

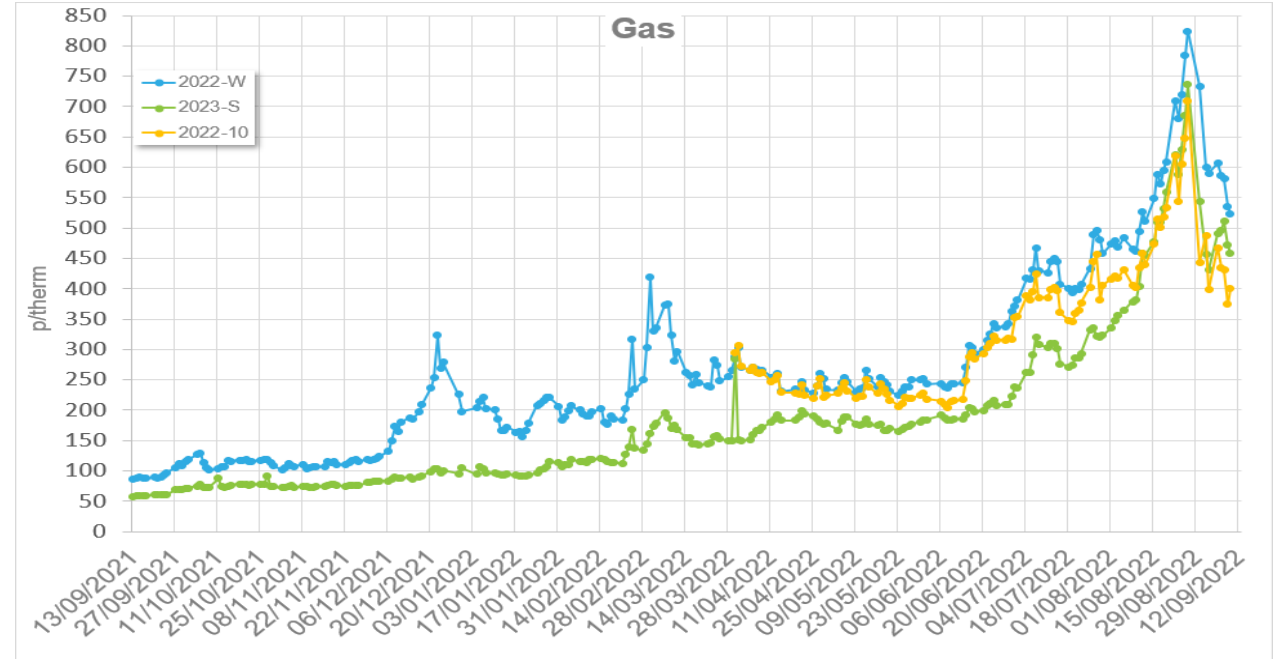
Energy

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In this session...

- Energy - news and views
 - What's currently going on
 - What does this mean
 - What opportunities are there
- GrowSave
 - Update
 - Programme for 2022/23
- Net Zero
 - Actions being taken
 - Calculators



Energy Prices – a week in the life

Month	Buy Gas (p/therm) Working day	Sell Elec (£/MWh) Peak weekday
Oct-22	406.99	£ 380.13
Nov-22	521.98	£ 783.78
Dec-22	583.94	£ 777.02
Jan-23	586.56	£ 763.00
Feb-23	584.12	£ 646.36
Mar-23	550.94	£ 645.27

Friday

Month	Buy Gas (p/therm) Working day	Sell Elec (£/MWh) Peak weekday
Oct-22	↓ 372.99	£ ↓ 325.46
Nov-22	↓ 468.74	£ ↓ 610.93
Dec-22	↓ 532.37	£ ↓ 592.49
Jan-23	↓ 544.91	£ ↓ 602.68
Feb-23	↓ 543.88	£ ↓ 517.15
Mar-23	↓ 513.49	£ ↓ 516.11

Tuesday

Month	Buy Gas (p/therm) Working day	Sell Elec (£/MWh) Peak weekday
Oct-22	↑ 463	£ ↑ 389.13
Nov-22	↑ 573.03	£ ↑ 798.74
Dec-22	↑ 660.99	£ ↑ 776.30
Jan-23	↑ 666.8	£ ↑ 761.07
Feb-23	↑ 668.78	£ ↑ 671.21
Mar-23	↑ 642.83	£ ↑ 669.97

Thursday

Liz Truss's announcement

We will deliver this by securing the wholesale price for energy, while putting in place long-term measures to secure future supplies at more affordable rates.

We are supporting this country through this winter and next, and tackling the root cause of high prices, so we are never in this position again.

