MCP SERVER | NO CODE | CLOUD HOSTED

EIA Full Access MCP for AI Agents

Model complex U.S. energy commodity price trends and supply balances

EIA Full Access — U.S. Energy Intelligence provides direct access to deep federal energy data covering everything from crude oil and natural gas prices to electricity grid demand and coal reserves. It gathers over 34 specialized tools into one place, letting your AI client model complex cross-commodity market dynamics using official government metrics.

A+ Quality Score 100/100

energy-intelligence | petroleum-data | natural-gas | energy-forecasts | commodity-market | macro-energy

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · JUNE 2026
vinkius.com/mcp/eia-full-access-us-energy-intelligence

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

EIA Full Access — U.S. Energy Intelligence MCP

34 tools available
Cloud-hosted on Vinkius

This MCP gives you a single connection point for every major stream of U.S. energy data. Instead of jumping between dozens of federal databases to piece together an annual report, your agent pulls everything into one workflow. You can track the supply and demand balance for petroleum products while simultaneously comparing natural gas storage levels against projected electricity generation from state grids.

For example, you don't have to manually compare WTI crude prices with Henry Hub spot pricing; your agent handles that comparison instantly. This means you move beyond simple data retrieval. You start modeling: how will a change in coal mine production affect the overall cost of power when natural gas is also fluctuating? The depth and breadth of this dataset —covering everything from state-level energy profiles (SEDS) to international forecasts (IEO)—make it the definitive resource. Vinkius hosts this MCP so that any AI client can access these complex data streams without needing separate API keys or integrations for every single commodity.

Core Capabilities

01 — Model Cross-Commodity Supply Balances

Get a comprehensive overview of supply/demand dynamics across petroleum, natural gas, electricity, and coal.

02 — Analyze State-Level Energy Profiles

Retrieve historical energy data for specific U.S. states, tracking production, consumption, and prices over decades.

03 — Forecast Long-Term Market Trends

Run projections using models like STEO (18-month) and AEO (30-year) to anticipate energy price movements and supply changes.

04 — Track Infrastructure and Reserves

Get detailed information on physical assets, including operational power plants, generator inventories, and proved natural gas reserves.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/eia-full-access-us-energy-intelligence** — connect your AI agent in three steps.

01 Your AI client sends a query—for instance, 'Compare Q3 crude imports to the current electricity grid demand.'

02 The MCP routes the request internally, invoking multiple specific tools (like `get_crude_imports` and `get_grid_demand`) to gather disparate data points.

03 It returns a single, synthesized result set that includes all required metrics—the import figures, the current grid demand, and any necessary context for comparison.

The bottom line is you ask one complex question, and the MCP gathers all the necessary federal energy statistics to answer it.

Built For

This connector is built for high-level analysts who need deep visibility into U.S. commodity markets. It's designed for consultants who spend hours stitching together data from different government sources, or financial modelers needing reliable inputs for risk assessment.

Energy Consultant

Needs to build comprehensive reports comparing the historical energy usage of a state (using `get_state_energy_data`) with current national forecasts.

Commodity Trader

Requires real-time or near-real-time data on natural gas storage levels (`get_natgas_storage`) and petroleum stock movements to make trading decisions.

Financial Analyst

Models the cost implications of energy transitions by comparing electricity prices (`get_electricity_prices`) against long-term fuel projections.

What Changes When You Connect

01 You track the full lifecycle of a commodity query. Need to check current electricity prices (`get_electricity_prices`)? Then, compare that cost against the long-term outlook from `get_annual_outlook` in one run.

02 The MCP connects disparate data streams like natural gas storage levels (`get_natgas_storage`) and crude oil stocks (`get_petroleum_stocks`). You get a single view of market liquidity without manual cross-referencing.

03 Forget outdated models. Use `get_short_term_outlook` to forecast the next 18 months for energy prices, giving your reports predictive power instead of just historical data points.

04 Deep dives into regional specifics are easy. Run a query on state-level electricity profiles (`get_state_electricity_profiles`) and immediately compare those results against national consumption trends from `get_natgas_consumption` .

05 It simplifies the complexity of tracking physical assets. You can quickly check which power plants are offline using `get_nuclear_outages` , while simultaneously reviewing total generation data via `get_power_generation` .

Real-World Applications

Analyzing Cross-Sector Price Risk

A financial analyst asks their agent: 'How does the STEO forecast for Henry Hub natural gas prices compare to historical gasoline pricing?' The agent executes both `get_short_term_outlook` and `get_petroleum_prices`, returning a comparative analysis that highlights market risk.

Preparing State Infrastructure Reports

A state utility manager needs data for a major presentation. They ask the agent to pull 60 years of energy usage history, executing `get_state_energy_data` and comparing total consumption metrics across decades.

Modeling Supply Chain Disruptions

A logistics consultant needs to know how an unexpected decline in crude oil imports (`get_crude_imports`) impacts refinery capacity utilization (`get_refinery_operations`), allowing them to model immediate supply chain choke points.

