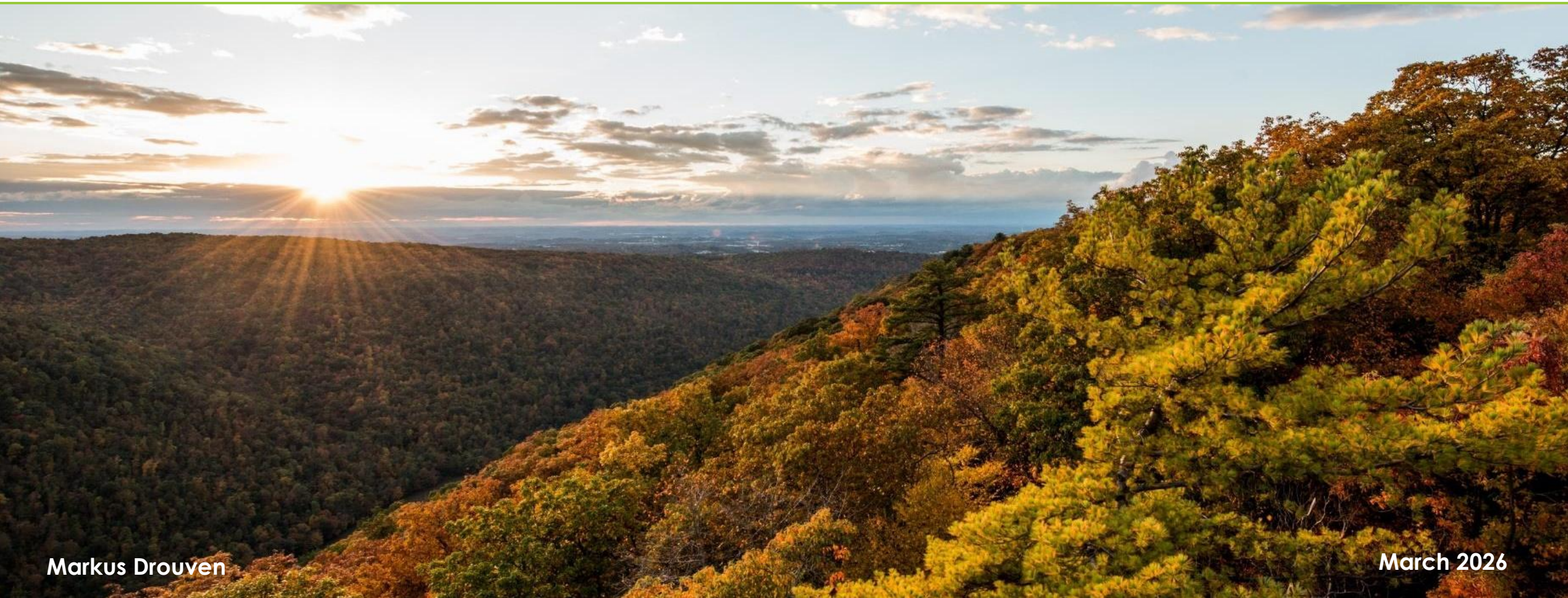
Realizing the Appalachian Basin's Full Potential to Drive the AI Revolution and U.S. LNG Exports

How Appalachian Natural Gas will Fuel the Future of "AI and Ally"

