Mochamad “Luthfan” F Akbar

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EDUCATION

CARNEGIE MELLON UNIVERSITY TEPPER SCHOOL OF BUSINESS Pittsburgh, PA
Master of Business Administration – MBA Energy & Sustainability Track | Finance, Operations 5/26

- GPA: 4.11 (A+ scale) | GRE Quant – 168/170
- Relevant Coursework: Managerial & Global Economics, Optimization, Statistical Decision Making, Corporate Finance, Energy Finance, AI Methods for Data, Sustainable Finance, Probability & Statistics, Modern Data Management.
- Memberships: Graduate Finance Association, Adam Smith Society, Energy and Clean Tech.
- Teaching Experience:
  - Teaching Assistant – Finance I (2025) | Tutor – Probability & Statistics, Accounting, Operations (2025)
  - Teaching Assistant – Managerial Economics (2026)
- Awards & Honors: LPDP (Indonesia Endowment Fund for Education) Scholar.

INSTITUT TEKNOLOGI BANDUNG (ITB) Bandung, Indonesia
Bachelor of Science in Petroleum Engineering 6/12

- Honors: SPE Student Paper Contest Finalist (“Optimization of Net Present Value Using Managed Water Loop Algorithm”) | National Doctoral Forum Presenter.
- Thesis: Published in ITB Digital Library and presented at SPE Forum (Beijing 2012).
- Memberships: Petroleum Engineers Student Association | Society of Petroleum Engineers.

RESEARCH EXPERIENCE

Optimizing Hydrogen Price Arbitrage: The Cost-Storage Trade-off at the Intermountain Power Project
Carnegie Mellon University – Tepper School of Business, 2025

- Developed an optimization model using hourly CAISO price data and the Hodrick-Prescott (HP) filter to analyze hydrogen production timing and storage requirements.
- Found that operating electrolyzers at 30% capacity minimized average input cost while maintaining feasible storage levels, providing insights into hydrogen’s role as a temporal storage asset in renewable grids.

Levelized Cost of Storage (LCOS) Model for Zinc-Hybrid vs LFP Batteries (Capstone Project)
Carnegie Mellon University – Tepper School of Business, 2025

- Validated technical and economic parameters (RTE, DoD, degradation, augmentation, OPEX) using industry and second-life data.
- Developed a dynamic LCOS valuation model to compare zinc-bromide and lithium-ion (LFP) storage technologies.
- Linked technical performance to financial outcomes, supporting commercialization and investor-readiness analysis.

Gas Lift Conversion and Gas Flare Utilization Study
Pertamina Hulu Energi OSES, 2021 (Internal Study – Confidential)

- Conducted technical-economic assessment for converting electrical submersible pumps to gas lift and for reusing flare gas.
- Analyzed trade-offs between energy consumption and emission reduction to support operational decision-making.

Iron Removal Agent for Polymer Flooding (Widuri Field)
CNOOC SES Ltd. & Starborn Chemical Company, 2015

- Evaluated chemical treatments to maintain polymer viscosity during enhanced oil recovery.
- Identified an effective additive combination (150 ppm S-9119, 100 ppm S-9363) to stabilize viscosity and reduce water cut.
- https://www.ipa.or.id/en/publications/iron-removal-agent-for-polymer-flooding-project-of-widuri-c

Optimization of Net Present Value Using Managed Water Loop Algorithm
Institut Teknologi Bandung, 2012

- Created simulation-based algorithms to manage downhole water flow and improve oil recovery efficiency.
- Evaluated economic impact using NPV comparison between conventional and downhole water loop wells, showing higher profitability under reservoir-pressure conservation conditions.
- Finalist, SPE Student Paper Contest; presented at National Doctoral Forum, Beijing.

