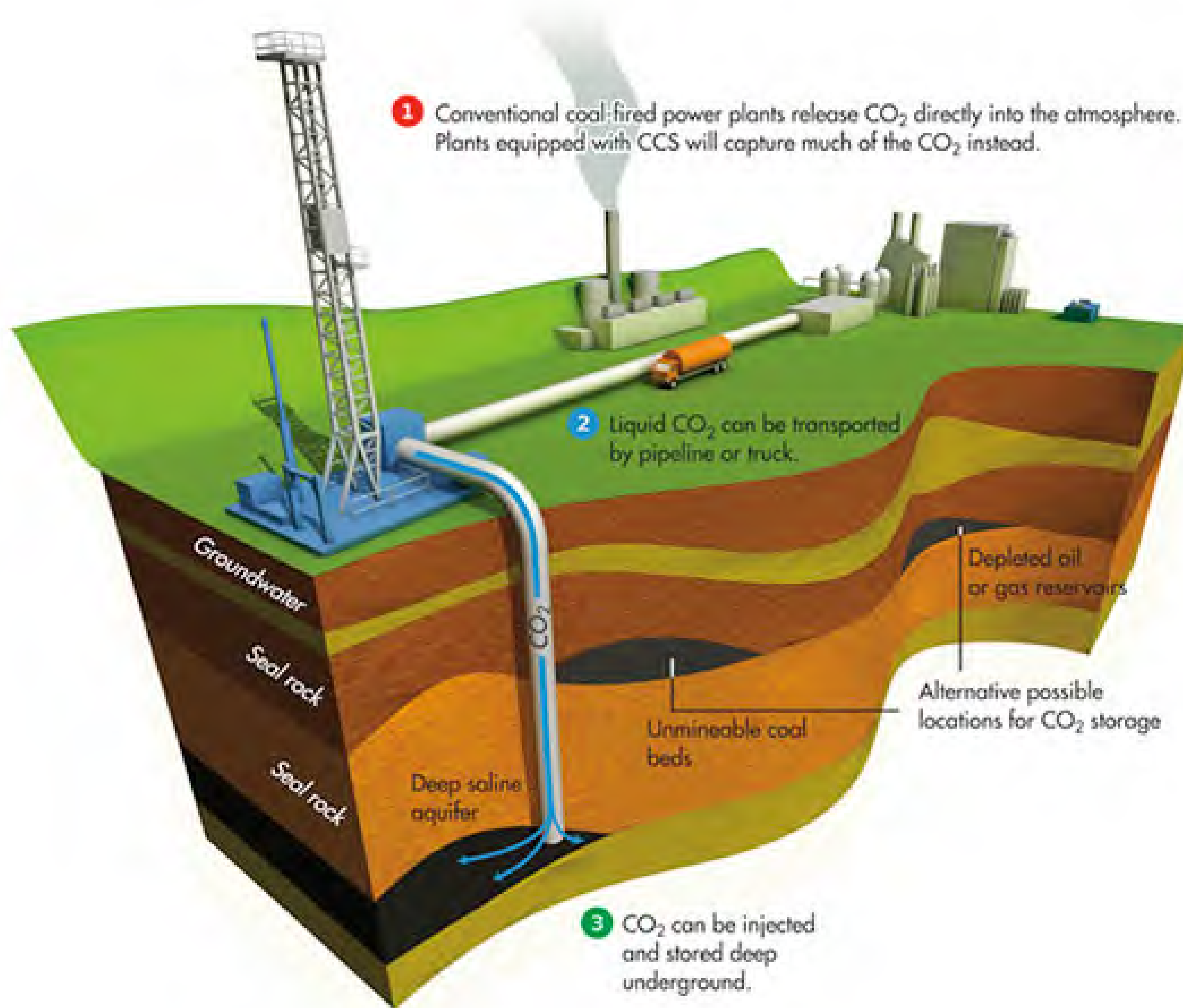
19,065 kg CO₂





3,813,100 tonnes CO₂









wood

+

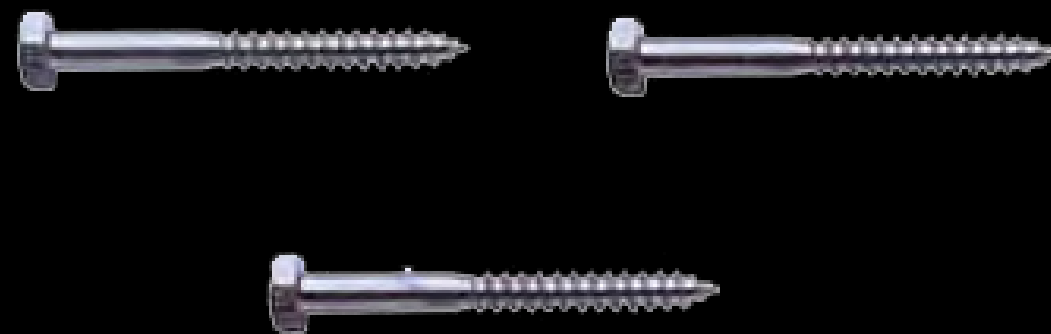


straw or hemp

+



lime
(render)



screws and glue





211 kg of CO₂ per m³







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Tomorrow's
Housing
Challenges



Wood for Good
Challenge your perceptions.