NATIONAL ENERGY TECHNOLOGY LABORATORY

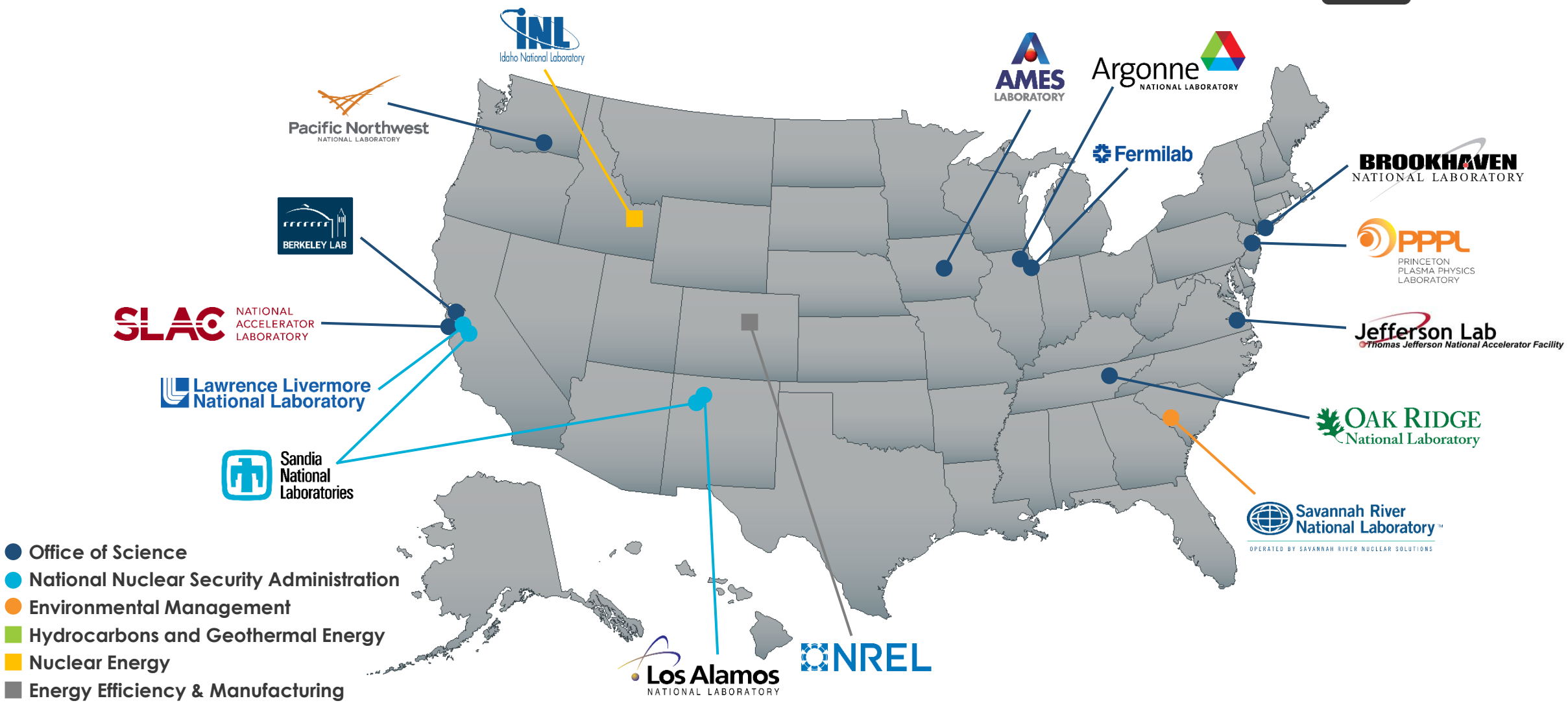
Pittsburgh, PA



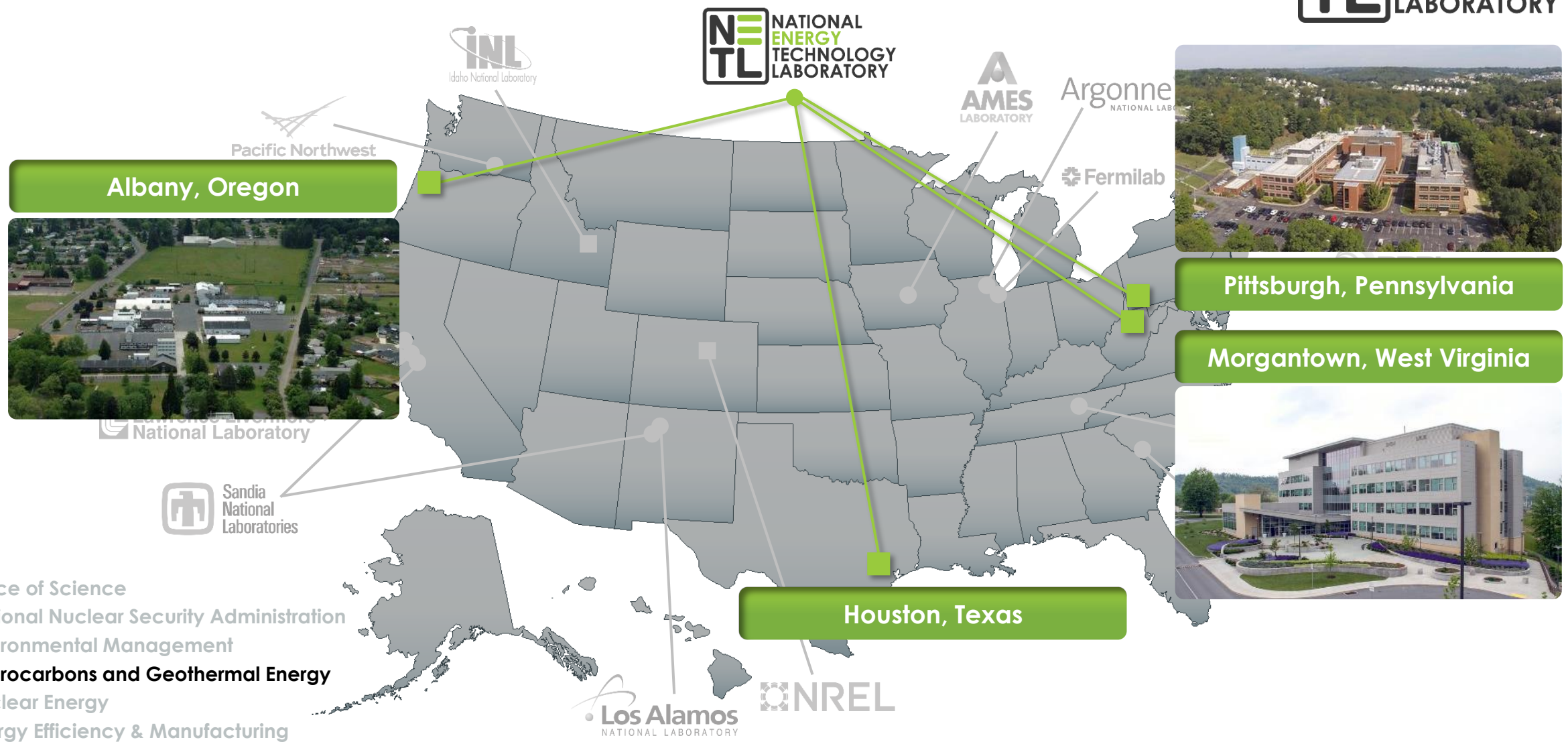
