Energy Systems of the Future

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Amazon Web Services

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Looking 30 YEARS ahead

By 2050*

- Global energy demand forecast to increase by 47%
- Renewable energy demand and sources expected to more than double
- Liquid fuel demand will be at equivalent levels to renewables

Source: EIA, “International Energy Outlook 2021”

- Requires a reimagining of current energy systems
- Built to leverage data across the energy value chain
- Designed to scale and accelerate the energy transition

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Energy systems of the future

Expanding energy landscape

More complex, integrated energy value chain

Evolving customer energy needs

New innovation opportunities

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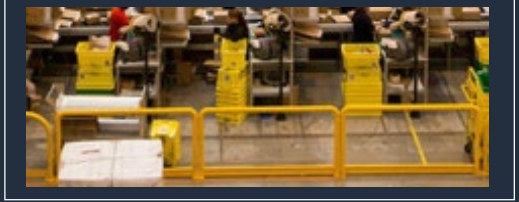
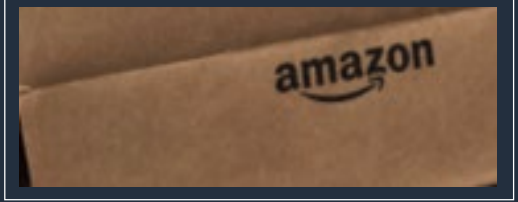
What you probably already know about Amazon

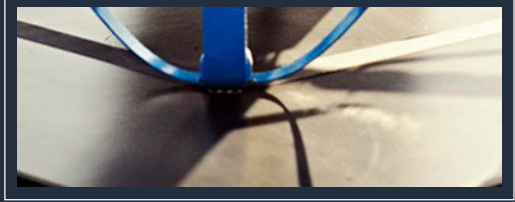
UNPRECEDENTED
SCALE

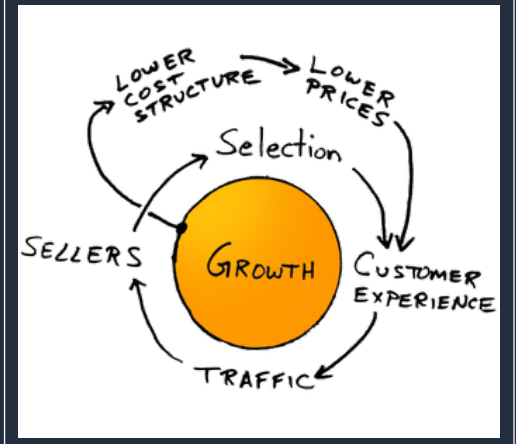


HYPER
SPEED



RELENTLESS
INNOVATION





CUSTOMER
OBSESSION

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AWS Energy

UPSTREAM

Drilling & Completions

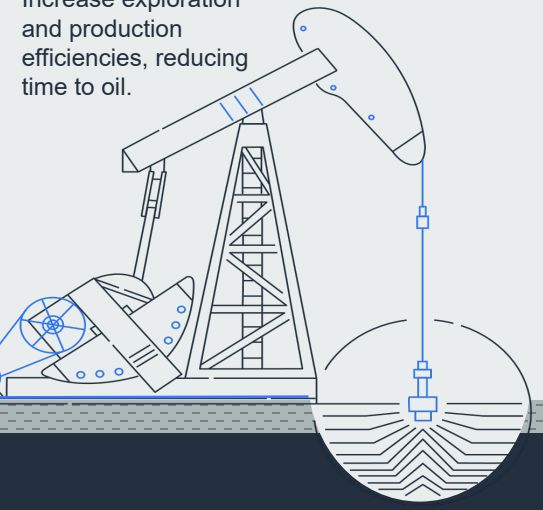
Simplify management of your rigs, increasing performance and the efficacy of completions.

Production Operations

Lower operating expenses, reduce downtime, and increase safety across operations.

Geology & Geophysics

Increase exploration and production efficiencies, reducing time to oil.