Flying Factory - built locally





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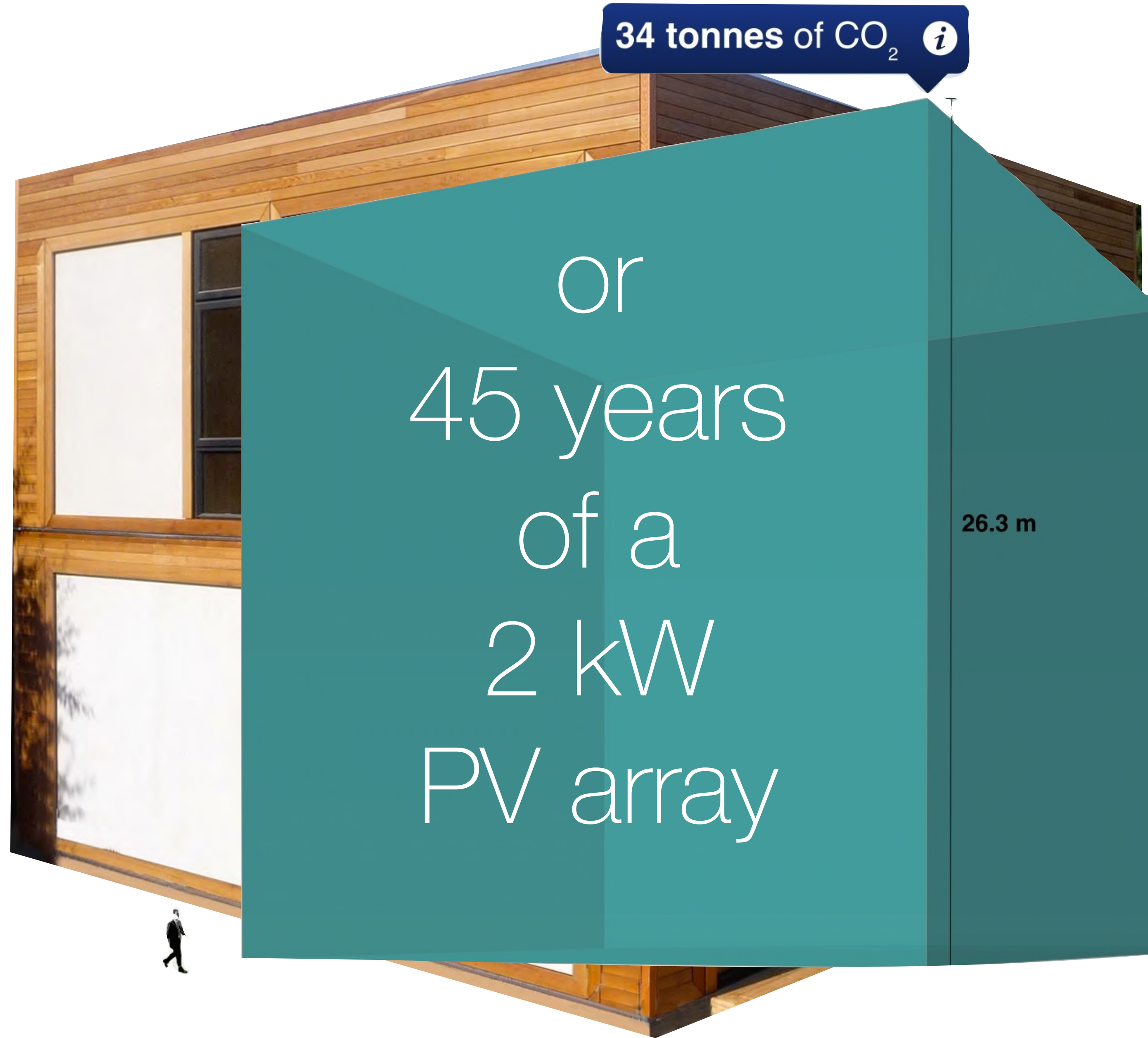


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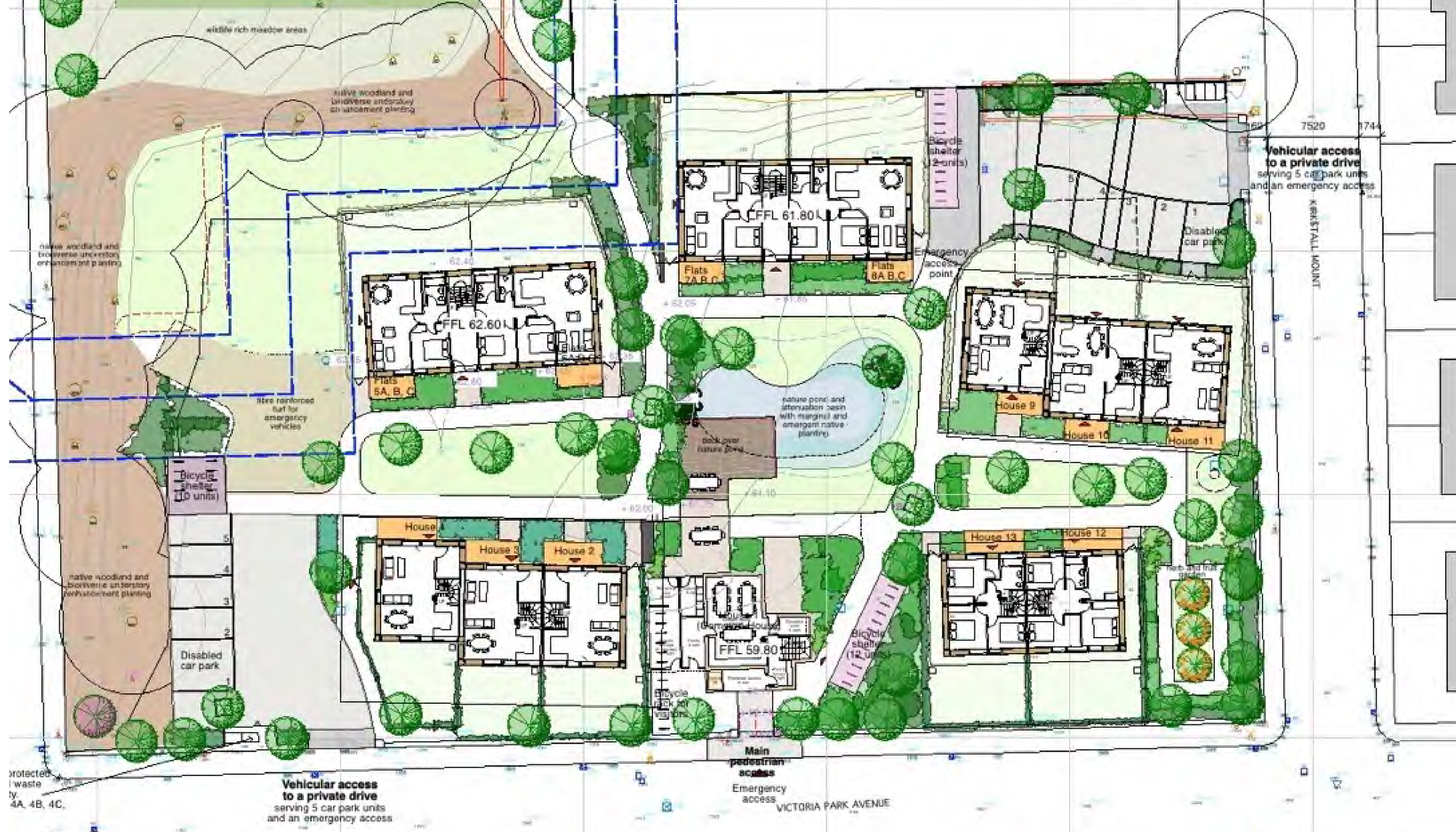