Markus Drouven

March 2026

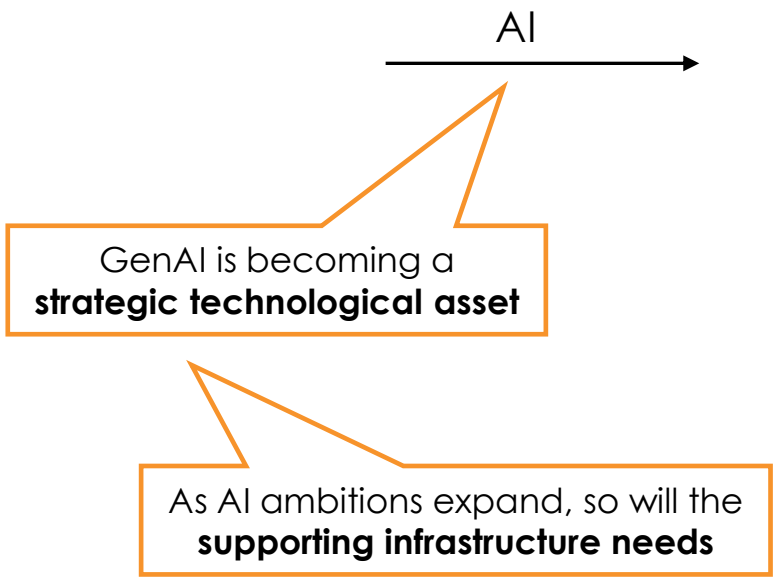
Introduction: The DOE National Laboratory System & NETL