Assessing Global Energy Pivots

A research firm wants a global view. They ask the agent for IEO data, comparing regional international energy projections (`get_international_outlook`) against current U.S. total energy metrics (`get_total_energy`).

Patterns to Avoid

Mixing up commodity scope

✗ AVOID

Trying to use general 'energy data' search terms that mix historical state profiles with current market prices. This results in a confusing jumble of dates and metrics.

✓ INSTEAD

Always segment your query: If you need history, start with `get_state_energy_data`. If you need pricing, specifically ask for the commodity using tools like `get_petroleum_prices` or `get_natgas_prices`.

Ignoring reserve status

✗ AVOID

Assuming that high current production figures mean a sustainable long-term supply. This overlooks depletion rates and total available reserves.

✓ INSTEAD

Always cross-reference production data (e.g., `get_crude_production`) with the corresponding reserve information from tools like `get_coal_reserves` to get a true picture of sustainability.

Using outdated forecasts

✗ AVOID

Relying on old models for future planning that don't account for current global shifts. The resulting projections are inaccurate.

✓ INSTEAD

Use the most recent, authoritative long-term tools: `get_annual_outlook` or `get_short_term_outlook` to ground your forecasts in the latest modeling system.

The Right Fit

Use this MCP if your work requires synthesizing data from multiple energy sectors—oil and gas, electricity generation, and coal production—and comparing current metrics against historical records or long-range models. If you are primarily focused on a single commodity (e.g., just gasoline prices), a dedicated market tracking tool might suffice. However, if the question is 'What happens to the entire energy mix when X changes?', this MCP is

necessary because it contains the full scope of U.S. energy intelligence available from federal sources.

EIA Full Access: Modeling U.S. Energy Commodity Pricing with EIA Full Access

Right now, tracking commodity prices means juggling multiple government portals. You pull crude oil data from one site, natural gas pricing from another, and electricity rates from a third. Then you spend hours manually normalizing the time frames and figuring out which metrics compare apples to apples.

With this MCP, your agent handles that heavy lifting. Ask it to compare WTI prices (`get_petroleum_prices`) against Henry Hub spot pricing (`get_natgas_prices`). It runs both queries simultaneously, delivering a clean comparison that immediately shows the premium or discount between the two markets.

EIA Full Access: Tracking State-Level Energy Performance with EIA Full Access

Manual state analysis requires deep dives into historical records. You'll be running queries for consumption, production, and emissions separately across decades, resulting in a messy spreadsheet that takes days to assemble.

This MCP lets you ask for the definitive state energy profile (`get_state_energy_data`) and get it all at once. It consolidates metrics from 1960 through today, letting you spot long-term trends or anomalies instantly.

EIA Full Access: 34 Tools for Cross-Commodity Energy Analysis

Use these tools to pull specific data points on everything from natural gas storage levels and crude oil imports to state-level electricity profiles and long-term energy forecasts.

#	TOOL	DESCRIPTION
01	`get_coal_production`	Retrieves data on coal production, broken down by specific state and mine type.
02	`get_mine_production`	Sources individual-level coal production figures from mining records (EIA-7A/MSHA-7000-2).
03	`get_coal_prices`	Provides market pricing for various coal ranks, including bituminous, subbituminous, lignite, and anthracite.
04	`get_coal_quality`	Gathers data on coal consumption metrics like heat content, sulfur levels, and ash percentages.
05	`get_coal_trade`	Tracks the movement of coal via imports and exports, detailing quantity and price by country.
06	`get_coal_reserves`	Reports on total available coal reserves, productive capacity, and current stocks.
07	`get_electricity_prices`	Gathers retail electricity prices by state and specific industry sector (EIA-826, EIA-861).
08	`get_power_generation`	Details electric power generation metrics by state, fuel source, and operational sector (EIA-923).
09	`get_grid_demand`	Provides real-time hourly or daily estimates of the total electricity demand across all major U.S. grid operators.
10	`get_state_electricity_profiles`	Accesses comprehensive data detailing the energy profile for individual states.
11	`get_generator_inventory`	Lists inventory information for over 100,000 operable generators across the United States (EIA-860).
12	`get_plant_generation`	Provides specific operational details on power plants, including net MWh generation and fuel consumption.
13	`get_natgas_prices`	Retrieves natural gas prices for key markets: Henry Hub, citygate, wellhead, industrial, and residential rates.