For those using heating oil, living in park homes or those on heat networks, we will set up a fund so that all UK consumers can benefit from equivalent support.

We will also support all businesses, charities and public sector organisations with their energy costs this winter – offering an equivalent guarantee for 6 months.

After those 6 months we will provide further support to vulnerable sectors, such as hospitality, including our local pubs.

In the meantime, companies with the wherewithal need to be looking for ways they can improve energy efficiency and increase direct energy generation

They are already negotiating new long term energy contracts with domestic and international gas suppliers to immediately bring down the cost of this intervention.

We are also accelerating all sources of domestic energy, including North Sea oil and gas production.

We will be launching a new licensing round, which we expect to lead to over 100 new licences being awarded.

And we will speed up our deployment of all clean and renewable technologies including hydrogen, solar, carbon capture and storage, and wind... where we are already the world leader in offshore generation.

Renewable and nuclear generators will move onto Contracts for Difference to end the situation where electricity prices are set by the marginal price of gas.

This will mean generators are receiving a fair price, reflecting their cost of production, further bringing down the cost of this intervention.

We will end the moratorium on extracting our huge reserves of shale, which could get gas flowing in as soon as six months, where there is local support.

Government Commitments

- 6 Month support (likely price cap on both import gas and elec)
 - Control costs this winter
 - Pay for it long term
- Removal of green levies on bills
 - Slight reduction in prices
- Voluntary CfD – by 1st Oct
 - Impacts renewable generators
 - Might this affect other generators to come?

Winter Forecast...?

- Warmer autumn than average
- Relatively ‘average’ winter temps
- Gas shortages in Europe
- Russia/Ukraine war at tipping point?

Gas DSR changes

- **Not news**
 - Curtailment possible
 - Hort not a protected organisation
 - Limited compensation for curtailment
- **News**
 - NG want to offer an ‘option’ scheme + compensation
 - Would prefer voluntary participation
 - Administered by Energy Supplier
 - More likely to be curtailment this year

Gas DSR reforms ahead of winter 2022-23

National Grid has recently carried out a review of the Gas Demand Side Response (DSR) voluntary curtailment mechanism through July and August. The Gas DSR allows shippers to offer a consumption curtailment service to National Grid Gas (NGG) during periods of acute gas supply constraint called a Gas Deficit Emergency (GDE). Under this mechanism large consumers, defined as those with Annual Quantities (AQs) of 2mn therms or more, are able to have their shipper submit offers when invited by NGG to reduce their consumption of gas by an agreed amount and period.