Introduction: The DOE National Laboratory System & NETL



An Integrated Energy Vision for Hydrocarbon Energy



An Integrated Energy Vision for Hydrocarbon Energy



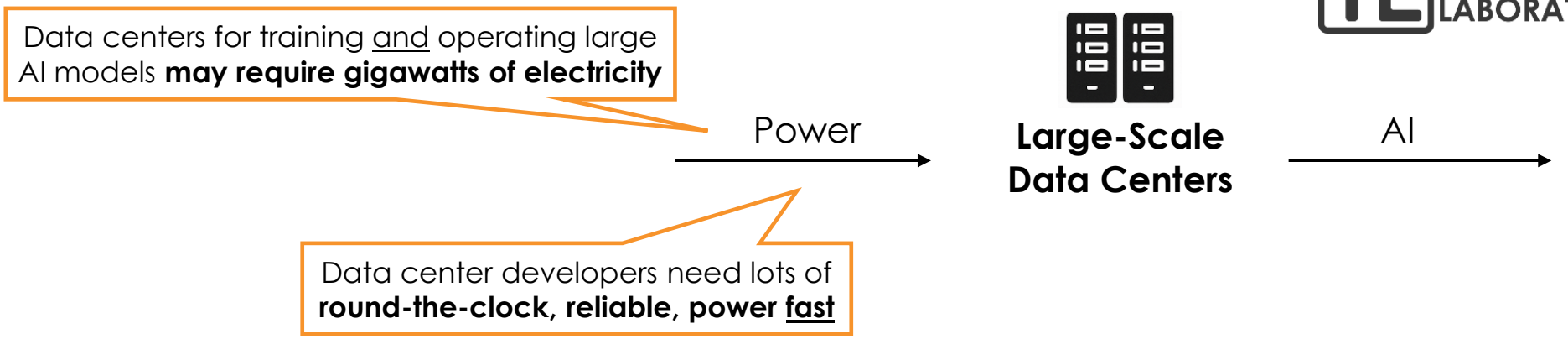
Large-Scale Data Centers → AI

The foundation of GenAI lies in **vast computing infrastructure**

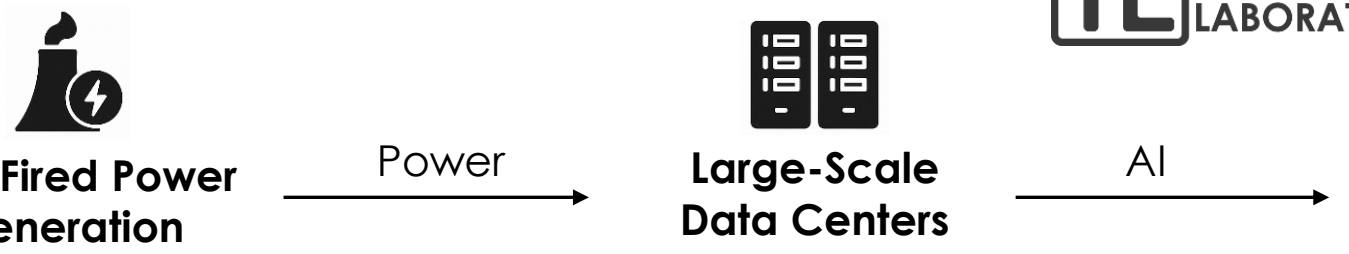
In 2025, "MAMAA" are projected to invest **$300B (!) to build/upgrade data centers**

*"Every single data center in the future will be **power-limited**.*
*(…) We are now a **power-limited industry**."*
*- Jensen Huang, NVIDIA CEO & Founder**

