Digital Energy Grid Hackathon — AIgent 007

1. Team Information

Team Name: AIgent 007
Institution / Organization: Imperial College London
Team Members :

- Téo Moncada, teo.moncada25@imperial.ac.uk, #dyron9279, Team Leader
- Alexandre Hervé, alexandre.herve25@imperial.ac.uk, #alexandreherve., Main Developer
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2. Problem Focus

Our solution addresses the second problem statement : **Compute–Energy Convergence in a DEG World**.

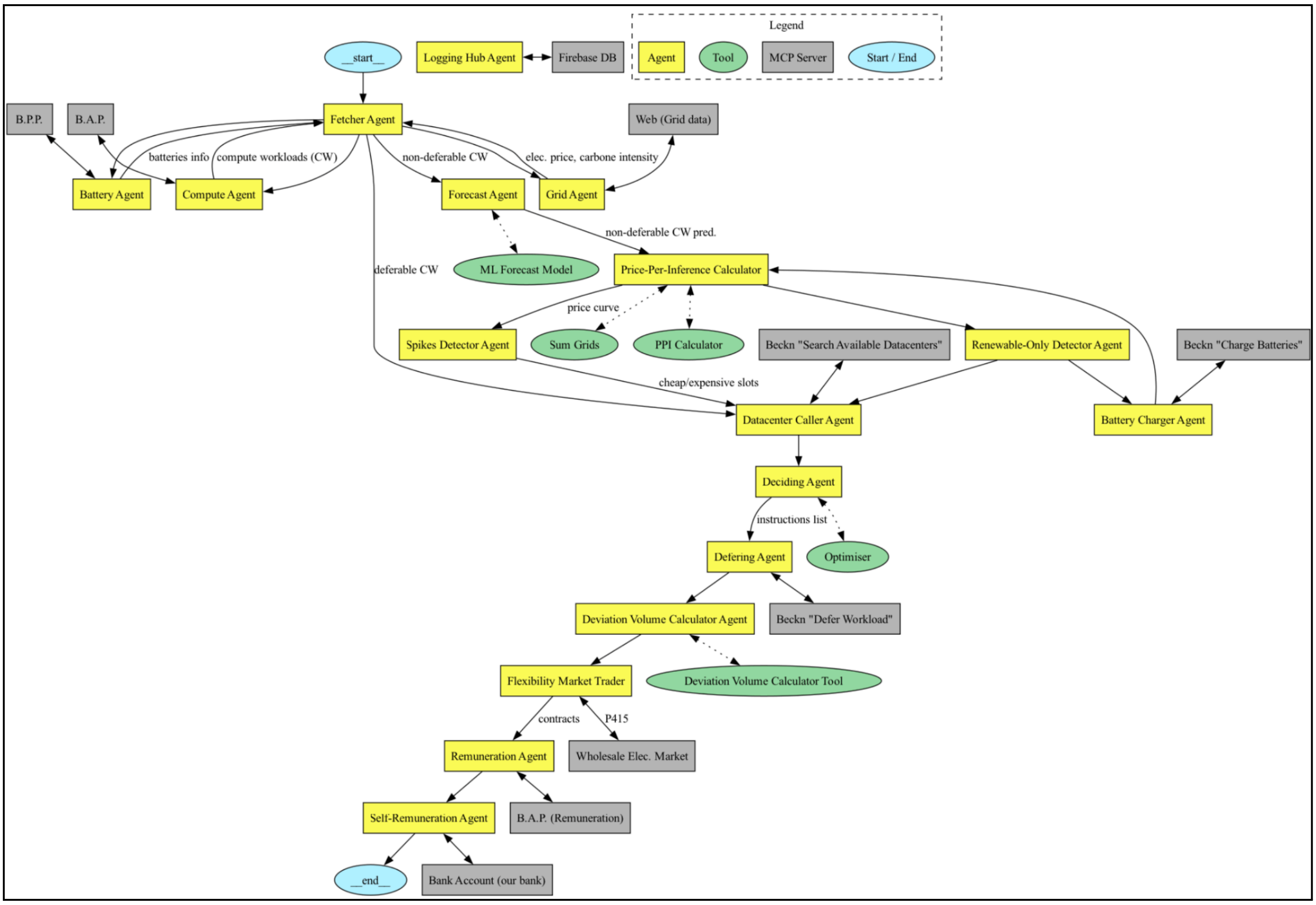
3. Solution Overview

Our **agentic solution** is designed to shrink the **high-cost, high-carbon electricity** consumption windows that increasingly burden compute infrastructure. We begin by forecasting **non-deferrable workload spikes**, then trigger a coordinated set of actions to smooth demand intelligently. Our agent communicates directly with the **battery-management agent** to limit energy draw during periods of **elevated carbon intensity**. In parallel, we identify the **optimal time windows** to avoid launching deferrable AI jobs.

Using the **Beckn protocol**, we then distribute these jobs across available compute clusters that operate within **low-carbon electricity windows**. This coordinated allocation ensures that each inference is executed at the **lowest possible cost** while maintaining a **reasonable carbon footprint**.

In short, we turn volatile compute demand into an **orchestrated, carbon-aware scheduling layer**—cutting operating costs, reducing emissions, and unlocking a **more sustainable way to scale AI workloads**.

4. Technical Architecture (max 200 words or diagram)



5. Agent Workflow

An agent begins by retrieving the catalogs of deferrable AI jobs through a BAP call (**search / on_search**). Then, based on these AI jobs (type, location, priority etc.), it retrieves the catalogs of the most suitable Data Centers to use.

The agent then maps the distribution of AI jobs across Data Centers using a scoring model based on electricity prices (correlated with carbon footprint) and revenues generated from deviation volumes sold on the wholesale electricity market through **P415**.

Our agent wants to execute this mapping using the commands **select / on_select**. If all actors agree, we confirm the allocations through **confirm / on_confirm** according to the previous decision.

Once the AI jobs are completed, execution is confirmed with a **status / on_status** call.

The deviation volumes are then sold, and the various actors are compensated through credits or monetary payments using **init / on_init**.

6. Business Model & Impact

Our business model proves that compute–energy convergence is both feasible and profitable. We operate a service platform that routes AI inference jobs across a digital energy grid (DEG), matching flexible workloads with real-time electricity prices.

Consumers benefit through credits or reduced fees when they allow minor delays in their AI jobs. **Data centers** gain higher utilization and access to lower-cost power. **Aggregators** monetize their catalogues of available compute sites, while our team captures value by orchestrating optimal job allocation that reduces operating costs for every actor.

Sustainability is built in: the platform leverages P415 wholesale market participation and cross-border data exchange rules, shifting compute tasks toward greener or cheaper regions.

Scalability is effortless. As a cloud-based service with strong interoperability, the only real constraint is compute availability, allowing rapid global expansion with minimal marginal cost.

Revenue flows from wholesale electricity arbitrage, reduced inference pricing, and credit- or fee-based remuneration for routed jobs.

7. References / Inspiration

- Beckn Git [https://github.com/beckn] : Used the starter kit and different examples to understand the topic regarding the Beckn Protocol.
- How we understand agent workflow and beckon API https://docs.google.com/presentation/d/14OLgjGIVQnexu-MvtpY9Y87r1fQOPUOQU_ip1MMWIrw/edit?slide=id.g243ea7a9558_0_268#slide=id.g243ea7a9558_0_268

8. Declarations

- IP & Licensing: Submitted under MIT Commons License
- Submission Format: 1-2 page PDF uploaded via Dora Hacks
- Deadline: 23/11/25 17:00 GMT