Wood for Good
Challenge your perceptions.

projects - BaleHaus at Bath









THE ECOS HAVE LANDED

Meet the pioneering eco-warriors living in Bramley, West Leeds. Their environmentally sustainable co-housing project LILAC (Low Impact Living Affordable Community) is the first of its kind in Britain

• AVELINO MANUEL, 48, BIOMEDICAL SUPPORT WORKER, AND HIS SON SAMUEL, 4
I used to live in Portugal, in a community of farmers who supported one another, collecting grapes together, digging potatoes. My wife and I were happy, and this is a child-share with the families in the other houses [in the development behind the fence]

LAURA SMITH, 53, BIOLOGY TEACHER
I sold my four-bedroom house to move here. We grow vegetables, car-share, order bread and food from other local co-ops. Our carbon footprint is 2-3 tonnes a year, compared to the average household, which is about 5 tonnes

• ROBIN FISHWICK, 53, CHAPLAIN AND SUPPORT WORKER
I feel I'm leaving the right type of legacy for my daughters, Rosa, 9 [below] and Grace. I want them to have a sense of how to live well - not just leave them a property they can use

• BETH OXLEY, 30, TRAINEE GP
It can be intense living here - it's important to get the balance between communal and personal time. We hold meetings to discuss issues. Every decision is made by consensus, which isn't always easy

• MIKE HILL, 31, SUPPORT WORKER
People think I live in a place full of naked people running around. I wish that were the case! We pay 35% of our income to live here. I earn £13,500. It's amazing that on my salary I can live in the heart of Leeds in a place like this

Quarterly heating bills
£20 - £50
90% less
than the average for Leeds

BRENDA GOSLING, 75, VOLUNTEER AND REIKI SPECIALIST
I live here with Clive, 79, who I met through a meeting about LILAC four years ago. We had a lot in common: both widowers, and interested in anything ecological. I love gardening and have an impulsive, adventurous side to me

• RICHARD THOMPSON, 34, IT PROJECT MANAGER, AND HIS DAUGHTER AMBER, 3
The walls of our houses are made of timber, with tightly packed straw bales under layers of rendering. They really hold the heat in. My average monthly gas and electricity bill is £20, compared to my colleague who pays £140!

• ROSA FISHWICK, 9
I enjoy stepping outside the door and always seeing someone I know. I'm the oldest of the little ones, we play all the time, and mummy is teaching me to garden. We've been here six months but it still feels like a holiday camp

