

Energy Price Analysis Portfolio

I. Automated Data Extraction & Processing

1. Python-Based Data Acquisition

: Engineered a custom web scraping solution using Selenium and Pandas to extract energy market price data

: Automated conversion of extracted data into structured CSV files, reducing processing time by approximately 85%

: Established data validation protocols to minimize input errors and ensure data integrity

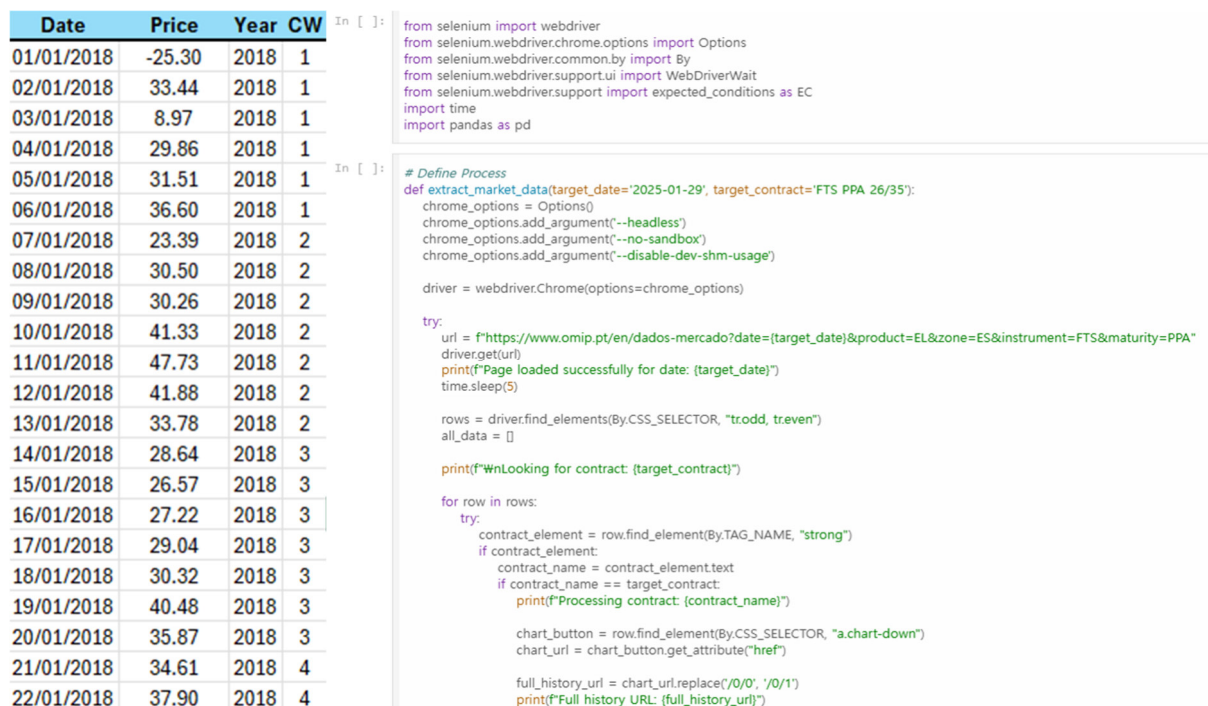


Figure 2 Example of Extracted Data and Code

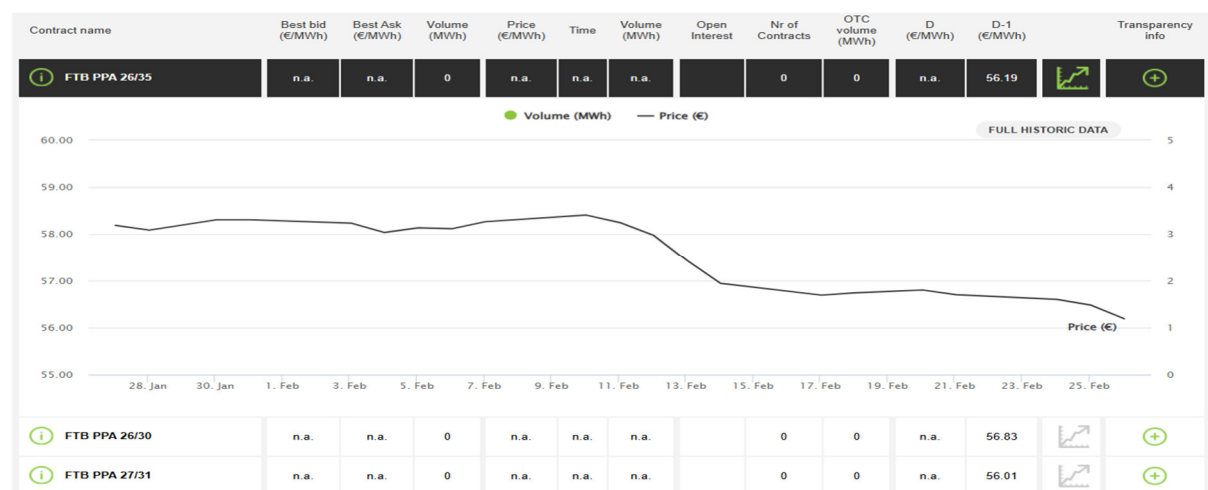


Figure 1 Example of Website

2. Strategic Data Structuring

- : Transformed raw data with YEAR() and WEEKNUM() functions to create temporal dimensions
- : Implemented standardized data structure to support downstream analysis and visualization