WORK EXPERIENCE

PERTAMINA HULU ENERGI OSES – Indonesia National Oil and Gas Company Jakarta, Indonesia
Artificial Lift Senior Supervisor – Production Optimization Engineer 9/18 – 7/24

- **Economic Evaluation & Project Valuation:** Performed investment analyses using DCF, NPV, and IRR models for multi-million-dollar well programs, including a $30 million development-drilling campaign.
- **Feasibility Analysis:** Led the Artificial-Lift Conversion Study (ESP to Gas Lift with Flare Reuse) through a cross-disciplinary collaboration with engineering, finance, and sustainability teams, assessing technical-economic trade-offs and identifying $15 million in potential savings from improved efficiency and energy-use optimization.
- **Field Performance Optimization:** Applied data analytics and statistical monitoring (SCADA, Oracle, PowerBI) to evaluate 130 wells and reduce downtime across a portfolio of 165 active wells ($85 million annual budget).
- **Strategic Project Management:** Coordinated multi-disciplinary teams (3 operator groups, 12 staff) in planning, logistics, and budget control for field-wide operations and maintenance programs.
- **Contract & Procurement Management:** Served on the Exploration Well Artificial-Lift Contract Team ($1.5 million value), reviewing supplier proposals and ensuring technical and economic alignment with field plans.
- **Mentorship & Training:** Mentored junior engineers and student trainees, providing guidance on production analysis and cost modeling approaches.

CNOOC SES LTD. – China National Oil and Gas Company Jakarta, Indonesia
Production/Petroleum Engineer 10/12 – 9/18

- **Strategic Project Management:** Served as acting Petroleum Engineer Specialist within the Management Development Program, contributing to long-term planning, project valuation, and economic performance reviews.
- **Performance Monitoring & Data Analytics:** Monitored 300 wells across 19 offshore platforms ($115 million operations) using SCADA and PowerBI dashboards to inform budget allocation and production targets.
- **Project Management:** Managed well-work programs valued at $0.5-2 million, overseeing budget forecasting, vendor coordination, and schedule compliance.
- **Research & Technology Implementation:** Led a $9 million pilot Enhanced Oil Recovery (EOR) project, combining simulation and field testing to assess recovery improvement and economic feasibility.
- **Energy Systems Optimization:** Analyzed operations of a 90 MW field power system, identifying maintenance and fuel cost reduction options through process efficiency modelling.

SKILLS & CERTIFICATIONS

- **Quantitative & Economic Analysis:** Cost–benefit analysis | NPV/DCF/IRR modeling | Optimization
  Regression & sensitivity analysis | Policy evaluation methods
- **Data & Computing:** Python (NumPy, pandas, matplotlib) | PowerBI
  Microsoft Excel (advanced financial modeling) | SQL (data queries)
- **Energy & Sustainability Systems:** Energy transition economics | Hydrogen and storage modeling
  LCOS and LCOH evaluation | Electricity-market modeling | Project finance
- **Research & Communication:** Technical writing | Data visualization
  Teaching assistance (Finance I, Managerial Economics, Statistics) | Public presentation
- **Certifications:** (2023-2025)
  Financial Statement, DCF & LBO Modeling – Wall Street Prep
  Microeconomics: The Power of Markets & When Markets Fail – University of Pennsylvania
  Mathematics for Machine Learning (Linear Algebra, PCA, Multivariate Calculus) – Imperial College London
  Data Analytics & Visualization (Foundations, Data Cleaning, Statistical Methods) – Google
  Human Resource Management and Leadership Specialization – Macquarie University

INTERESTS & AFFILIATIONS

- **Academic & Professional:** Society of Petroleum Engineers (SPE) | Graduate Finance Association (CMU Tepper)
  Adam Smith Society (CMU) | Energy and Clean Tech (CMU)
- **Research Interest:** Energy transition economics | Grid resilience | Sustainable infrastructure finance
  AI in energy systems | Industrial decarbonization policy
- **Personal Interests:** Hiking | Renewable project site visits | Strategic board games
  Mentorship and education outreach | Pro Bono Consulting