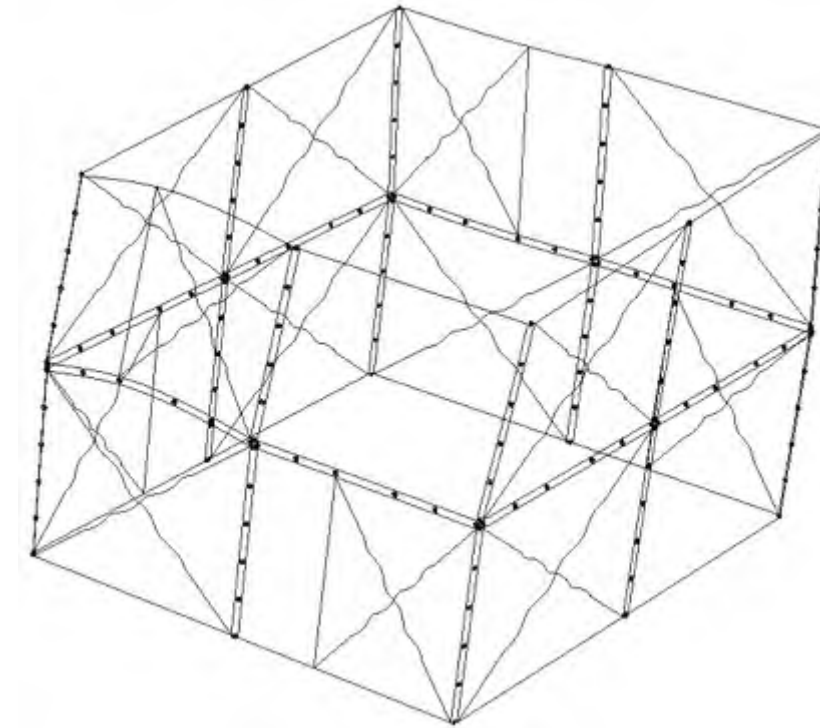
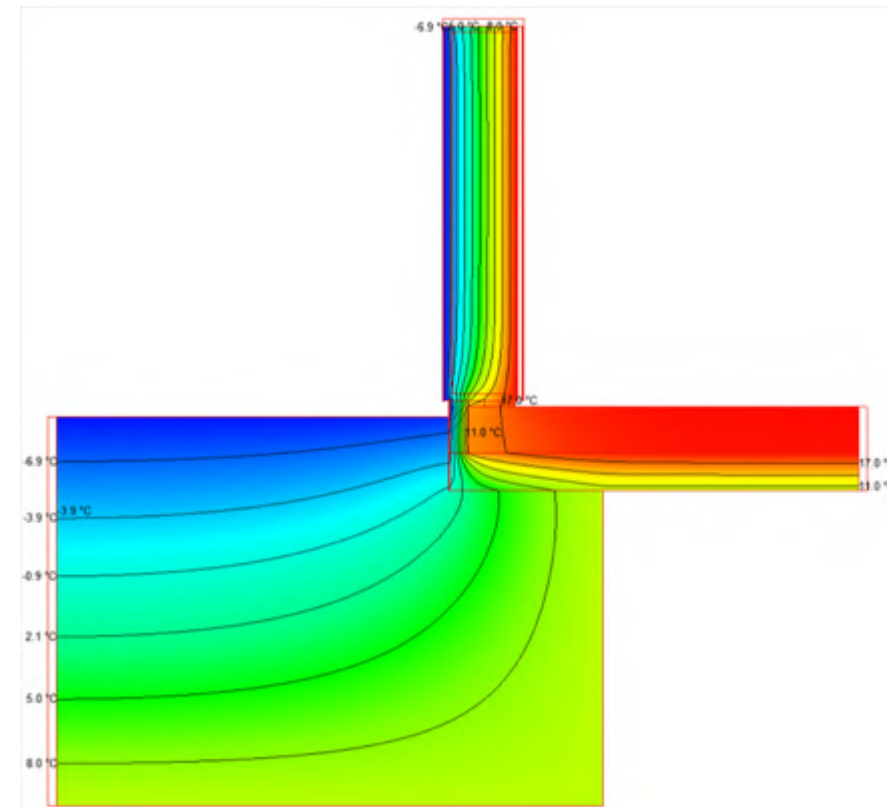
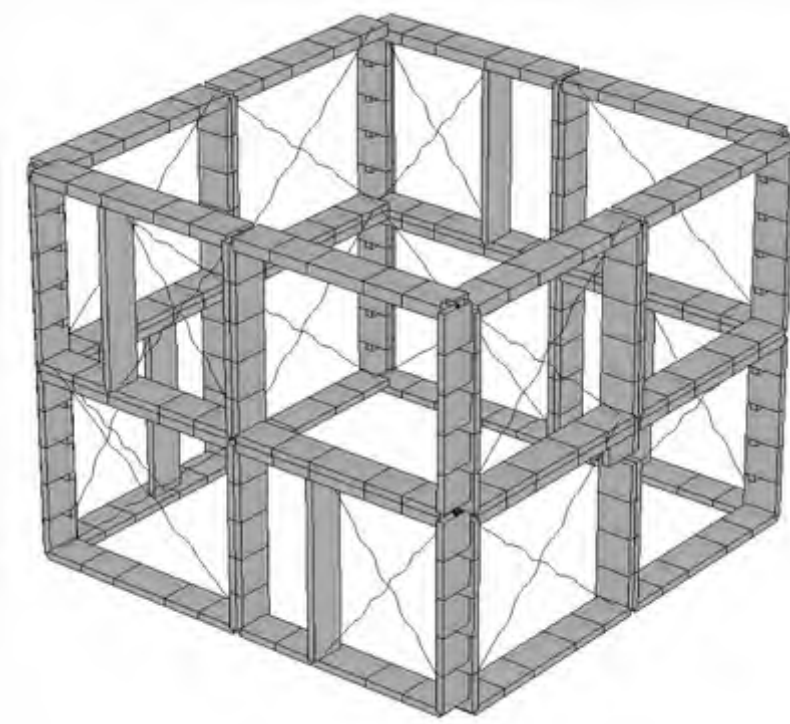
INTERVIEWS BY CLIO WILLIAMS
PHOTOGRAPH BY MUIR VIDLER

LILAC	Number	m2	Gross Cost per unit	Total	Construction Cost m2	Construction cost per unit	Total Construction costs
1 bedroom apartments	6	48	£83,688	£502,128	£1,047	£50,278	£301,666
2 bedroom apartments	6	71	£123,788	£742,728	£1,047	£74,369	£446,214
3 bedroom houses	6	95	£165,632	£993,792	£1,078	£102,454	£614,725
4 bedroom houses	2	111	£193,528	£387,056	£1,195	£132,618	£265,236
Common House	1	186	£324,291	£324,291	£1,090	£202,734	£202,734
	21	1692					
Total Development Costs				£2,949,995	Total Construction Costs		£1,830,573
Gross Cost/m2				£1,743		m2	£1082
						sq ft	£101
Affordability							
Average House price Leeds	£ 170,655	Source Land Registry of England & Wales April - June 2013					
Average House price LILAC	£ 140,476						
Percentage reduction	18% Less						