An Integrated Energy Vision for Hydrocarbon Energy



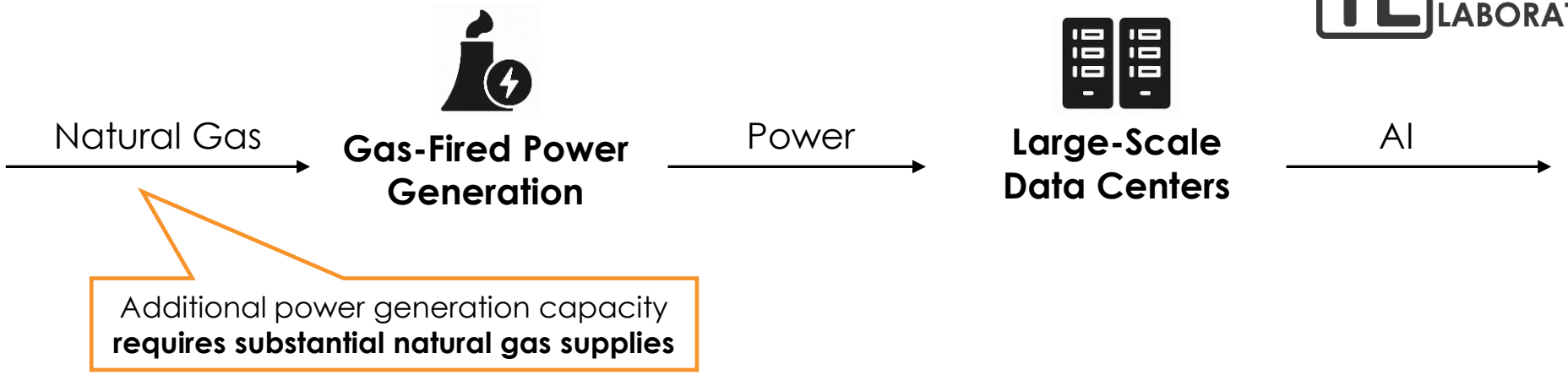
An Integrated Energy Vision for Hydrocarbon Energy



Gas-fired power generation is emerging as the **primary choice for data center developers**

Across the U.S., data centers may need an **additional 47 GW of generation capacity by 2030**

