HUB TECH IA

AI and IAGEN Application Use Case

Energy optimization activities - energy efficiency - protocols and guides for energy optimization

Executive Summary – IAGEN Application for Energy Optimization in Cows Dead.

This executive summary presents a strategic application of generative artificial intelligence (IAGEN) in the energy sector, specifically in the activities of energy efficiency and sustainability in the Vaca Muerta formation. This is a significant opportunity to transform energy management through the use of smart technologies that enable more efficient, sustainable and profitable in one of the world's largest unconventional reserves.

Use case classification

The report classifies this IAGEN application according to the following axes:

1. By main resource: energy (with water as an associated resource) and, secondly flat, oil and gas.
2. By activity: energy efficiency and sustainability.
3. By technology: generative AI models, machine learning algorithms and data integration platforms (Big Data).
4. By strategic impact: sustainability and reduction of environmental impact.

1. Opportunities for using AI and IAGEN in the sector

Major opportunities include the development of energy protocols personalized and dynamic, real-time detection of inefficiencies, adaptation

operational to changing conditions (such as weather or equipment status), automation of energy decisions and integration of multiple sources of operational data (IoT, SCADA, historical). IAGEN allows you to anticipate energy behaviors and recommend specific actions for each operational situation, with a
contextualized and predictive approach.

2. Expected benefits

The implementation of IAGEN facilitates the reduction of energy consumption, improves the safety through precise monitoring, optimizes predictive maintenance,
reduces operational errors and ensures complete traceability of protocols.

In addition, it contributes to the fulfillment of ESG goals and promotes a culture of efficiency based on reliable data and clear recommendations for staff
operational.

3. Application of AI

Generative AI is applied in a comprehensive process that covers from the collection and data analysis to the automatic generation of energy protocols in language
natural. This technology analyzes variables such as temperature, pressure, flow rate, and state of teams to generate visual and textual recommendations adapted to the context
of each well or plant. In addition, the protocols are dynamically updated thanks to the continuous learning from operational results and staff feedback.

4. Proposed AI Agent

The report proposes the design of the intelligent agent “EnergyFlow Optimizer,” whose main function is to generate, adapt, and distribute optimized energy protocols.
This agent collects data in real time, analyzes it with LLM and
optimization, and delivers personalized operational recommendations. It is characterized by its self-learning capacity, its multi-format delivery (text, voice, dashboards) and
Its integration with mobile platforms and SCADA systems. The key benefit lies in its ability to scale energy efficiency in an automated and adaptive manner,

reducing dependence on manual interventions and increasing intelligence system operation.

5. Conclusion

The implementation of IAGEN in Vaca Muerta operations represents a evolution towards a more intelligent, sustainable and resilient energy model. This approach enables a qualitative leap in operational efficiency, while at the same time responds to current demands for sustainability and industrial digitalization. The Progressive adoption of agents such as the “EnergyFlow Optimizer” can position Vaca Muerta as a regional benchmark in energy innovation and use strategic approach to generative artificial intelligence applied to critical contexts.