

ENERGY · FUTURES · RISK DECOMPOSITION

# ICE Energy Decomposition Dashboard

Feature Guide — a walkthrough of every view, illustrated.

**108**

factors

**107**

contracts

**32 / 32 7**

py <-> js parity

views

Daniel Kaufman - Kinetic Alpha

Built fast with AI tooling - June 2026

Live: [kineticalpha.com/projects/energy-futures-decomposition](https://kineticalpha.com/projects/energy-futures-decomposition)

## FEATURE INDEX

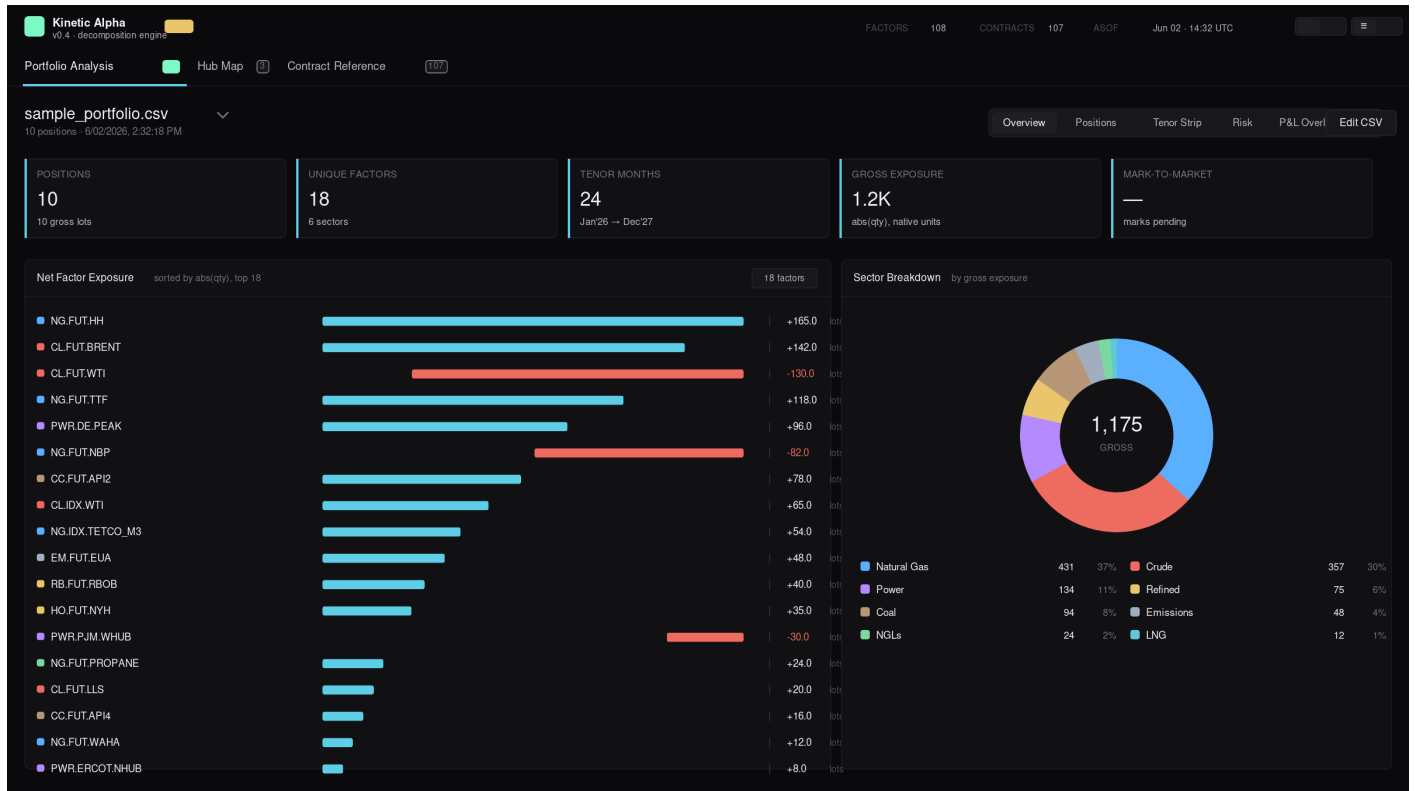
# What's in this guide.