An Integrated Energy Vision for Hydrocarbon Energy



An Integrated Energy Vision for Hydrocarbon Energy



Natural Gas Production

Natural Gas →



Gas-Fired Power Generation

Power →



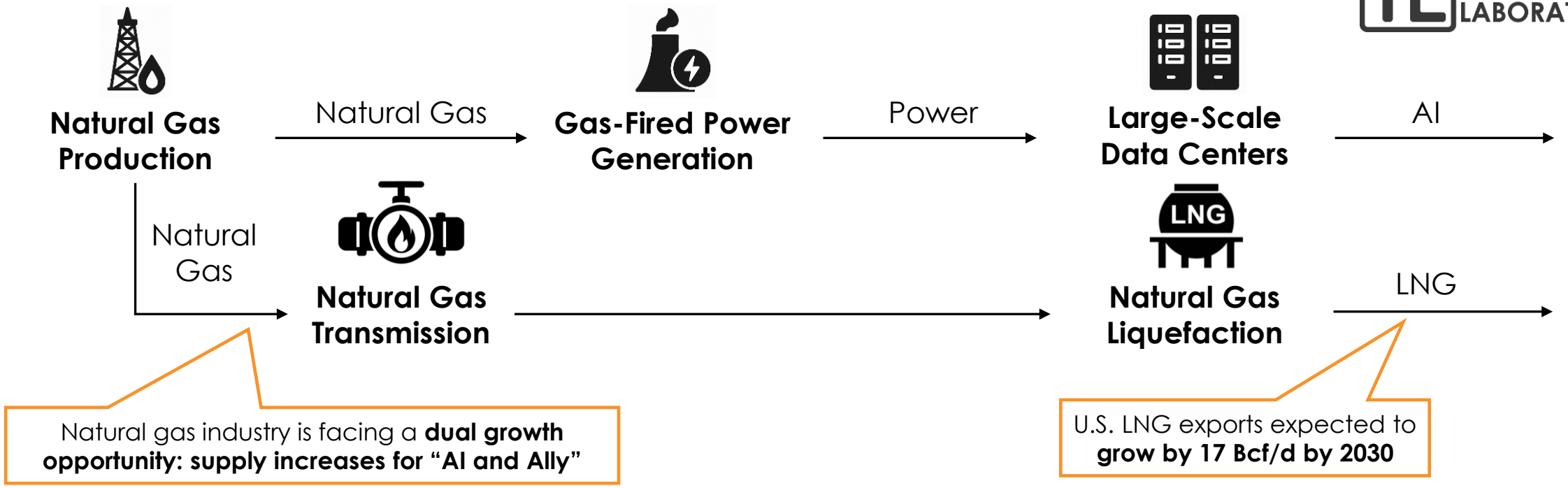
Large-Scale Data Centers

AI →

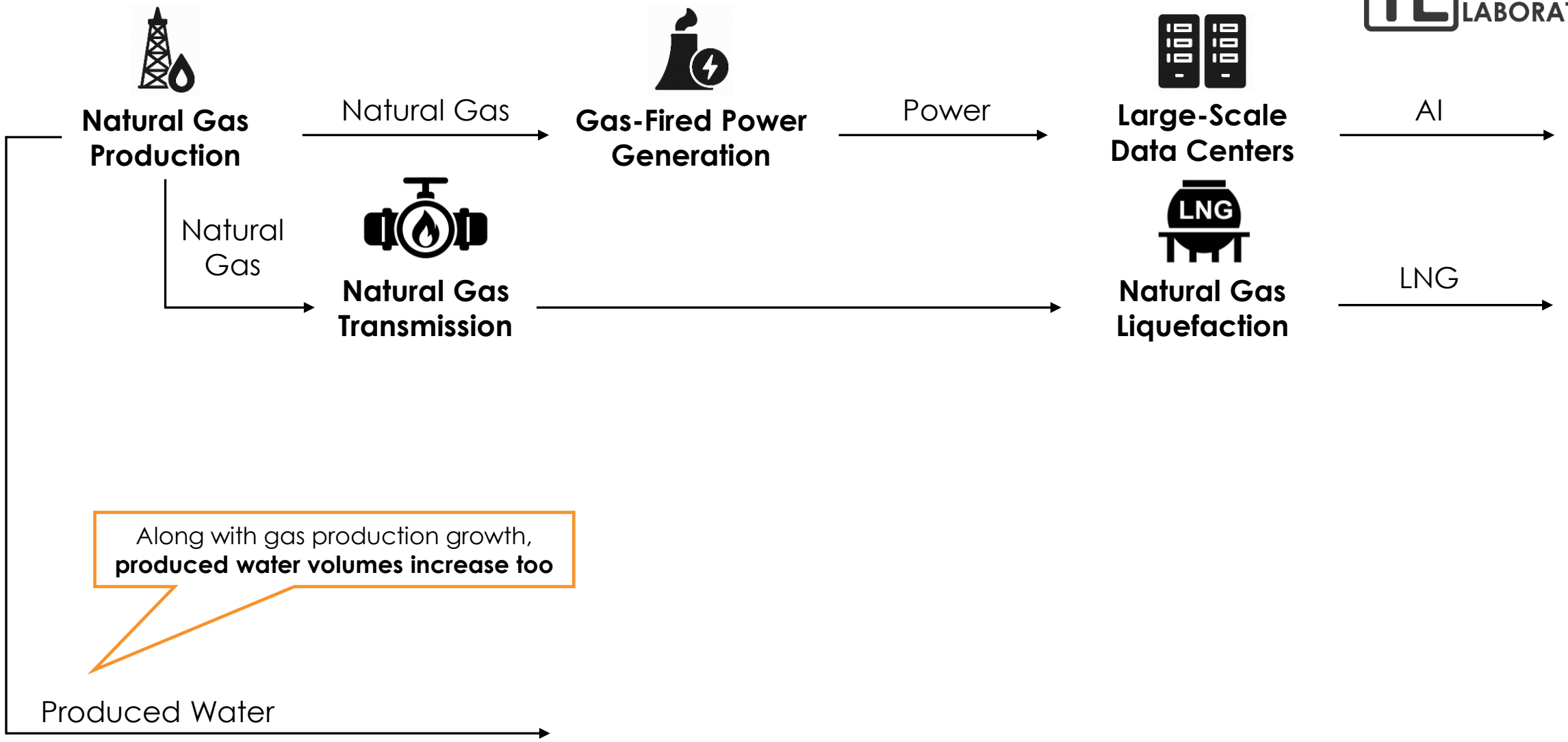
Domestic natural gas production will have **to grow by roughly 4-6 Bcf/D by 2030**

