

Biomethane Day • 8 October 2026

Making methane from wind and biomethane CO₂

e-Biomethane into the NTS, explained simply

John Baldwin • CNG Services Limited

Why CNG Services

A trusted partner for renewable gas

Licensed

Gas Transporter Licence holder

Authorised to design, build and operate gas infrastructure on the GB network.

Proven

15+ years of EPC delivery

Engineer, procure and construct, from feasibility through to commissioning.

Pioneering

Industry firsts

First biomethane projects, first NTS 'mother' station, first multiple Type 4 CNG trailer loading system, first commercial reverse compression.

17.5M

Tonnes CO₂ saved

100%

GHG-reducing projects

Accredited and certified



Been here before

Westfield, Fife: coal to methane, into the grid

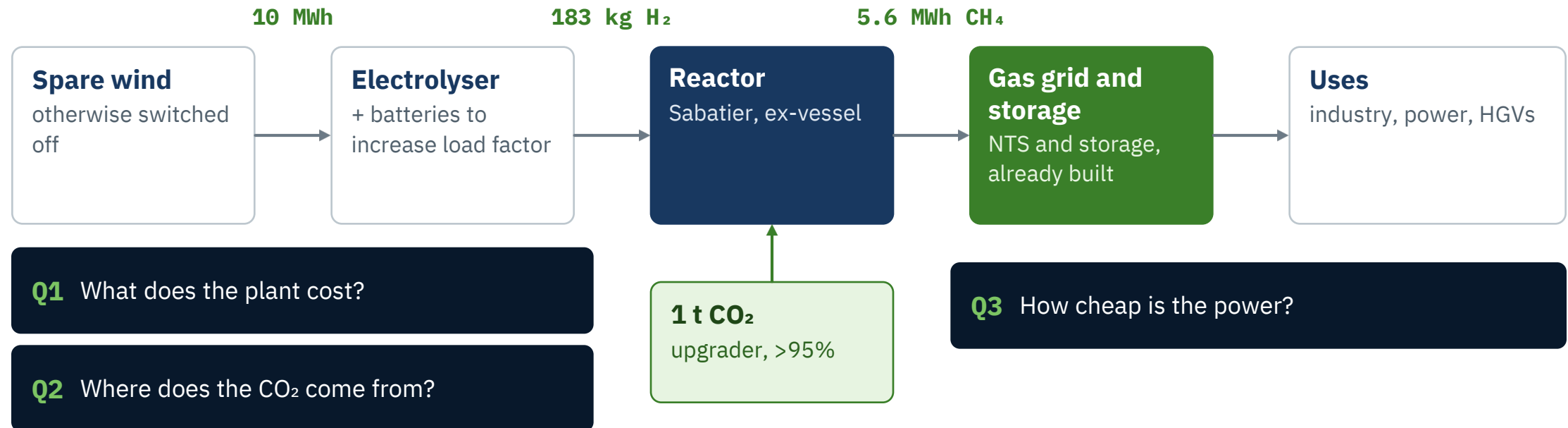
1985. As a British Gas graduate trainee mechanical engineer I worked on the Westfield SNG project. The Experimental Gasifier turned coal into methane, and we injected it into the LTS on site.

	Westfield SNG	e-Biomethane
Carbon from	Coal	Biogenic CO ₂ from a digester
Hydrogen from	Steam and coal, in a gasifier	Water and spare wind, in an electrolyser
Also out	Tar, oils, slag	Oxygen, heat, water
Last step	Sabatier	Sabatier

Same last step. Sabatier is much easier: no coal dust, no tar.

The whole thing on one slide

Wind + CO₂ → methane. Three questions fall out.



The sniff test: two units of electricity make one unit of methane. Worth it if the power would otherwise be wasted (or cost money to stop), the plant is cheap enough to wait for it, and the gas competes. Even more valuable if the whole system cost using CH₄ is lower

Question 1 • The plant

The plant costs the same whether it runs or not

Today

£1,500/kW**A bit inflexible**

Built to run most of the time. Running 30% of the year, the capital alone is ~£134/MWh of gas.

Target

£750/kW**Cheap and flexible**

Low-cost alkaline electrolyzers, largely from China, built to follow the wind. Capital at 30%: ~£67/MWh.

Sabatier

+£15/MWh**A process we know**

Sabatier is over a century old. We hold its cost flat; the saving has to come from the electrolyser.

Halve the capital cost and the plant can buy power very cheaply.