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## HOW TO USE THIS GUIDE

Each feature gets one page: a representative view of the dashboard, what the view does, what makes it useful, and the tags that describe it. The illustrations are stylized — they show the actual design tokens and layout patterns the live dashboard uses, but the numbers and portfolios shown are representative rather than captures of a specific moment. To drive the real thing, hit the URL on the cover.

## 01 PORTFOLIO ANALYSIS -> OVERVIEW



A KPI strip (positions, unique factors, tenor span, gross exposure, mark-to-market), the net factor exposure list ranked by abs(qty) with left/right bars, and a sector breakdown donut. Compare a second portfolio side-by-side from the switcher.

### WHAT'S COOL

Sector donut tells you instantly whether your gross is concentrated in one sector or spread across the complex — the single most underrated risk visualization for a multi-commodity book.

KPI strip

Sector donut

Net factor exposure

Compare

Kinetic Alpha  
v0.4 - decomposition engine

FACTORS 121 CONTRACTS 07 ASOF Jun 04 - 09:18 UTC

Portfolio Analysis Hub Map Contract Reference

sample\_portfolio.csv  
19 positions - 6/04/2026, 9:18:24 AM

Overview Positions Tenor Strip Cross-Commodity Risk P&L Overlay

Positions 19 rows - parsed from CSV Export

Trade	Contract	Dir	Lots	Tenor	Structure	Strike	Vol	Exp d	Notes
G1	HH_NYMEX_FUT Henry Hub NYMEX Future	■	40	2026Q3	OUTRIGHT	—	—	—	
G2	HH_NYMEX_FUT Henry Hub NYMEX Future	■	20	2026M12	CAL_SPREAD	—	—	—	back: 2027M03
B1	TETCO_M3_BASIS ICE TETCO Zone M3 Basis Swap	■	15	2026Q3	BASIS	—	—	—	
B2	TRANSCO_Z6_NONNY_BASIS Transco Zone 6 NonNY Basis Swap	■	18	2026Q3	BASIS	—	—	—	
B3	ALCONQUIN_BASIS Algonquin Citygate Basis Swap	■	8	2026Q3	BASIS	—	—	—	
B4	TRANSCO_Z6_NY_BASIS Transco Zone 6 NY Basis Swap	■	10	2026M07	BASIS	—	—	—	
P1	ISONE_MASS_PEAK_FUT ISONE Mass Hub Peak Future	■	5	2026Q3	OUTRIGHT	—	—	—	
P2	PJM_WEST_PEAK_FUT PJM West Peak Future	■	8	2026Q3	OUTRIGHT	—	—	—	
P3	NYISO_J_PEAK_FUT NYISO Zone J Peak Future	■	4	2026Q3	OUTRIGHT	—	—	—	
P4	ERCOT_HOUSTON_PEAK_FUT ERCOT Houston Peak Future	■	3	2026Q3	OUTRIGHT	—	—	—	
T1	TTF_FUT ICE TTF Natural Gas Future	■	5	CAL27	OUTRIGHT	—	—	—	
T2	BRENT_ICE_FUT ICE Brent Crude Future	■	30	2026M07	OUTRIGHT	—	—	—	
T3	BRENT_ICE_FUT ICE Brent Crude Future	■	20	2026M12	CAL_SPREAD	—	—	—	back: 2027M12
T7	TTF_FUT ICE TTF Natural Gas Future	■	5	2026M03	OPTION	30	0.6	60	C
T9	CRACK_321_WTI 3:2:1 USGC Crack	■	3	2026M07	CRACK	—	—	—	

Sortable table of every parsed position with trade ID, contract code, direction (L/S), lots, tenor, structure, and metadata. The structure column auto-detects basis swaps, cracks, options, and other multi-leg contract types rather than just labeling everything 'OUTRIGHT'.