Context: 2025 U.S. natural gas production **was approximately 107 Bcf/D**

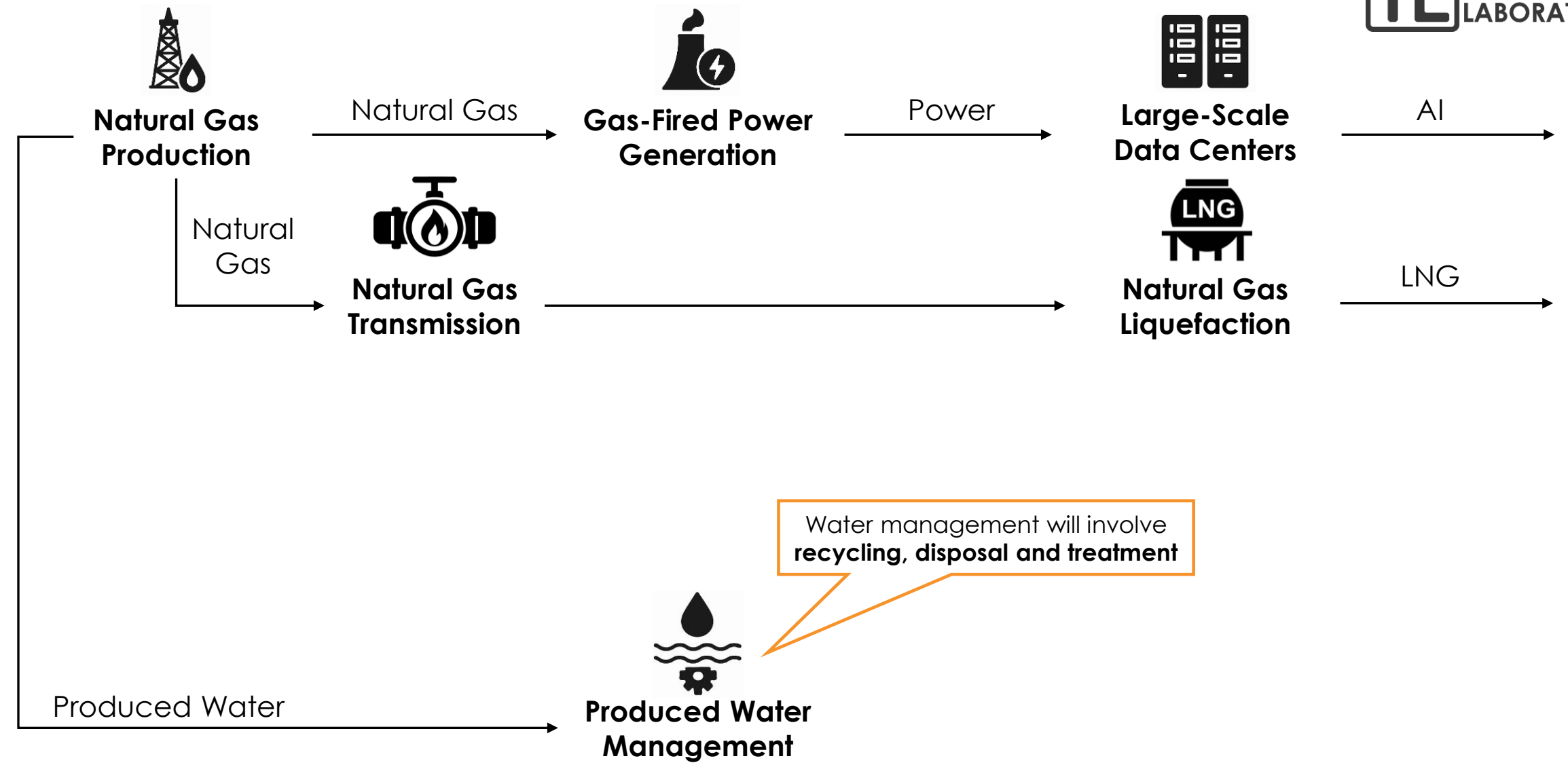