Ecology

Building Society



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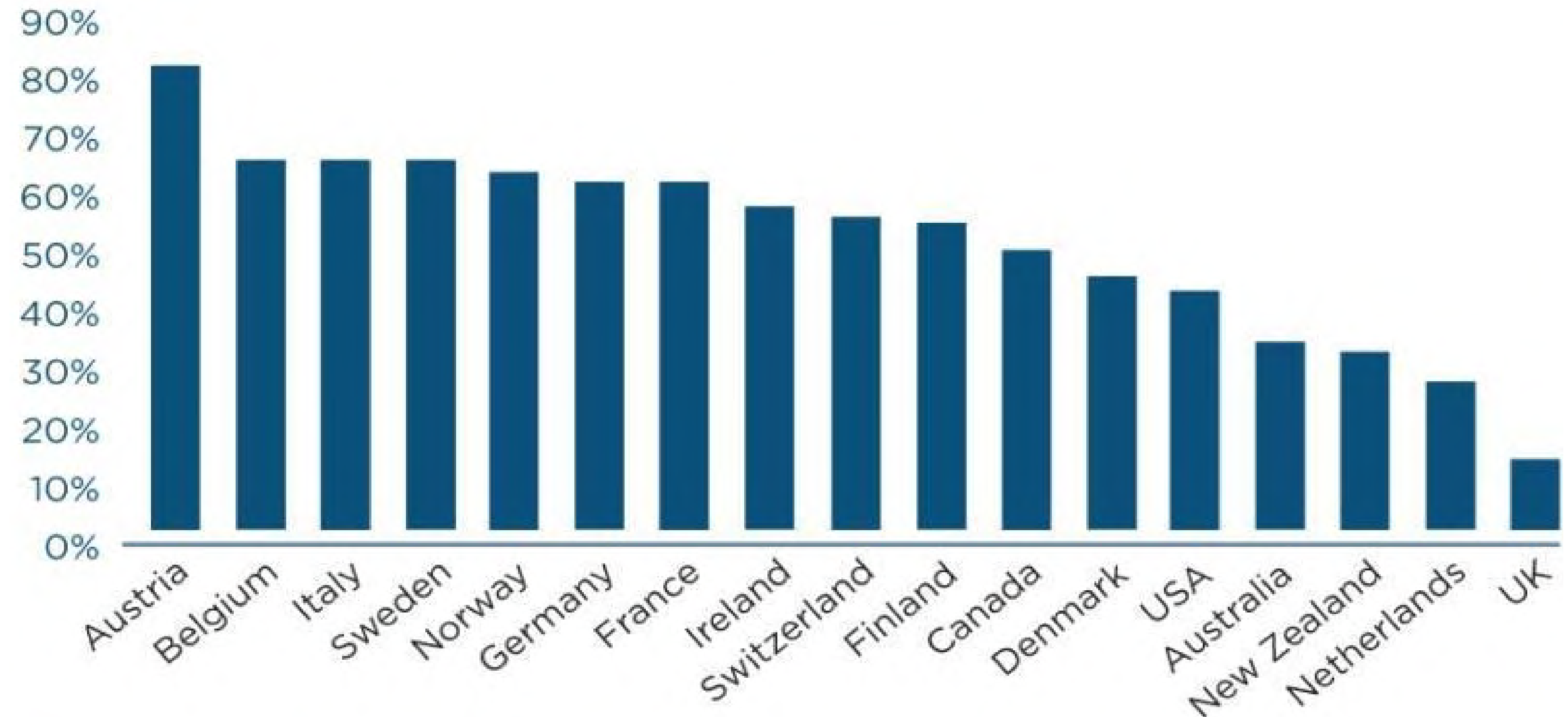
Tomorrow's
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whole building systems - prefabrication

- Cross Party Support
- Customer Demand
- NPPF
- HCA Pilots
- CIL Exemption
- Custom Build Association within NaSBA
- Mortgage Products
- S106, Consumer Marketing, Public Land



67% would not buy from a volume housebuilder
53% want to Custom Build at some stage
30% want to Custom Build in next 5 years
12% want to NOW = 6 million people
80% use Rightmove = 400k per month