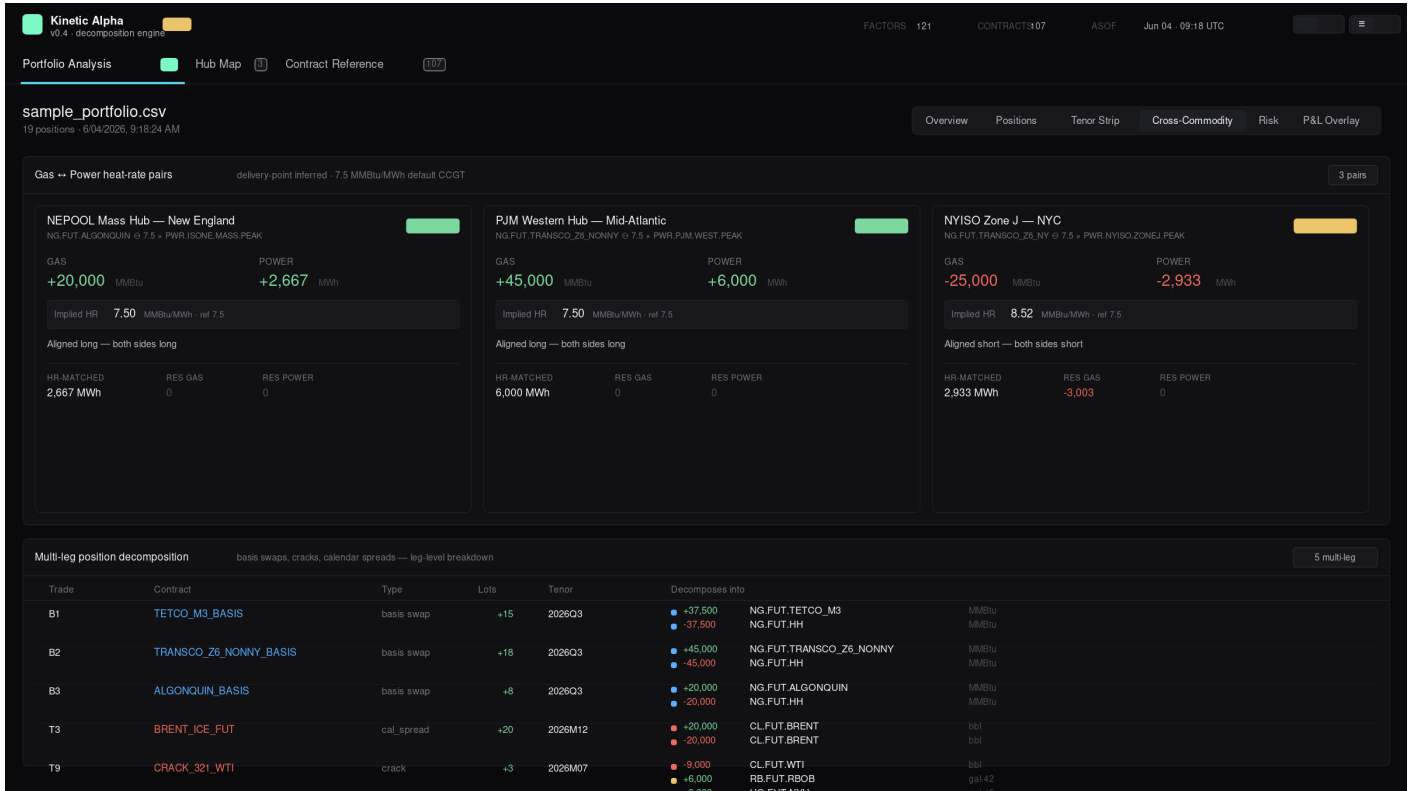
### WHAT'S COOL

Every basis swap shows BASIS, every crack shows CRACK, every option shows OPTION— at a glance you know which positions decompose into multiple factor legs vs. which are flat exposures.

