Building materials / QM-10

Alternative fuel and fuel blend management

Global practice in switching fuel types and managing the fuel blend with proper accounting under gas shortages.

When gas is curtailed, the fuel blend must be accounted for.

Cement plants worldwide are moving from expensive fuels to cheaper alternative fuels (for example, refuse-derived fuel) and using AI to manage the switch. In Uzbekistan, winter gas curtailments and brick plants switching to coal make this issue pressing.

Conceptual architecture. No operating results are shown.

01 Receipt	Coal weighbridge · Waybill · Gas meter
02 Stock	Warehouse · Calorific value · Daily balance
03 Consumption	By kiln · Blend share · kcal/kg
04 Analysis	Production cost · Emissions · Winter plan

At a glance

+3.8% — Increase in alternative fuel share at a Carbon Re client (the plant was already operating at 86%). Company data. [1]

≈13 t — Daily coal consumption of a coal-fired brick plant, according to the Ministry of Energy. [3]

6 million m³ — Daily gas shortfall in winter 2025–2026. [4]

November 2026

01 Evidence and context

Who it is for

CEO	Fuel cost and risk.
Chief Process Engineer	Kiln operating mode.
Procurement	Fuel purchasing and stock.
Environmental Officer	Emissions.

Facts and global practice

Innovate UK

After heat consumption was reduced at Heidelberg Materials' Mokra plant, it became possible to switch from heavy fuel oil to a cheaper refuse-derived fuel. [2]

Carbon Re (partner content)

At a Carbon Re client, the alternative fuel share increased by 3.8% (the plant was already operating at 86%). [1]

ABB (FICEM 2026)

ABB Expert Optimizer was used to maximise alternative fuel use. [5]

Ministry of Energy

A brick plant in Samarkand Region runs entirely on coal and consumes about 13 t of coal per day. [3]

Ministry of Energy

In winter 2025–2026, the gas shortfall reached about 6 million m³ per day. [4]

Switching fuel type affects the kiln operating mode, product quality and emissions. Without separate accounting for each fuel, the result cannot be assessed.

02 Where the losses occur

Different units

m³, tonnes and kWh are not converted to a common heat unit.

Quality unknown

The calorific value of coal and alternative fuel is not measured.

Stock not visible

It is unclear how much fuel stock is available before winter.

Result not assessed

The impact of switching on production cost is not calculated.

How the loss is calculated

Fuel price	(share of expensive fuel – achievable share) × heat demand per period (Gcal/month) × price difference (UZS/Gcal)
Downtime	gas curtailment hours per period × output rate (t/h)
Quality	volume reprocessed due to kiln upsets (t/month) × reprocessing cost (UZS/t)
Stock	emergency purchase volume (t) × emergency purchase premium (UZS/t)

Illustrative calculations; establish the baseline, units and rates during the site assessment. Avoid counting the same loss twice.

03 Solution architecture

Every fuel in one account

MEENTAKA accounts for receipt, stock and consumption of gas, coal and alternative fuel in a single heat unit and links them to the kiln operating mode.

01 Receipt

Coal weighbridge · Waybill · Gas meter

02 Stock

Warehouse · Calorific value · Daily balance

03 Consumption

By kiln · Blend share · kcal/kg

04 Analysis

Production cost · Emissions · Winter plan

Modules

Fuel receipt and stock (WMS)	Weighbridge and warehouse	Commercially available
Heat balance accounting	In a single unit	Engineering capability
Blend share dashboard	By kiln	Engineering capability
Link to emissions	With QM-09	In development

Each module has a readiness status. Third-party results are not a forecast for your site.

04 Implementation and measurement

01 Fuel audit

Receipt, stock, consumption.

Output: balance map.

02 Fuel accounting

60 days.

Output: blend and cost.

03 Winter plan

Stock and switching scenarios.

Output: readiness.

04 Subscription

Monthly report.

Output: trend.

What is measured

Alternative fuel share	% by heat	System
Stock	Days	WMS
Heat consumption	kcal/kg	System
Fuel cost	UZS/t	System, 1C

What is needed to start

- Chief Power Engineer
- List of fuel types
- Weighbridges and meters
- Laboratory (calorific value)

05 Readiness checklist and next step

01 Is each fuel type accounted for separately?	Yes / No / Unknown
02 Is calorific value measured?	Yes / No / Unknown
03 Is consumption converted to a single unit?	Yes / No / Unknown
04 Is pre-winter stock known in days of supply?	Yes / No / Unknown
05 Is a gas curtailment scenario planned?	Yes / No / Unknown
06 Is the blend share visible by kiln?	Yes / No / Unknown
07 Is the impact of switching on production cost calculated?	Yes / No / Unknown
08 Is fuel use linked to emissions?	Yes / No / Unknown
09 Is coal receipt confirmed by weighbridge?	Yes / No / Unknown
10 Is a responsible person assigned?	Yes / No / Unknown

What we do not promise

- Firm timelines and prices without an audit
- Exchange rules and government decisions
- Repair of plant equipment
- Unmeasured results or savings
- Replicating results announced by vendors

Fuel audit

We review fuel receipt, stock and consumption and show winter readiness and production cost.

- Balance map
- Winter plan
- Implementation fee and monthly subscription

Scope, price and schedule are agreed after reviewing the site and its data.

06 Sources and scope

[1] Carbon Re (now Gigaton): «AI co-pilot for plant optimisation», partner content. cemnet.com, 2025.

cemnet.com

[2] Innovate UK Business Connect: «AI takes the heat out of decarbonisation» (Heidelberg Materials, Mokra plant). 2025.

[3] Ministry of Energy: coal-fired brick plant. minenergy.uz.

minenergy.uz

[4] Ministry of Energy data: winter 2025–2026 gas curtailments. spot.uz, 26.02.2026.

spot.uz

[5] ABB: FICEM 2026 presentation (LIMS Quality Management, Downtime Management, EMS). ficem.org, 2026.

ficem.org

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