MIDSTREAM

Pipelines & Logistics

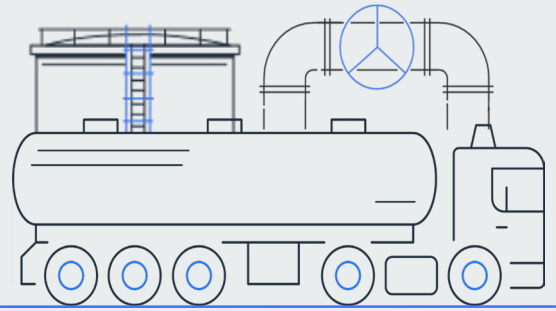
Streamline monitoring and preventative maintenance of pipelines.

Trading & Risk

Optimize commodity trades and gain visibility across your entire portfolio.

Infrastructure

Facilitate storage and delivery of products with streamlined terminal operations and gathering line systems.



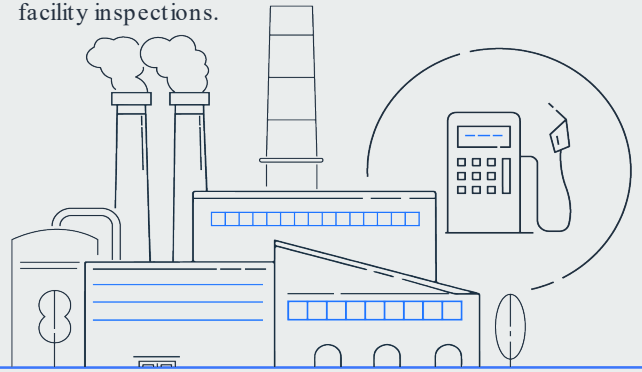
DOWNSTREAM

Fuels Retail

Provide visibility and optimization across the customer journey.

Refining & Chemicals Operations

Optimize production and refinery yields while streamlining facility inspections.



POWER

Generation

Operations and maintenance of large scale power generation sources, including gas fired and nuclear plants

Transmission

Operations, monitoring and maintenance of the grid, including upgrades towards zero carbon grid

Solar

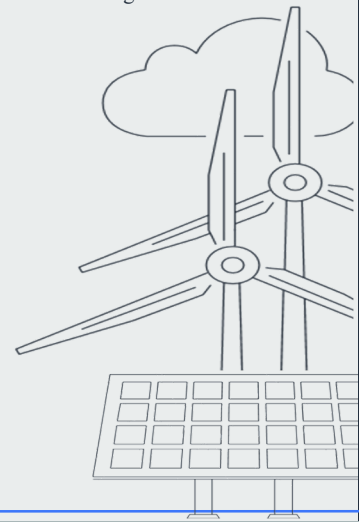
Optimize and maintain solar assets, including grid integration.

Wind

Provide visibility and analysis of energy data and remote inspections of offshore wind infrastructure.

Microgrids

Gain visibility across your micro grid generation and load resources.



Sustainability

Achieving sustainability goals – emissions monitoring, reporting and reduction in carbon intensity

Carbon Trading

Hosted trading solution for products and carbon credits

Supply Chain Operations

Well operations to product logistics to enterprise SC

Back Office Operations

Data heavy workloads such as accounting, workorder mgmt, invoicing & payments, regulatory

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Energy systems of the future solutions

Designed to optimize
Simulation
Modeling
Forecasting
Trading
Pricing
Optimization
Supply chain

To achieve critical business drivers
More production
Less cost
Faster
Less risk
Lower emissions

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Accelerating innovation

Baker Hughes

Reducing time to value

Migrated its computational fluid dynamics (CFD) applications to AWS

- Saved 40% on HPC costs
- Reduced carbon footprint of the HPC solution by 99%

bp

Simplifying data

Simplified their data processes when they chose AWS for their industrial data platform

- Reduced IT and maintenance costs
- Improved reliability and visibility of their equipment

enel

Driving transformation

Transformed its operations when it migrated its IoT and energy management platforms to AWS

- Saved 21% on compute costs
- Saved 60% on storage costs

Woodside

Increasing innovation

Accelerated innovation and eliminated data silos after migrating to AWS

- Enabled greater speed, flexibility, and rapid experimentation
- 24/7 production monitoring and optimization