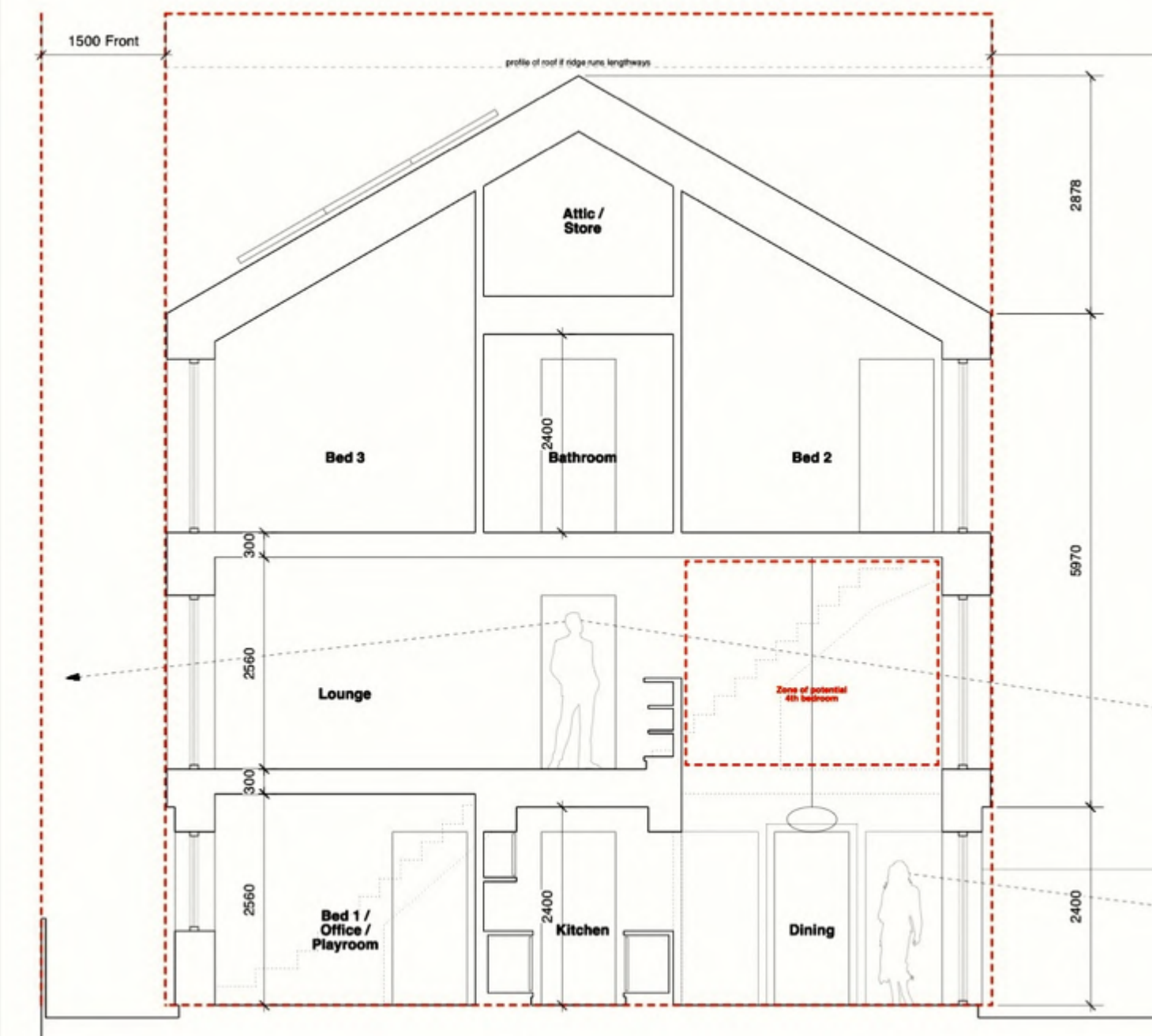
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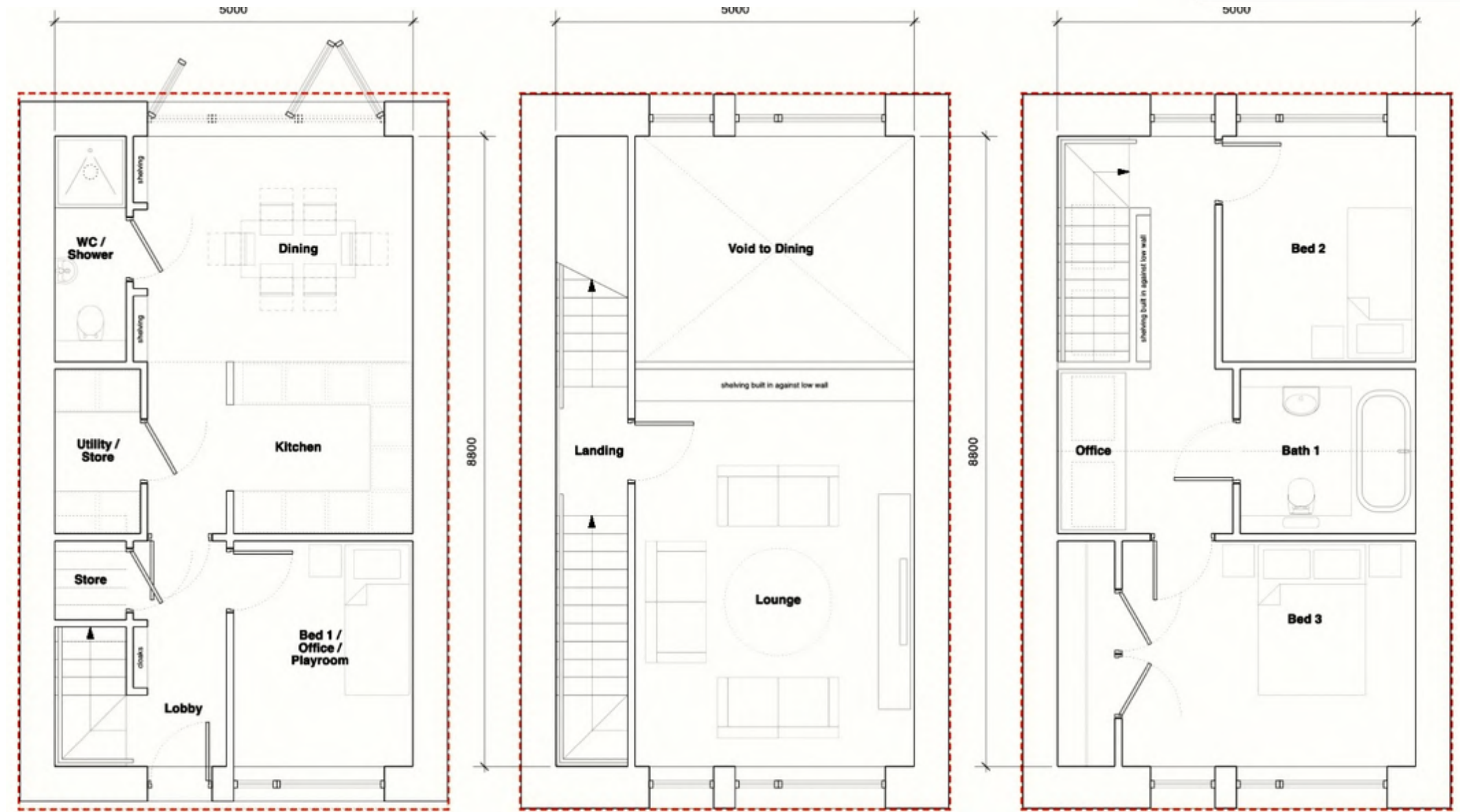