Auto-typed structures

Sortable

CSV provenance



The engine looks at your portfolio and identifies implicit gas-to-power heat-rate exposures using a delivery-point lookup table (Algonquin to ISONE, Transco Z6 NY to NYISO J, TETCO M3 to NYC, etc.). Each pair shows gas qty (MMBtu), power qty (MWh), implied heat rate vs. the 7.5 reference, spark-spread interpretation, and the residual after HR matching. Below the pairs: every basis swap, crack, and calendar spread broken into its constituent factor legs.

● WHAT'S COOL

Drop a long Algonquin basis + long ISONE Mass Peak into the book and the engine tells you it's an aligned long at 7.5 HR — no manual matching, no spreadsheet. Same delivery geography a desk would reason through, automated.

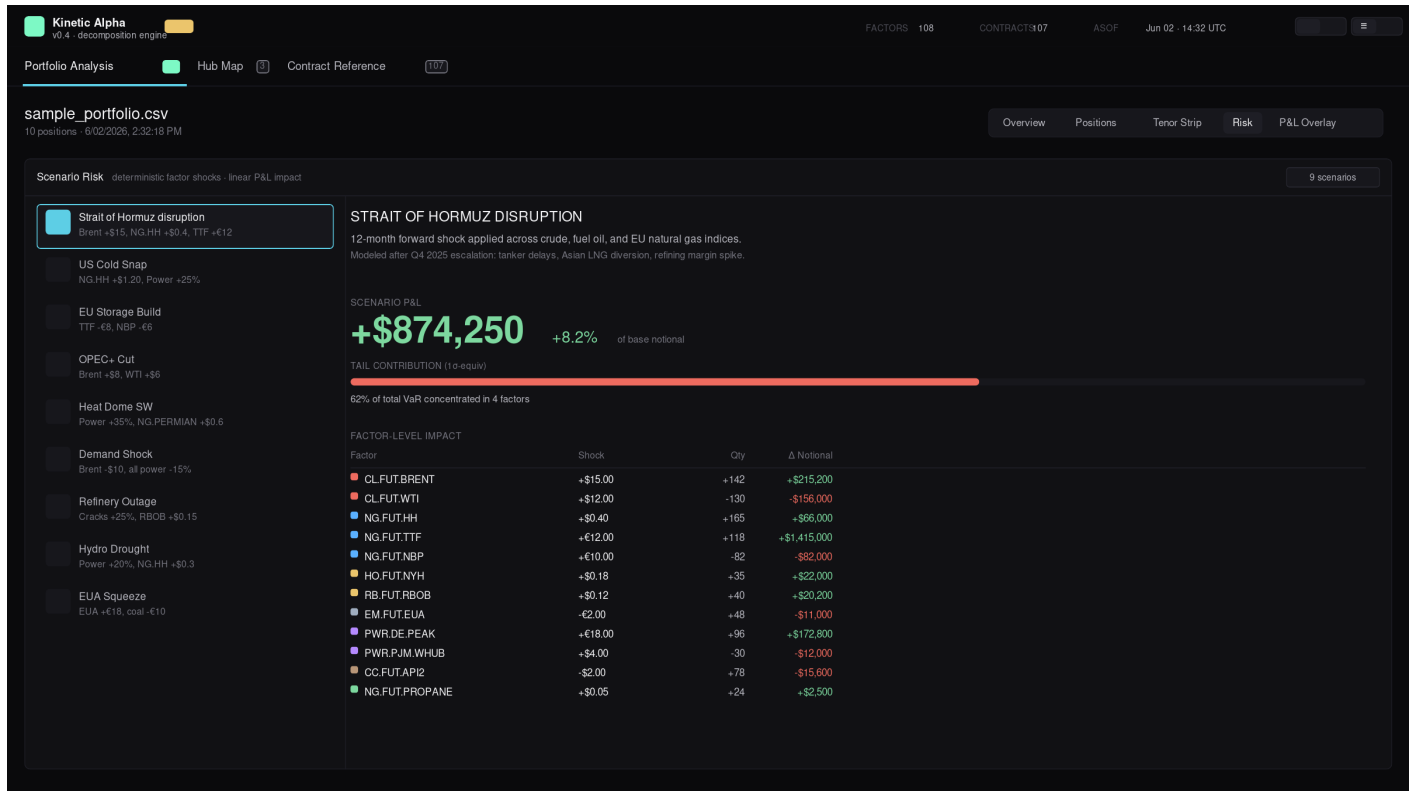
Heat-rate detection

Spark-spread classification

Leg decomposition

12 hub pairs

## 04 PORTFOLIO ANALYSIS -> RISK



Pre-configured deterministic shocks for the scenarios that actually matter in energy markets — Strait of Hormuz disruption, US cold snap, EU storage build, OPEC+ cut, heat dome, refinery outage, hydro drought, EUA squeeze, demand shock. Each scenario applies factor-level shocks and returns scenario P&L plus a factor-by-factor contribution breakdown. Edit the shocks to run custom what-ifs.

### WHAT'S COOL

Pick Hormuz, see exactly which factors are driving the +\$874K scenario P&L and what shock magnitude each carries — instantly. The shock vectors are editable, so it's also the simplest way to roll your own scenarios without building a spreadsheet.

9 named scenarios

Factor-level shocks

Editable

Linear P&L

## 05 PORTFOLIO ANALYSIS -> P&L OVERLAY

**Kinetic Alpha**  
v0.4 - decomposition engine

FACTORS: 121    CONTRACTS: 307    ASOF: Jun 04 - 09:18 UTC

Portfolio Analysis    Hub Map    Contract Reference

sample\_portfolio.csv  
