

# Frank Patrick Murphy Hernández

## Contact

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Acoxa, Villa Coapa. Mexico City

## Profile

Corporate finance expert seeks a challenging position. Evaluate and negotiate PPAs to optimize energy investments. Skills: risks, contracts, business intelligence.

## Education

**PhD in Mathematics 2010-2014**  
Institute of Mathematics, UNAM

**Bachelor's Degree in Mathematics 2007-2008**  
Faculty of Sciences, UNAM

**Bachelor's Degree in Actuary 2004-2008**  
Faculty of Sciences, UNAM

## Extracurricular Information

Available at: <https://fmurphymx.github.io/>

- Guided Tour of Machine Learning in Finance by New York University (2018)
- Fundamentals of Machine Learning in Finance by New York University (2018)
- Pricing Options with Mathematical Models by California Institute of Technology (2017)
- Basic Course of the Wholesale Electricity by Market (MEM) (2017)
- Energy Subsidy Reform by the International Monetary Fund (2017)
- Mastering Data Analysis in Excel by Duke University (2017)
- Executive Data Science by John Hopkins University (2016)
- Executive Data Science Capstone by John Hopkins University (2016)
- Data Science in Real Life by John Hopkins University (2016)
- Managing Data Analysis by John Hopkins University (2016)
- Building a Data Science Team by John Hopkins University (2016)
- Business Metrics for Data-Driven Companies by Duke University (2016)
- Machine Learning with Big Data by University of California San Diego (2016)
- Introduction to Big Data Analytics by California San Diego University (2016)
- Graph Analytics with Big Data by University of California San Diego (2016)

**Spanish Native | Advanced English | Intermediate French | Basic Italian | Microsoft Excel Advanced | R Advanced | Python Advanced | Intermediate SQL | MongoDB Intermediate**

## Experience

### ○ Chief of Energy Markets

#### **Sustainable Energy Supply in Mexico (SUMEX) | 2018 - Current**

- I successfully managed to obtain the QSE permit from ERCOT in just one month, a process that typically takes much longer. This efficiency enabled rapid entry into operations, crucial to meeting market demands and business objectives.
- Designed and executed a synthetic derivative to transform a price taker position into a price maker one, resulting in a gross profit of 130 million pesos instead of facing losses. This tactic not only avoided financial losses but also maximized investment returns in adverse market conditions.
- Optimized the Data Warehouse, resulting in a significant reduction in billing time by 5 hours. This improvement in back-office processes increased operational efficiency and reduced costs associated with processing time.
- Developed the technical argument for a lawsuit against the market operator, which resulted in the recovery of 80 million pesos of previously withheld guarantees. This legal victory not only recovered significant funds, but also strengthened the company's legal position in future litigation.
- I renegotiated supply conditions to include gas before 2022, a crucial strategy that prevented the company from bankruptcy due to high gas prices. This adjustment in the supply strategy ensured the financial and operational sustainability of the company in a critical period

### ○ Head of Pricing Unit

#### **CFE Qualified Supply | 2016 -2018**

- Analyzed and evaluated long-term coverage contracts (15 years) to optimize a portfolio of 1600 MW generation projects. I designed this portfolio and developed business cases, including stressed scenarios, to ensure the corporate guarantee of the CFE board.
- Placed a 600 MW Power Purchase Agreement (PPA) in a 5-year supply contract with the largest customer in Mexico, generating profits of 70 million pesos per month.
- Developed an energy pricing scheme for qualified supply, which became an industry standard. This scheme improved transparency and competitiveness in the market, allowing consumers to compare and choose energy offers based on value, closing 30 industrial clients in one year.
- I implemented a risk policy for energy trading, authorizing the company as the only Productive Company in the State for this practice. This allowed the associated risks to be managed effectively, maximizing benefits and minimizing potential losses, generating 50 million pesos annually in gross profit.
- I recovered a valuable client who had been poorly served by the commercial area, managing to sign a contract that generated a 40% monthly profit.
- I negotiated in English and Italian with Brembo and closed a contract, beating international competitors such as ENEL. This success reflects effective negotiation skills and highlighted the competitiveness of our offer, consolidating our position in the market as the main qualified supplier.

### ○ Modeling Manager

#### **Seguro Energy LLC | 2015 - 2016**

- I developed, automated and implemented the PLEXOS model for the CFE in the medium and long term, facilitating strategic decision making in investment projects.
- Developed, automated and implemented a P&L model for CFE's 230 plants, significantly improving financial management and visibility of the performance of each plant. This tool allowed effective monitoring and more efficient management of operations, contributing to greater transparency and cost control
- I developed, automated and implemented the PLEXOS model for the short-term CFE for gas nomination, optimizing the use and distribution of energy resources. This model provided a solid basis for daily operational decisions, ensuring more effective management of gas supply and a reduction in associated costs.
- I managed the hiring of personnel and installation of the Seguro Energy LLC offices in Mexico, establishing an efficient and well-equipped operation to manage the company's activities in the region. This management included everything from the selection of the location to the equipment of the offices and the training of the team, ensuring a successful start of operations in Mexico.
- Developed material to train CFE's 6 GENCOS on PLEXOS, providing educational resources that improved staff's understanding and ability to use this sophisticated energy modeling software. This training was crucial to maximizing the usefulness of the software and improving data-driven decision making across the organization.

### ○ Data Scientist (Marketing Office)

#### **Telefónica | 2014 - 2015**

- I developed a CHURN prediction model that significantly increased customer loyalty. This analytical tool made it possible to proactively identify and address churn risk factors, improving customer retention and satisfaction.
- I developed my own database in GEOserver, fed with information from the last INEGI census and the geolocation of the BTS (telecommunications base stations). This resource allowed better planning and optimization of the network, improving operational efficiency and quality of service.
- I prepared a detailed statistical analysis of fraud in service complaints, identifying patterns and trends that facilitated the implementation of corrective and preventive measures to minimize these incidents.
- I developed a database in MongoDB that was fed by Twitter, capturing and analyzing data in real time to obtain valuable insights on customer perception and market trends, which allowed us to quickly adjust communication and marketing strategies.
- I developed a geospatial model that integrated Telefónica's own information with data from social networks and INEGI. I implemented this solution in an accessible application for Marketing management, providing a powerful tool for making strategic decisions based on the geographic location and behaviors of users.

### ○ Metlife | 2009    New Products Intern

### ○ IMATE UNAM 2008 - 2014 Intern

### ○ ING | 2005 - 2009    Auto Subscription Intern / Damage Statistics Intern