Reducing risk

- “Extreme” energy efficiencies – become the norm

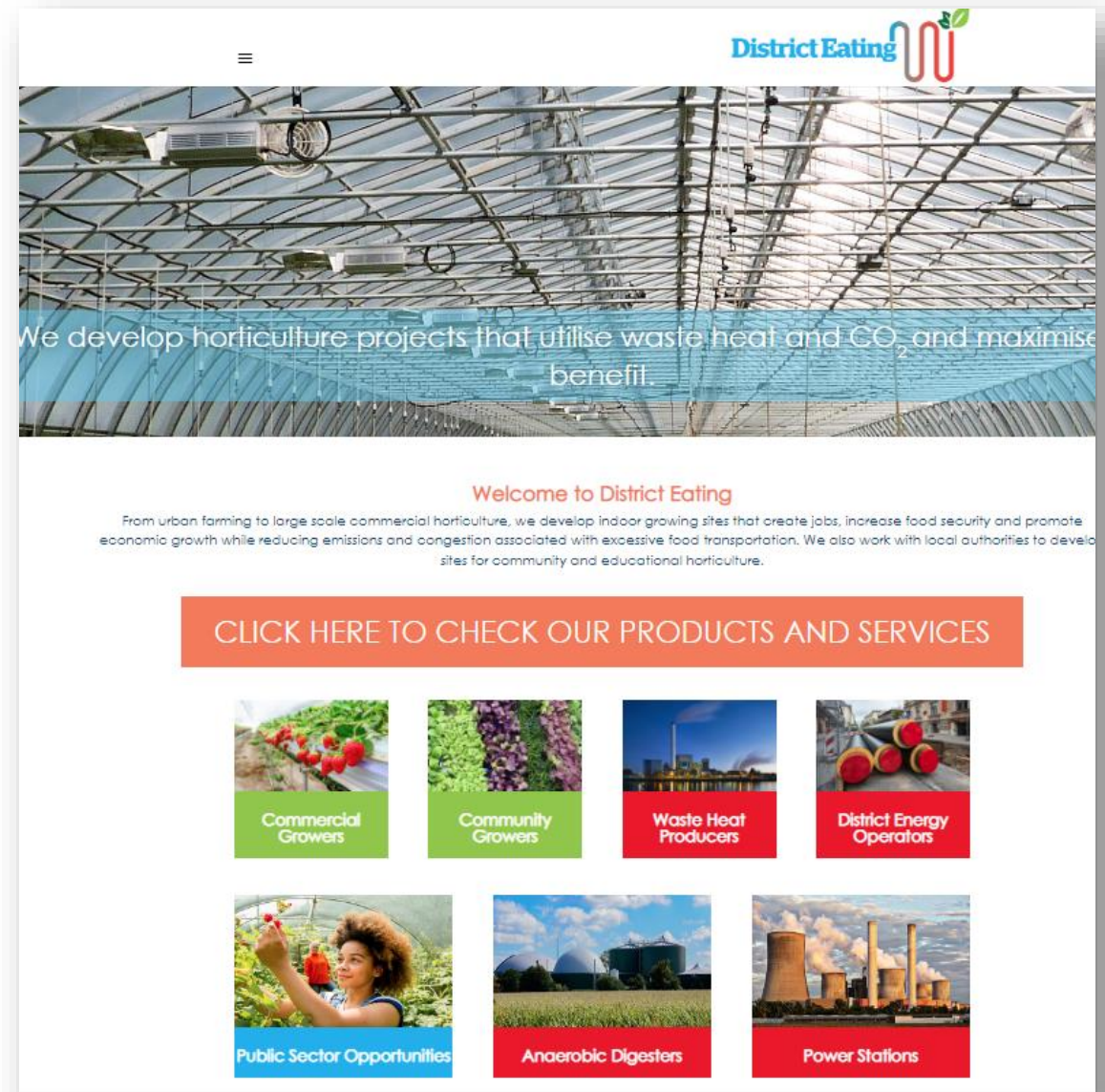
In the meantime, companies with the wherewithal need to be looking for ways they can improve energy efficiency and increase direct energy generation

- Insulation
 - Side wall screening / Double/triple screens
 - Heating system components
- Semi closed + air movement
- Turn down/Turn off/Control
 - Maintenance
- Growing strategy adaptation



Opportunities

- Self generation
 - Non-renewable energy
 - Renewable energy
- Alternative heat sources
 - Industrial partnerships
 - Creative thinking
- Break the link between heat and CO₂
 - Opens up the options for alternative heat sources



The screenshot shows the District Eating website. At the top right, there are logos for NFU ENERGY and AHDB. Below them is the District Eating logo, which includes a stylized 'D' and 'E' with a leaf. The main header image is a large photograph of a glass and steel greenhouse structure. Overlaid on this image is a blue semi-transparent banner with the text: "We develop horticulture projects that utilise waste heat and CO₂ and maximise benefit." Below the banner, the text "Welcome to District Eating" is displayed in red. Underneath, a paragraph of text describes their mission: "From urban farming to large scale commercial horticulture, we develop indoor growing sites that create jobs, increase food security and promote economic growth while reducing emissions and congestion associated with excessive food transportation. We also work with local authorities to develop sites for community and educational horticulture." A prominent orange button with white text reads "CLICK HERE TO CHECK OUR PRODUCTS AND SERVICES". Below this button is a grid of eight service categories, each with a representative image and a colored label: "Commercial Growers" (green), "Community Growers" (green), "Waste Heat Producers" (red), "District Energy Operators" (red), "Public Sector Opportunities" (blue), "Anaerobic Digesters" (red), and "Power Stations" (red).