19 positions - 6/04/2026, 9:18:24 AM

Overview    Positions    Tenor Strip    Cross-Commodity    Risk    P&L Overlay

Marks (factor,price per line)    applied as S-PNL overlay

SNAPSHOT - 17 marks - as of 2026-06-01

- NG.FUT.HH,3.37
- NG.FUT.TETCO\_M3,2.85
- NG.FUT.ALGONQUIN,3.92
- NG.FUT.TRANSO\_Z6\_NONNY,2.95
- NG.FUT.TRANSO\_Z6\_NY,3.48
- NG.FUT.WAHA,1.95
- PWR.ISONE.MASS.PEAK,68.40
- PWR.PJM.WEST.PEAK,52.10
- PWR.NYISO.ZONEJ.PEAK,71.20
- PWR.ERCOT.HOUSTON.PEAK,55.80
- CL.FUT.BRENT,84.43
- CL.FUT.WTI,91.04
- NG.FUT.TTF,48.18
- NG.FUT.NBP,116.73
- CC.FUT.API2,136.75
- EM.FUT.EUA,82.50
- RB.FUT.RBOB,3.14
- HO.FUT.NYH,3.62

Options:  delta     notional

Mark-to-Market by Factor    18 of 21 factors marked

TOTAL P&L

**+\$1,247,830**    +12.4% of gross

FACTOR-LEVEL ATTRIBUTION

Factor	Quantity	Price	P&L
NG.FUT.TETCO_M3	+42,750 MMBtu	\$2.85	+\$121,838
NG.FUT.TRANSO_Z6_NONNY	+51,300 MMBtu	\$2.95	+\$151,335
NG.FUT.ALGONQUIN	+22,800 MMBtu	\$3.92	+\$89,376
NG.FUT.HH	+19,200 MMBtu	\$3.37	+\$64,704
CL.FUT.BRENT	+30,000 bbl	\$94.43	+\$2,832,900
CL.FUT.WTI	-25,000 bbl	\$91.04	-\$2,276,000
PWR.ISONE.MASS.PEAK	+3,680 MWh	\$68.40	+\$251,712
PWR.PJM.WEST.PEAK	+5,888 MWh	\$52.10	+\$306,765
PWR.NYISO.ZONEJ.PEAK	-2,944 MWh	\$71.20	-\$209,613
PWR.ERCOT.HOUSTON.PEAK	+2,208 MWh	\$55.80	+\$123,206
NG.FUT.TTF	+250,000 MMBtu	€48.18	+€12,045K
NG.FUT.NBP	-12,000 MMBtu	£116.73	-£14,008
CC.FUT.API2	+22,500 t	\$136.75	+\$3,076,875
RB.FUT.RBOB	+126,000 gal	\$3.14	+\$395,640
HO.FUT.NYH	+126,000 gal	\$3.62	+\$456,120

Paste factor,price rows in the marks box or load the bundled market snapshot. The dashboard applies the marks to the net factor exposure and returns mark-to-market by factor plus a total. Switch options between delta and full-notional to see how option exposure rolls through. A snapshot loader pulls in a public-source EOD reference set with the as-of date displayed.