Question 2 • The CO₂

Plenty of CO₂ from biomethane

Where from

>95%

Every biogas upgrader

Food waste, wastewater and crop-fed AD all split off a CO₂ stream that is over 95% pure. Most of it is vented today.

What it costs

£50/t

About £9/MWh of gas

Depends on what each site could get for it. The merchant market is saturated, so the price heads down. We use £50/t.

When the wind drops

Store it

When the wind is low

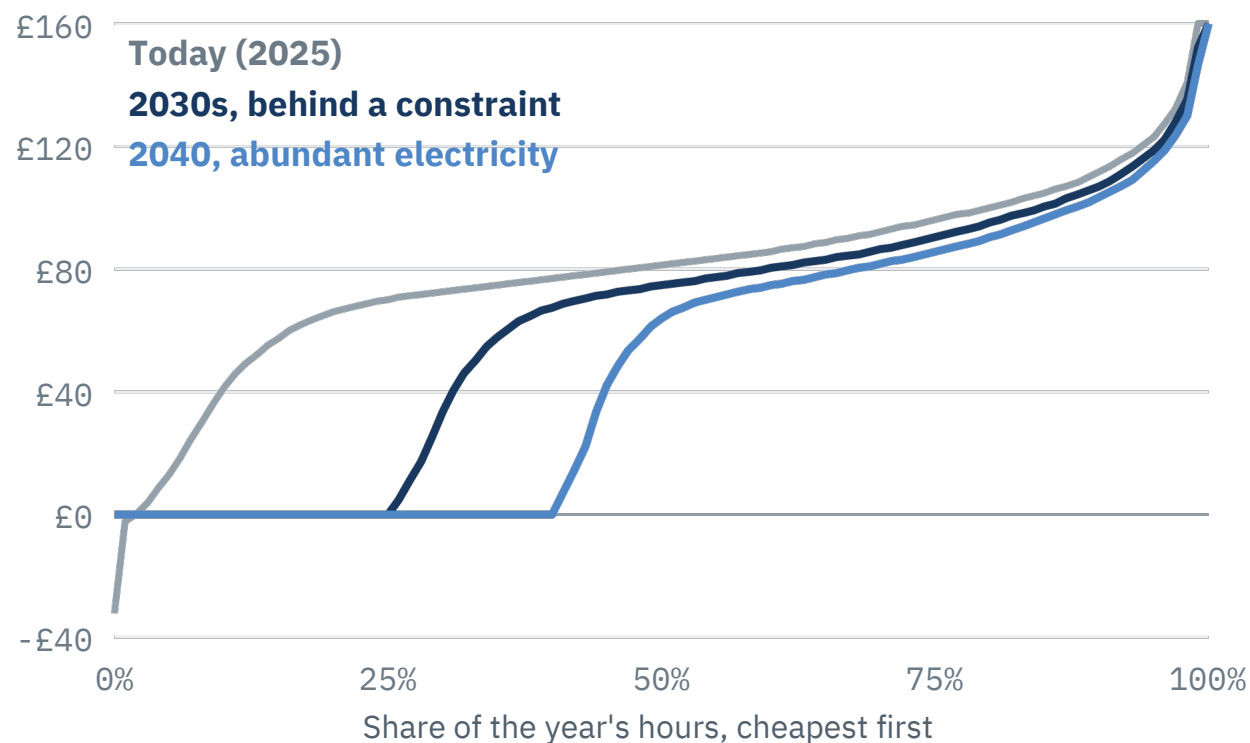
Hold it as liquid in a tank on site and convert it when power is cheap.

Store the CO₂, not the electricity. The digester never stops making CO₂, so the plant may need a buffer while it waits for the wind

Question 3 • The power

Free power is coming, but how many hours?

Power prices sorted cheapest to dearest, £/MWh · 2025 actual, 2030s and 2040 scenarios