CO₂ study tour - Yorks

Springvale AD, Future Biogas, Direct Air Capture and Drax power station



Rotterdam - DES

- 3 growers, collaborated to build biomass and CO₂ scrubber



CO₂ scrubber



Climeworks DAC

Kezo – EfW plant



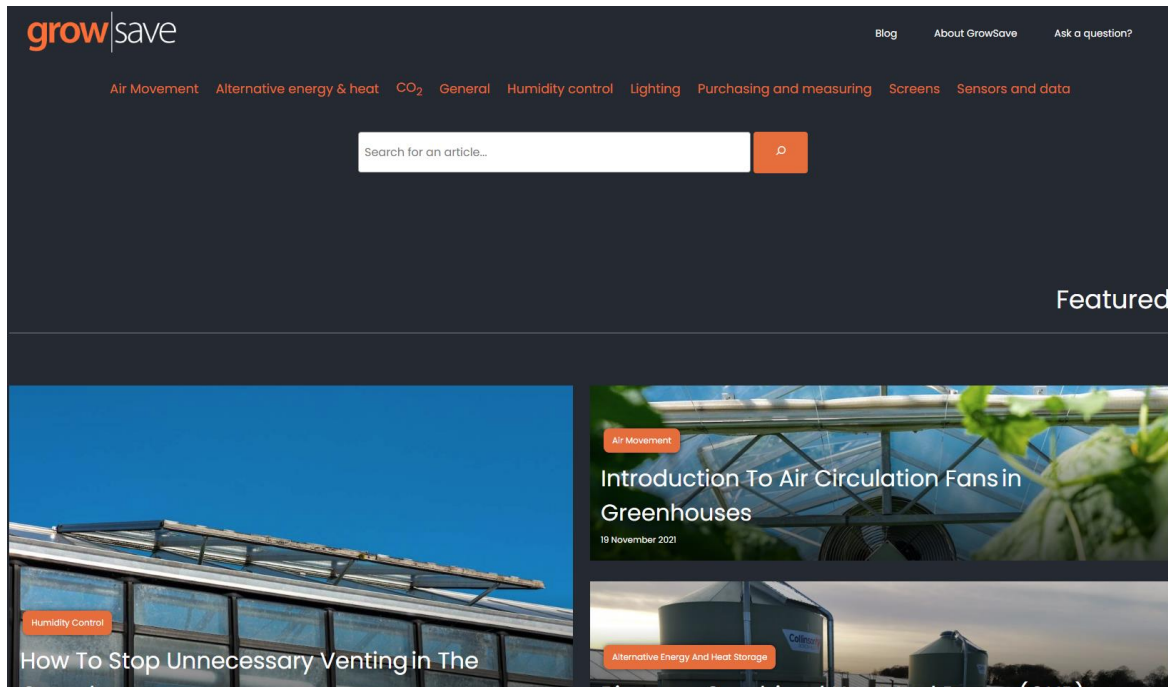
CO₂ direct air capture



Hinwil - KEZO

- Meier Bros growers





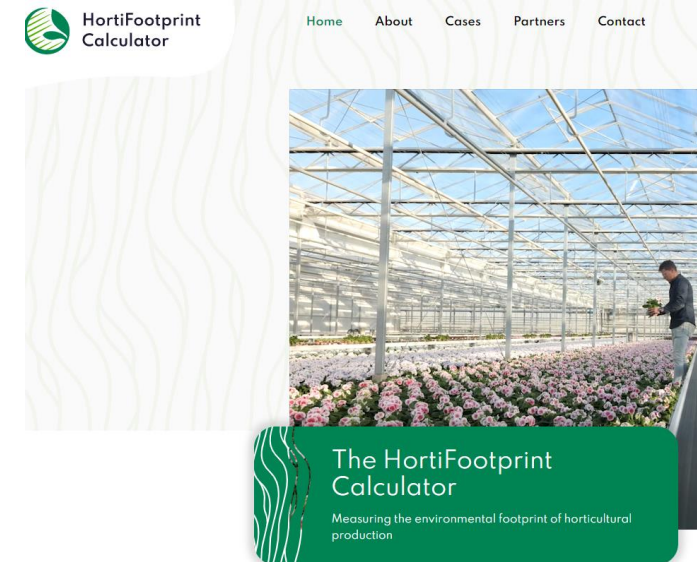
- Website now live
- Incorporating all historic information
 - Tech updates
 - Energy saving information
- Thinkific online training platform
 - Air movement
 - Humidity
- Energy management in protected horticulture handbook
 - on your chairs and at our stand

22/23 - the year's programme

- Study tour – holland
 - DES (CO₂ scrubbing from biomass)
 - Yara/Pepper grower – Industrial heating
 - Solar thermal glasshouse
 - Soft fruit venue - needed
- Conferences
 - TGA – Energy market and policy landscape, practical considerations for growers
 - CGA – Alternative CO₂ sources and efficient use
- Tech Updates
 - Semi closed advancements and their potential
 - Agrovoltaics
 - Carbon Calculators
- Training/events
 - Industrial heat matching
 - Prepare your glasshouse for winter?
- Website
 - Market updates
 - Degree day analysis

Net Zero - update

- NFU working on issue identification and mitigations
 - Aim to generate roadmap for Net Zero
 - Actions achievable by 2030
 - Plan to reduce emissions to effective minimum by 2040
- Sector board reporting Oct – February
- Carbon Calculators
 - Still lots, still issues, pick one and stick to it or bespoke calculation
 - Might be some movement on this in coming months....watch this space



Questions?