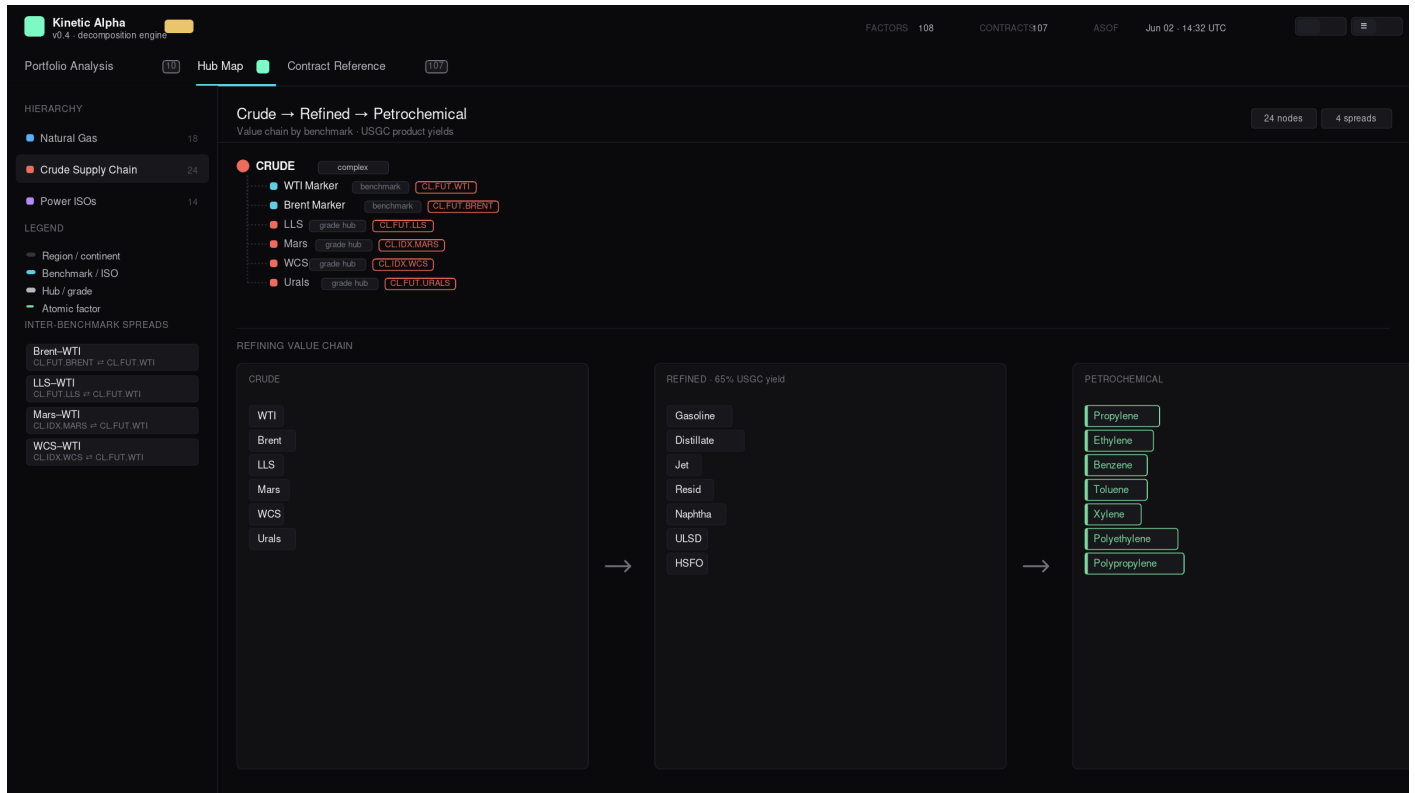
### WHAT'S COOL

The same factor decomposition that drives the Overview and Risk tabs also drives this — paste marks once and the P&L attribution is consistent end-to-end across every view in the dashboard.