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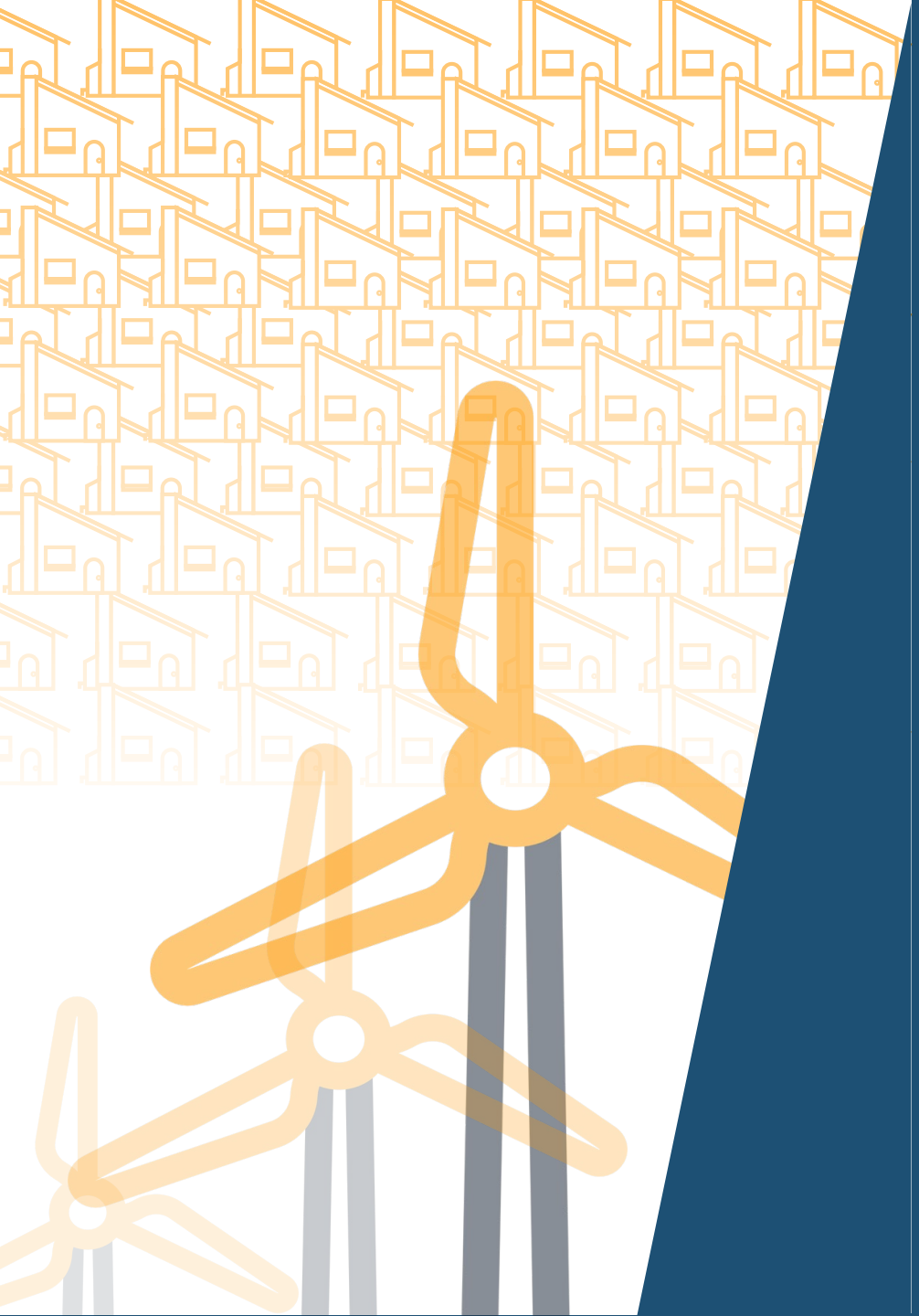
September 19, 2019

Amazon and Global Optimism announced The Climate Pledge, a commitment to meet the goals of the Paris Agreement 10 years early—and achieve net-zero carbon by 2040. Amazon is a co-founder and first signatory of The Climate Pledge.