Hours at £0 or below

2%

in 2025, about 170 hours

25%

2030s, behind a constraint like East Anglia

40%

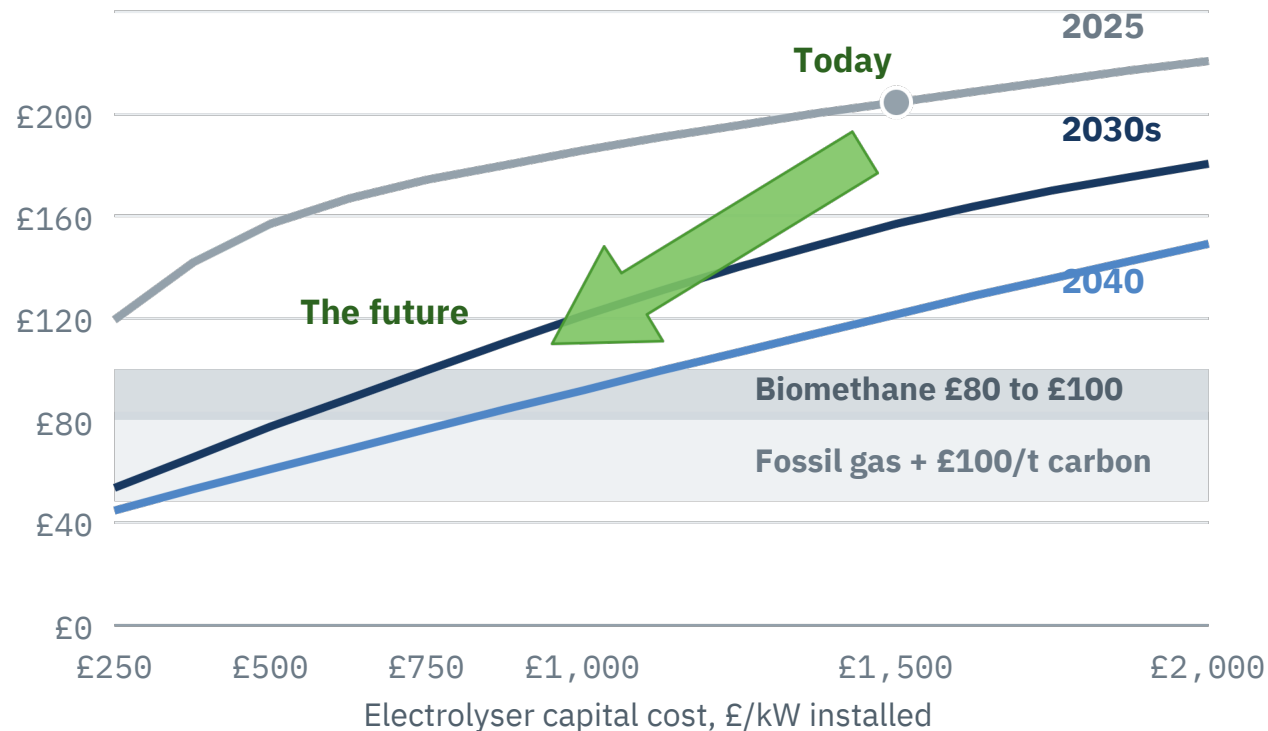
2040, abundant electricity

Grid charges should be near nil: electrolysis is exempt from most levies and network charges. About **£2.50/MWh** on top of wholesale.

The answer

2035 ish plant plus lower cost electricity matches biomethane

Cheapest e-methane, £/MWh · same three power cases as the last slide



Now

Not yet.

The plant is too dear and free power rare.

Next few years

One innovation project.

Learn how to do it on a real site.

2030s and 2040

Biomethane prices.

Under ~£750/kW in the 2030s, ~£1,100/kW by 2040. Then many plants.

What it's for

The NTS and storage are already built: three markets



Industry

Hard to electrify

High-temperature heat and processes that can't easily switch to electricity. Same gas they burn today.



Power

Back to electricity in a calm week

Gas-fired plant runs when the wind doesn't.

More importantly, it is still low cost for the whole system compared with other options such as H₂.



Transport

Bio-CNG for HGVs

Part of the 44 tonne HGV fleet will be very hard to electrify (range and payload)

Who buys it? These three. Same molecule: no new pipes, no new gas storage, no new generation plant.

In summary

E-biomethane is real, and the path starts now

The plant	Halve the capital cost. Cheap, flexible electrolyzers can wait for free power.
The CO₂	Plenty from biomethane plants. Store it for the cheap hours.
The power	Zero-price hours grow from 2% today to a quarter of the year or more.
The answer	Under ~£750/kW in the 2030s, e-methane reaches biomethane prices.
The market	The NTS and storage are built: industry, power and HGVs.

The pathway

- 1** **Now**
Working with NESO
To understand the value: balancing, constraints and the right sites.
- 2** **Next few years**
Innovation project
Proof of concept on a real site.
- 3** **Around 2030**
First FIDs
Projects started now reach investment decision as costs fall. Then many plants in the 2030s.

Interested in the project? Get in touch:**john.baldwin@cngservices.co.uk**

The Feynman test

“I couldn't reduce it to the freshman level. That means we really don't understand it.”

Richard Feynman, as recalled by David Goodstein

So, one slide. If we understand e-biomethane, the questions that decide its viability should **fall out of the picture**.