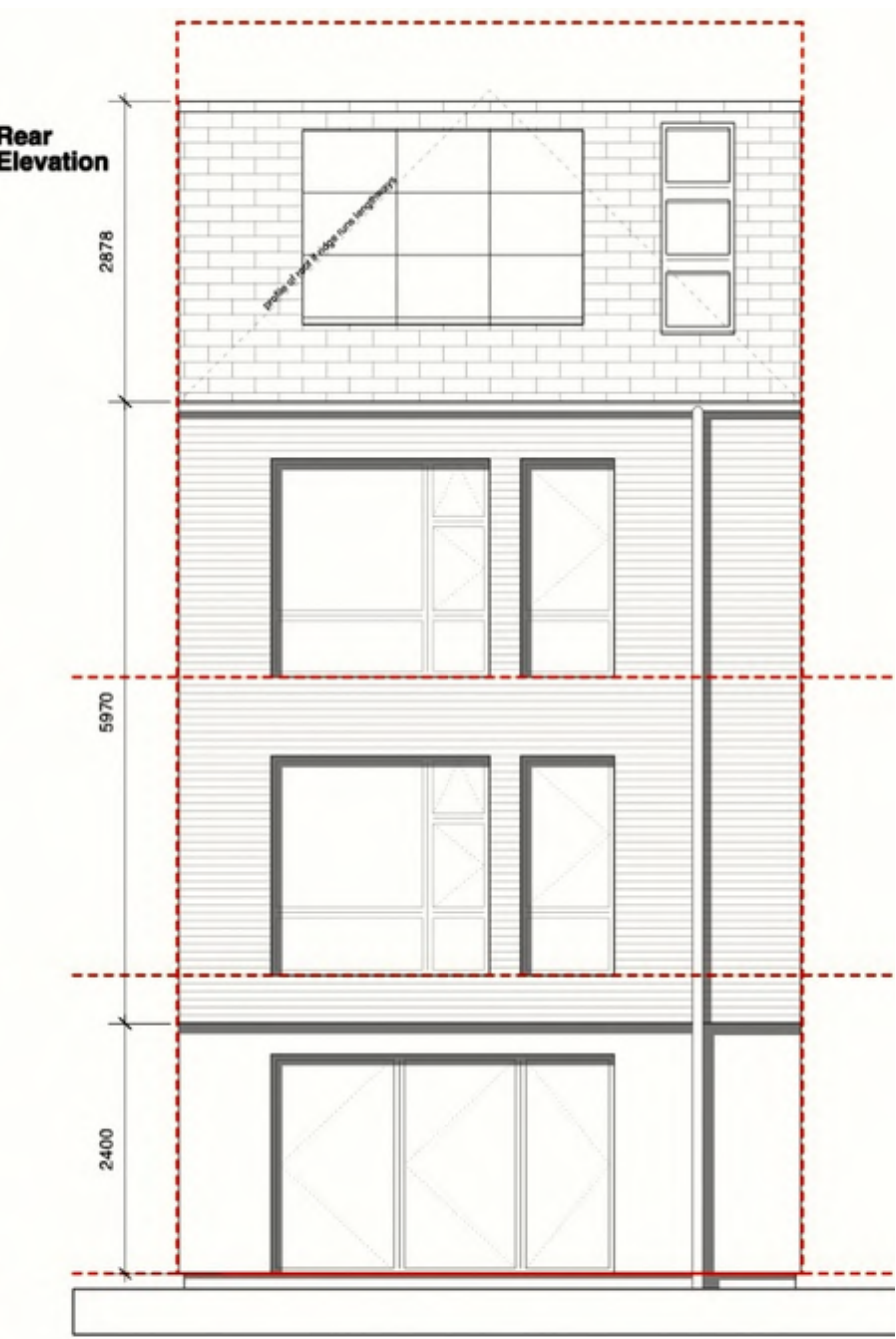
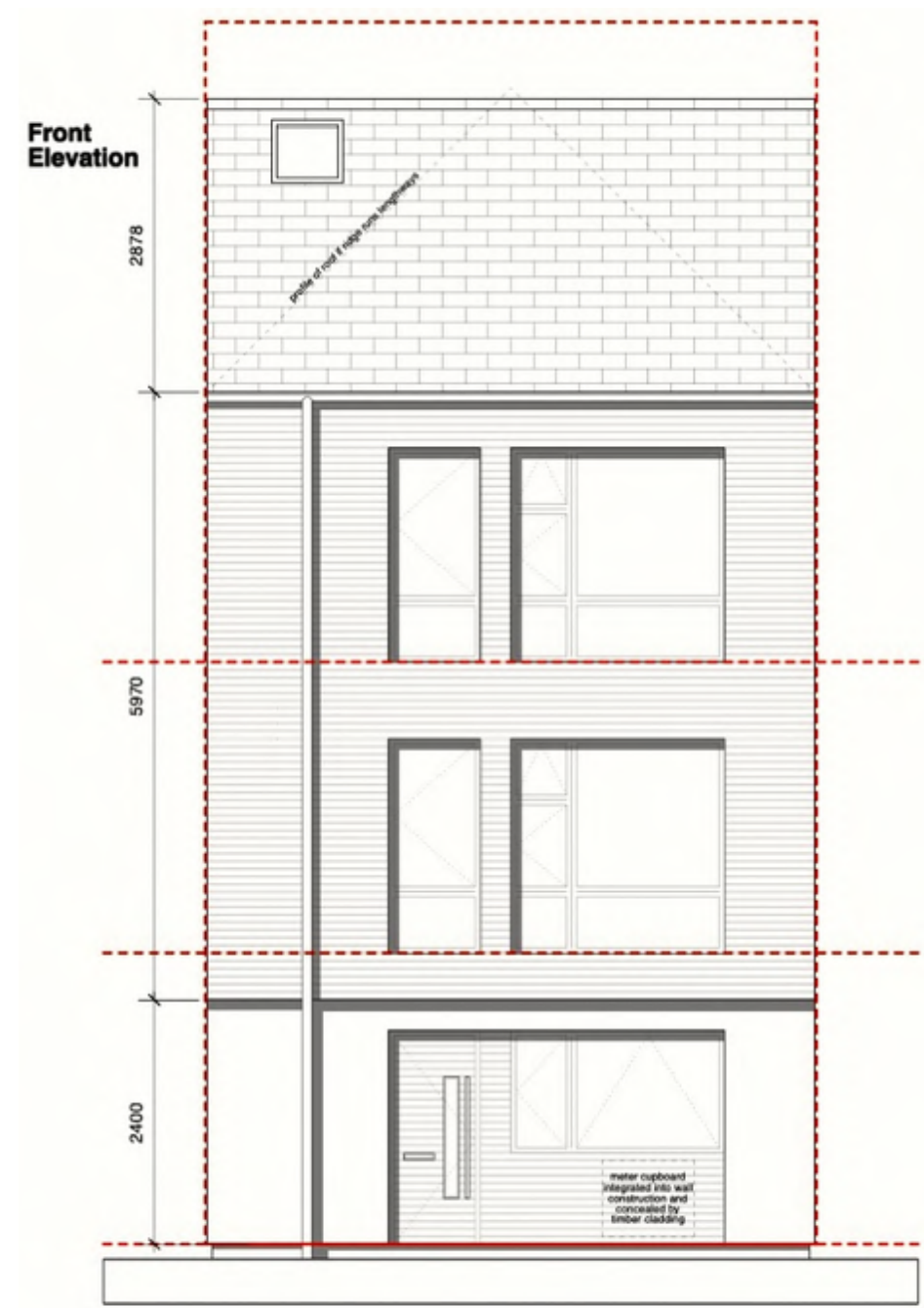
beautiful, affordable, sustainable
a zero carbon housing solution