Amazon is the largest corporate buyer of renewable energy globally

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More than 400 projects around the world, on the path to power operations with 100% renewable energy by 2025

Once online, enough power for more than 5.3 million U.S. homes/year or 15.3 million European homes/year

Shipment Zero

225 Amazon facilities around the world are powered by solar rooftops

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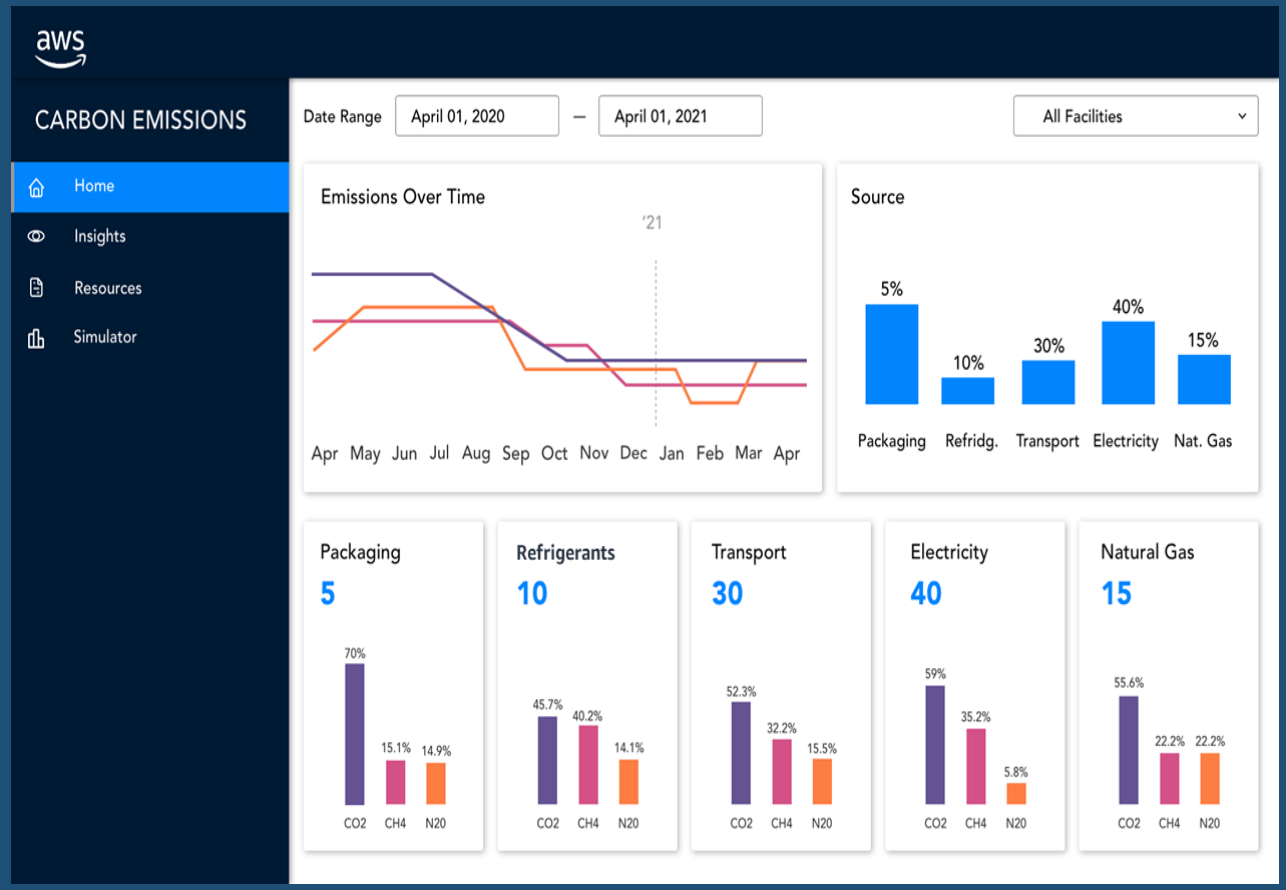
Amazon ordered 100,000 new electric delivery vehicles from Rivian

Carbon footprint framework

Real time dashboards for measuring, tracking, and managing carbon footprints at product, process and entity level.

Transform activity into actionable metrics using proven science-based approaches from certification organizations.



Automated data ingestion from existing systems into a centralized platform to create/manage carbon models. Real -time carbon calculations and ability to simulate changes to see effects.

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