- : Designed scalable architecture to accommodate additional data sources and metrics

3. Optimization Through AI Integration

- : Leveraged AI tools (Claude, ChatGPT) to decode website structures and streamline extraction code
- : Constructed a resilient data pipeline capable of adapting to source changes and updates

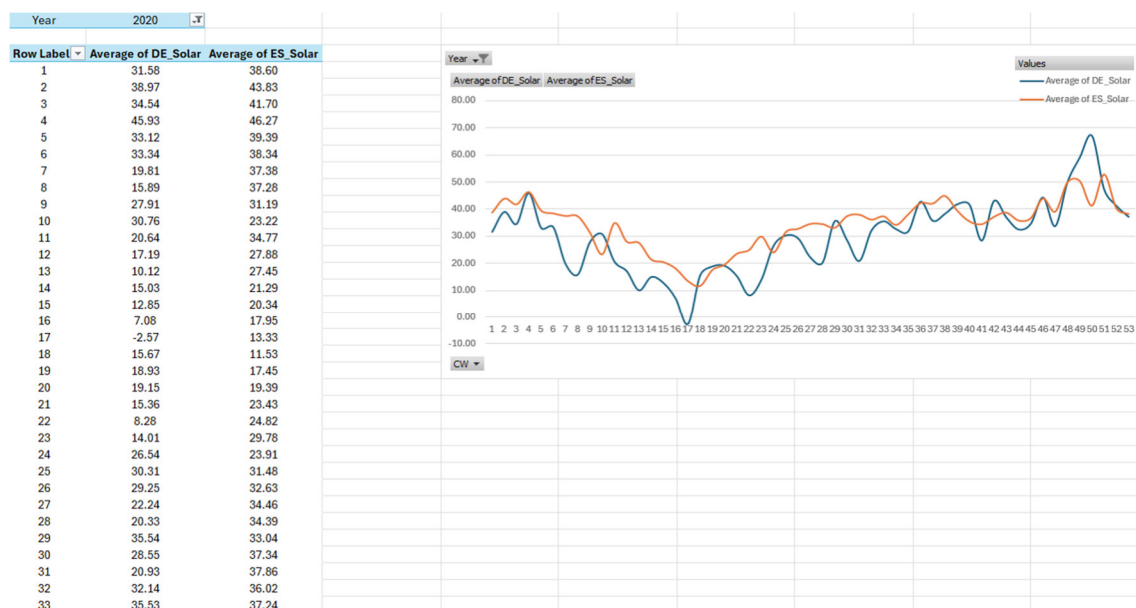


Figure 3 Screenshot of Pivot Table Sheet

II. Comprehensive Excel Analysis & Financial Modeling

1. Advanced Data Aggregation

- : Architected multi-dimensional pivot tables to transform raw data into actionable insights
- : Developed time-based hierarchies (Year > Calendar Week) enabling in-depth analysis
- : Integrated custom calculations to derive key performance metrics and identify trends