Custom Build Housing in Cornwall - A competition for Home Manufacturers - Stage one Submission



custom
build
volume
10 x 6 x 12





igloo custom build

Render 3 Storey

- Rooflights above stair
- Photo voltaic panels
- Slate roof
- Gutters and down-pipes feed to rainwater harvesting
- Lime render to walls
- High performance composite windows
- Optional balconette to bedroom / lounge windows
- Front door with optional timber / slate / render surround



Timber 3 Storey

- Rooflights above stair
- Photo voltaic panels
- Slate roof
- Gutters and down-pipes feed to rainwater harvesting
- Timber cladding to walls
- High performance composite windows
- Optional balconette to bedroom / lounge windows
- Front door with optional timber / slate / render surround



Slate 3 Storey

- Rooflights above stair
- Photo voltaic panels
- Slate roof
- Gutters and down-pipes feed to rainwater harvesting
- Slate cladding to walls
- High performance composite windows
- Optional balconette to bedroom / lounge windows
- Front door with optional timber / slate / render surround



40 variants



3 Bedroom Variant
132m² GIA
Lime render, slate roof

2 Bedroom Standard Option or 3 Bedroom Mini
88m² GIA
Timber cladding, slate roof

3 Bedroom Standard Option
132m² GIA
Timber cladding, lime render base, slate roof

4 Bedroom Standard Option
132m² GIA
Timber cladding, lime render base, slate roof

3 Bedroom Variant
132m² GIA
Slate cladding, lime render base, slate roof

2 Bedroom Variant + Terrace
94.5m² GIA
Slate cladding, timber terrace





- 29 x 3 Bed Houses
- 4 x 2 Bed Houses
- 2 x 4 Bed Houses
- 2 x 3 Bed Houses
- 6 x 2 Bed Apartments
- 6 x 1 Bed Apartments
- 1 x Common House
- 6 x Bin / Cycle Storage

50 Units

1.145 Ha

43 units per Ha



Scale Prefabrication from 5,000 today 50,000 by 2020

Affordable Housing Programme £150m. From September the HCA call for bids encouraging use of MMC Custom Build Fund - <https://www.gov.uk/government/publications/custom-build-serviced-plots-loan-fund>

Right to Build £400m for London, £200m rest of UK for 10 zones DCLG invitations to Vanguard Local Authorities for Custom Builder Housing Zones and Brownfield development <https://www.gov.uk/government/news/government-initiatives-to-help-build-more-new-homes-on-brownfield-land>

Local Growth Fund - £300m Housing Revenue Account Borrowing Programme for 10,000 new affordable homes over 2015 to 2016 and 2016 to 2017.

Local Growth Deals - Provides funds to local enterprise partnerships or LEPs <https://www.gov.uk/government/collections/local-growth-deals>.

RGF Round 6 £200m - Regional Growth Fund is now open <https://www.gov.uk/understanding-the-regional-growth-fund#rgf-round-6>

carbon capture & storage

why the built environment?

an an asset

sits on the balance sheet

insured

maintained

has utility

where we work rest and play

it increases in value over time

carbon dioxide pumped under in the north sea does none of this

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