CLAIMS

1. An AI-based platform for enabling intelligent orchestration and management of power and energy, comprising:

a policy and governance engine configured to deploy a set of rules and/or policies that govern a set of energy generation, storage, and/or consumption workloads, wherein the rules and/or policies are associated with a configuration of a set of edge devices operating in local data communication with a set of energy generation facilities, energy storage facilities, energy delivery facilities or energy consumption systems.

2. The AI-based platform of claim 1, wherein upon configuration in the policy and governance engine, a policy associated with an energy generation instruction is automatically applied by at least one of the edge devices to control energy generation by at least one energy generation system, at least one energy consuming system, at least one energy delivery system, or at least one energy storage system, that is controlled via the edge device.

3. The AI-based platform of claim 1, wherein the policy and governance engine is configured to operate on a stored set of policy templates in order to configure a policy.

4. The AI-based platform of claim 1, wherein a set of recommended policies is automatically generated for presentation in the policy and governance engine based on a data set of historical policies, a data set representing operating states and/or configurations of a set of distributed energy resources, and a set of historical outcomes.

5. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to adjust the rules and/or policies based on at least one contextual factor, and the at least one contextual factor includes at least one of historical data of energy transactions, at least one operational factor, at least one market factor, at least one anticipated market behavior, or at least one anticipated customer behavior.

6. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to adapt a transport of data over a network and/or communication system, wherein the adapting is based on at least one of, a congestion condition, a delay and/or latency condition, a packet loss condition, an error rate condition, a cost of transport condition, a quality-of-service (QoS) condition, a usage condition, a market factor condition, or a user configuration condition.

7. The AI-based platform of claim 1, further comprising an adaptive energy digital twin that is configured to:

perform at least one of providing a visual and/or analytic indicator of energy consumption by at least one energy consumer, filtering energy data, highlighting energy data, or adjusting energy data, or

generate a visual and/or analytic indicator of energy consumption by at least one of, at least one machine, at least one factory, or at least one vehicle in a vehicle fleet.

8. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to perform at least one of extracting energy-related data, detecting and/or correcting errors in energy-related data, transforming, converting, normalizing, and/or cleansing energy-related data, parsing energy-related data, detecting patterns, content, and/or objects in energy-related data, compressing energy-related data, streaming energy-related data, filtering energy-related data, loading and/or storing energy-related data, routing and/or transporting energy-related data, or maintaining security of energy-related data.

9. The AI-based platform of claim 1, wherein at least one of the rules and/or policies is based on:

at least one public data resource, the at least one public data resource including at least one of a weather data resource, a satellite data resource, a census, population, demographic, and/or psychographic data resource, a market data resource, or an ecommerce data resource, or

at least one of resource planning data, sales and/or marketing data, financial planning data, demand planning data, supply chain data, procurement data, pricing data, customer data, product data, or operating data.

10. The AI-based platform of claim 1, wherein the policy and governance engine is configured to orchestrate delivery of energy to at least one point of consumption, and the delivery of the energy includes at least one of, at least one fixed transmission line, at least one instance of wireless energy transmission, at least one delivery of fuel, or at least one delivery of stored energy.

11. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to record, in a distributed ledger and/or blockchain, at least one energy-related event, the at least one energy-related event including at least one of, an energy purchase and/or sale event, a service charge associated with an energy purchase and/or sale event, an energy consumption event, an energy generation event, an energy distribution event, an energy storage

event, a carbon emission production event, a carbon emission abatement event, a renewable energy credit event, a pollution production event, or a pollution abatement event.

12. The AI-based platform of claim 1, wherein the policy and governance engine is deployed in an off-grid environment, and the off-grid environment includes at least one of an off-grid energy generation system, an off-grid energy storage system, or an off-grid energy mobilization system.

13. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to generate and/or execute at least one smart contract, wherein each of the at least one smart contract applies the rules and/or policies to at least one energy-related transaction.

14. The AI-based platform of claim 1, wherein the set of rules and/or policies is based on an at least one objective associated with the set of energy generation, storage, and/or consumption workloads, and the policy and governance engine is further configured to deploy, to the set of edge devices, an update to the set of rules and/or policies based on the objective.

15. The AI-based platform of claim 1, wherein the policy and governance engine is further configured to deploy, to the set of edge devices, at least one instruction to adapt at least one operational parameter associated with at least one industrial machine and/or industrial process that is controlled by the set of edge devices.