2. Financial Analysis & Forecasting

- : Conducted comparative analysis between extracted prices and established industry indices
- : Quantified market deviations through variance modeling to identify potential opportunities

: Generated profit projections based on price trend analysis to support decision-making

Date	CW	10Y	5Y	Solar Es	Spread
28/12/2022	53	77.47	106.12	38.67	-38.8
29/12/2022	53	78.64	108.46	21.63	-57.0
02/01/2023	1	64.02	80.92	128.66	+64.6
03/01/2023	1	64.33	81.54	140.33	+76.0
04/01/2023	1	63.77	80.42	109.07	+45.3
05/01/2023	1	62.88	78.65	103.96	+41.1
06/01/2023	1	63.07	79.01	100.43	+37.4
09/01/2023	2	62.73	78.35	102.33	+39.6
10/01/2023	2	61.8	76.48	105.70	+43.9
11/01/2023	2	61.78	76.44	98.56	+36.8
12/01/2023	2	61.71	76.31	90.70	+29.0
13/01/2023	2	62.26	77.41	87.63	+25.4
16/01/2023	3	61.66	76.21	15.05	-46.6

Figure 4 Example of variance analysis

3. Quality Assurance Framework

- : Implemented systematic visualization checks to instantly identify data anomalies
- : Developed automated flagging systems for statistical outliers and pattern disruptions

III. Executive-Level Data Visualization

1. Interactive Dashboard Solutions

- : Crafted intuitive visualization interfaces for executive decision-makers
- : Implemented advanced Excel functions (VLOOKUP, INDEX-MATCH) for dynamic, self-updating reports
- : Reduced manual intervention through automated refresh mechanisms and data connections

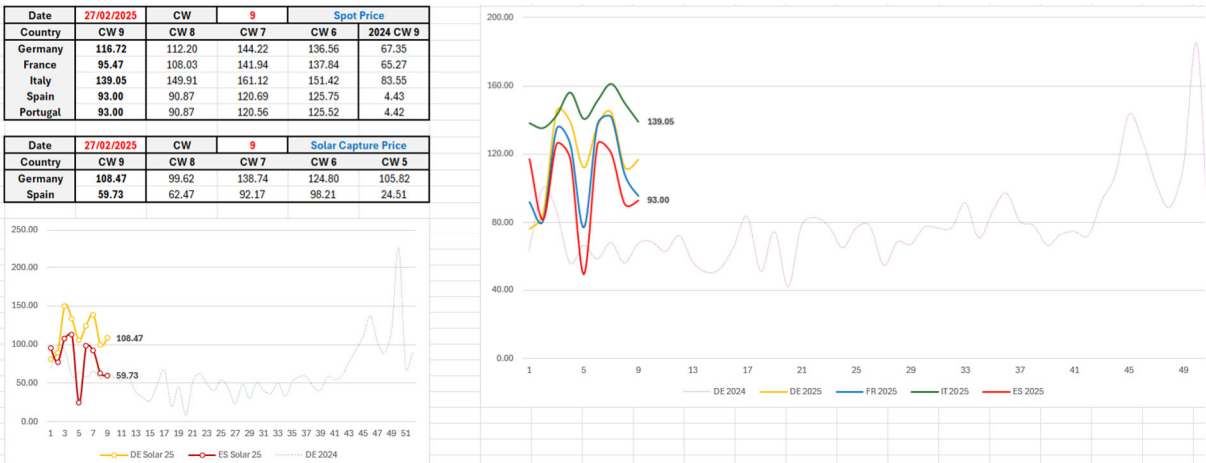


Figure 5 Dashboard Example

2. Strategic Communication Design

- : Transformed complex data patterns into clear visual narratives for diverse stakeholders
- : Established visual hierarchy to guide attention to business-critical metrics
- : Designed visualization formats to highlight key implications and actionable insights