Snapshot loader

Delta vs notional

Per-factor attribution



Three hierarchies, switchable from the sidebar: a natural gas hub tree (Henry Hub and the basis points around it — Transco, TETCO, Algonquin, Chicago, Waha; TTF/NBP/THE/PEG/PSV/ZTP for Europe); a crude -> refined -> petrochemical value chain showing WTI/Brent/LLS/Mars/WCS feeding USGC refining yields and downstream petchem; and a power ISO map (PJM, MISO, ERCOT, CAISO, NYISO, ISONE) with spark-spread relationships showing each ISO's typical heat rate and primary gas input.

● WHAT'S COOL

The crude value chain is the cleanest single view of how a refining margin actually works — from input grade through 65% USGC yield to which petrochemical streams come off each cut.

3 hierarchies

Value chain

Spark spreads

## 07 CONTRACT REFERENCE

The screenshot displays the 'Contract Reference' view in the Kinetic Alpha v0.4.0 decomposition engine. The interface is dark-themed and features a sidebar on the left with filters for 'SECTOR' and 'TYPE'. The 'SECTOR' filter is set to 'Natural Gas' (32 items), and the 'TYPE' filter is set to 'basis swap' (18 items). The main content area shows a list of 107 contracts, with 'TETCO\_M3\_BASIS' selected. The right-hand panel provides detailed information for the selected contract, including its full name 'ICE TETCO Zone M-3 Basis Swap', specifications (Lot size: 2,500 MMBtu, Delivery scaling: fixed), and a decomposition table showing two legs: '+1.0 NG.FUT.TETCO\_M3' and '-1.0 NG.FUT.HH'. The decomposition table also includes a 'POSITION TEMPLATE' section with contract codes and lot/tenor/structure details.

Faceted browser for all 107 contracts. Filter by sector or by type (future, basis swap, swap, option, crack, CSO, spread), search by key or ticker or description, and click any contract to see its full decomposition — every leg with coefficient, factor code, factor description, unit, and ICE product code where verified.

### WHAT'S COOL

Click any basis swap and see its two legs explicitly (e.g., TETCO M3 BASIS = +NG.FUT.TETCO\_M3 - NG.FUT.HH) — the same decomposition the engine applies when you put the position in your portfolio.

107 contracts

Sector + type facets

Per-leg detail

## ABOUT THIS GUIDE

This guide describes a working proof-of-concept research dashboard. It is **not investment advice, not a trading system, and not a settlement-grade risk system**. Seed portfolios are illustrative; \$-PnL requires user-provided marks; some ICE product codes are flagged unverified and need confirmation against ICE's product master before relying on the code mapping; Black-76 option pricing assumes positive forwards and isn't suitable for calendar-spread options without `delta_override`; persistence is browser-local only; scenario shocks are deterministic linear moves, not Monte-Carlo; margin and clearing logic is out of scope.

## WHAT THIS DEMONSTRATES

A working browser-based risk-decomposition dashboard for ICE energy futures - 108 atomic risk factors, 107 contracts across crude, gas, power, refined products, NGLs, coal, and emissions - built solo over a long weekend with AI tooling. The engine is checked cell-for-cell against a Python reference (32/32 (factor, month) cells match). Six years ago this would have been a team-year of work. The point isn't the dashboard itself; it's that the gap between "I have a hypothesis about energy risk" and "I have a working tool that demonstrates it" has collapsed.

## CONTACT

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Live dashboard: [kineticalpha.com/projects/energy-futures-decomposition](https://kineticalpha.com/projects/energy-futures-decomposition)

More research: [kineticalpha.com/research](https://kineticalpha.com/research)