#	TOOL	DESCRIPTION
14	`get_natgas_summary`	Offers a high-level summary of the national natural gas balance: production, consumption, imports, exports, and storage changes.
15	`get_natgas_reserves`	Details proved reserves and exploration data specifically for natural gas resources.
16	`get_natgas_production`	Reports on total natural gas production, including gross withdrawals and marketed volumes.
17	`get_natgas_trade`	Tracks the flow of natural gas across borders via imports, exports, and major pipeline routes.
18	`get_natgas_storage`	Provides weekly data on underground natural gas storage levels, a critical market indicator.
19	`get_natgas_consumption`	Details natural gas consumption rates broken down by state and major consuming sector.
20	`get_short_term_outlook`	Pulls the STEO forecast, providing 18-month U.S. energy price and supply projections (data range: 1974–2027).
21	`get_annual_outlook`	Provides AEO data, offering long-term U.S. energy projections covering production, consumption, and prices over 30 years.
22	`get_international_outlook`	Delivers IEO forecasts, tracking global energy production, consumption, and emissions across various regions.
23	`get_international_data`	Provides country-level data on energy production, consumption, and emissions globally.
24	`get_petroleum_prices`	Gathers commodity prices for major petroleum products like WTI, Brent, gasoline, diesel, and heating oil.
25	`get_petroleum_summary`	Calculates the overall supply/demand balance for petroleum, including production, stocks, imports, and consumption (weekly status report).
26	`get_crude_production`	Reports on total U.S. crude oil production volumes and associated reserve data.
27	`get_refinery_operations`	Details refinery capacity utilization, current processing rates, and operational metrics.
28	`get_petroleum_trade`	Tracks the movement of petroleum products through international imports, exports, and pipelines.
29	`get_petroleum_stocks`	Provides current inventory levels for commercial stocks plus Strategic Petroleum Reserve data.

#	TOOL	DESCRIPTION
30	get_petroleum_consumption	Reports on petroleum sales and consumption, categorized by product type and end-use sector.
31	get_crude_imports	Details crude oil imports into the U.S., broken down by country, company, grade, and type.
32	get_state_energy_data	Provides historical state-level energy data (SEDS) from 1960 to present for production, consumption, and prices.
33	get_total_energy	Presents a comprehensive U.S. total energy overview (MER), covering stocks, trade, and pricing for all major sources.
34	get_nuclear_outages	Tracks the status of nuclear power plants by reporting on operational outages.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Can you generate a dashboard showing the price relationship between WTI crude oil and Henry Hub gas over the last five years?

📊 Commodity Price Comparison (2019–2024)

METRIC	2019 AVG	2021 PEAK	CURRENT Q3 ESTIMATE
WTI Crude Price	$58/bbl	$75/bbl	$72.10/bbl
Henry Hub Gas Price	$2.90/MMBtu	$4.50/MMBtu	$3.15/MMBtu

Note: Prices are based on the most recent available data for each commodity.

U What are the current U.S. grid demand estimates and how does that compare to total power plant generation?

⚡ Current Grid Performance Snapshot

- **Estimated Grid Demand (Today):** 380 GW.
- **Total Reported Power Generation:** 365 GW.
- **Sources Breakdown:** Coal accounts for 15%, Natural Gas for 45%, and Renewables make up the remaining 40% of generation. The gap suggests potential supply constraints or underreporting in one sector.

U How do international energy forecasts compare to the U.S. outlook for oil and gas?

🌍 **International vs. US Energy View**

• **Global Outlook (IEO):** Predicts a slight dip in global crude demand next year, focusing on Asia's growing renewable capacity.
• **US Short-Term Forecast (STEO):** Shows stable domestic natural gas pricing but predicts higher volatility for petroleum due to geopolitical factors.

The U.S. remains resilient, but the gap between US supply and international growth is widening.

Frequently Asked Questions

01 **How can I use EIA Full Access — U.S. Energy Intelligence to compare state-by-state energy consumption?**

You can pull historical records for any given state using the `get_state_energy_data` tool. This lets you track how a single state's total energy needs have changed over decades, helping you model growth or decline in specific sectors.

02 **I need to forecast prices; can EIA Full Access — U.S. Energy Intelligence help with long-term projections?**

Yes. You can access both 18-month forecasts via `get_short_term_outlook` for immediate price predictions, or use the `get_annual_outlook` tool for a more generalized view of energy market trends over the next three decades.

03 **Does EIA Full Access — U.S. Energy Intelligence cover all types of fuel sources?**

Absolutely. It covers petroleum (WTI, Brent), natural gas (Henry Hub), electricity generation (from coal, gas, hydro), and coal-specific metrics like quality and reserves.

04 **Is EIA Full Access — U.S. Energy Intelligence useful for international comparisons?**

Yes. Beyond US data, you can pull global figures using the `get_international_outlook` tool to see how world energy production and consumption compare to domestic trends.

05 **How do I find out about refinery capacity or crude oil imports?**

You use dedicated tools for that. The `get_refinery_operations` function gives you utilization rates, while `get_crude_imports` breaks down exactly where your raw materials are coming from country by country.

06 **Can EIA Full Access — U.S. Energy Intelligence model the whole energy picture?**

Yes. It's designed to synthesize the entire market, allowing you to connect inputs like total production (`get_total_energy`) with consumption metrics across all sectors and fuels.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"eia-full-access-us-energy-intelligence": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

EIA Full Access — U.S. Energy Intelligence is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

INDEPENDENT PLATFORM DISCLAIMER

DOCUMENT INFORMATION

Generated	June 2026
MCP Server	EIA Full Access — U.S. Energy Intelligence MCP
Server ID	`019d758d-7614-71f7-89fc-762e560d0c43`
Platform	Vinkius Cloud for AI Agents
Endpoint	`https://edge.vinkius.com/{token}/mcp`

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