IV. Mock Weekly Report

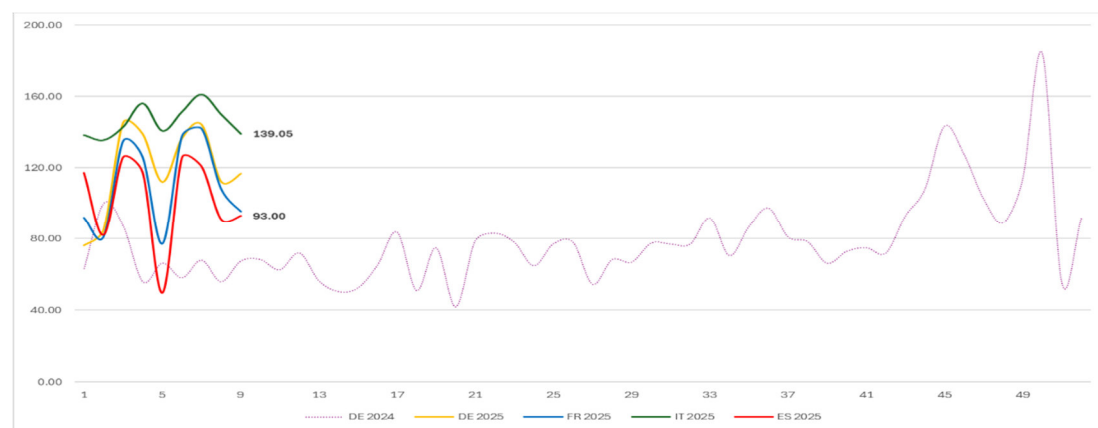
Good Afternoon,

I hope this email finds you well.

Please find below the **Energy Spot Price Update** for **Calendar Week 09** of **2025**, as of today.

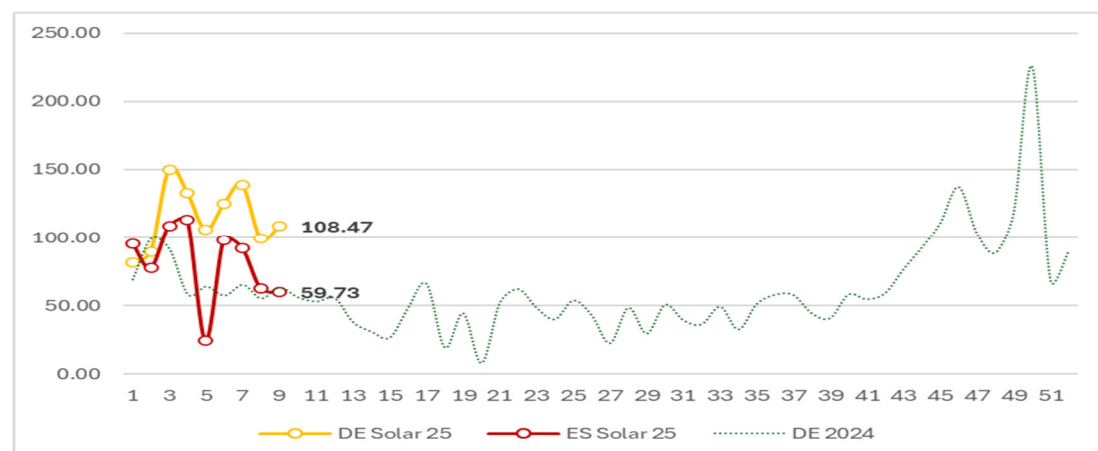
Figures shown in **EUR/MWh** based on **Day-Ahead Market Indices**.

	This Week				Last Year
Market	[CW 08]	[CW 07]	[CW 06]	[CW 05]	[CW 08]
Germany	116.72	112.20	144.22	136.56	67.35
France	95.47	108.03	141.94	137.84	65.27
Italy	139.05	149.91	161.12	151.42	83.55
Spain	93.00	90.87	120.69	125.75	4.43
Portugal	93.00	90.87	120.56	125.52	4.42



Additionally, the attached graph illustrates **Solar Capture Price** trends for **Calendar Week 09**, with all values also provided in **EUR/MWh**.

Market	Tech	[CW 08]	[CW 07]	[CW 06]	[CW 05]	[CW 04]
Germany	PV	108.47	99.62	138.74	124.80	105.82
Spain	PV	59.73	62.47	92.17	98.21	24.51



For further information, feel free to refer to the original file or reach out to me directly.

Best Regards, Sik Kim