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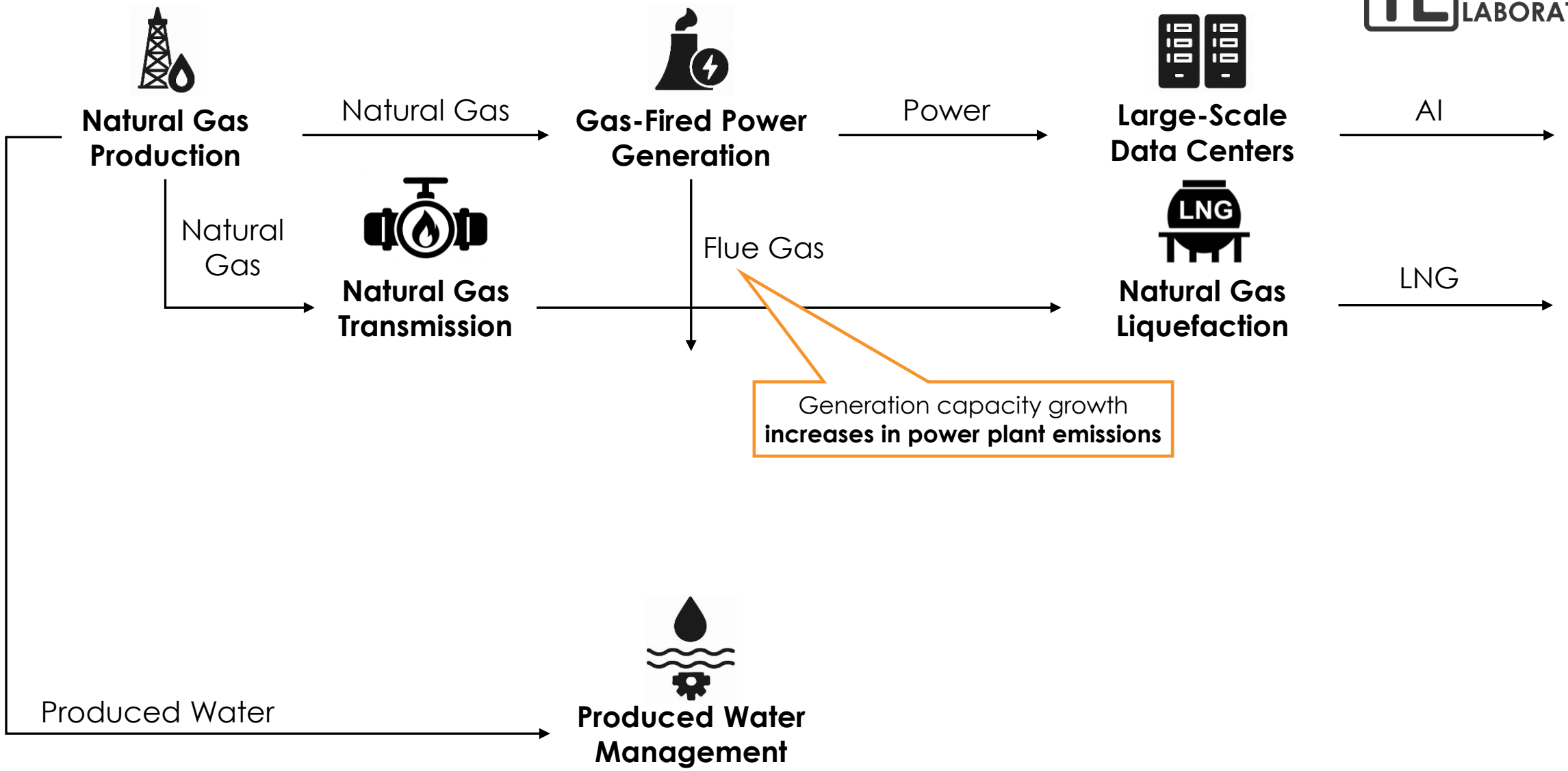
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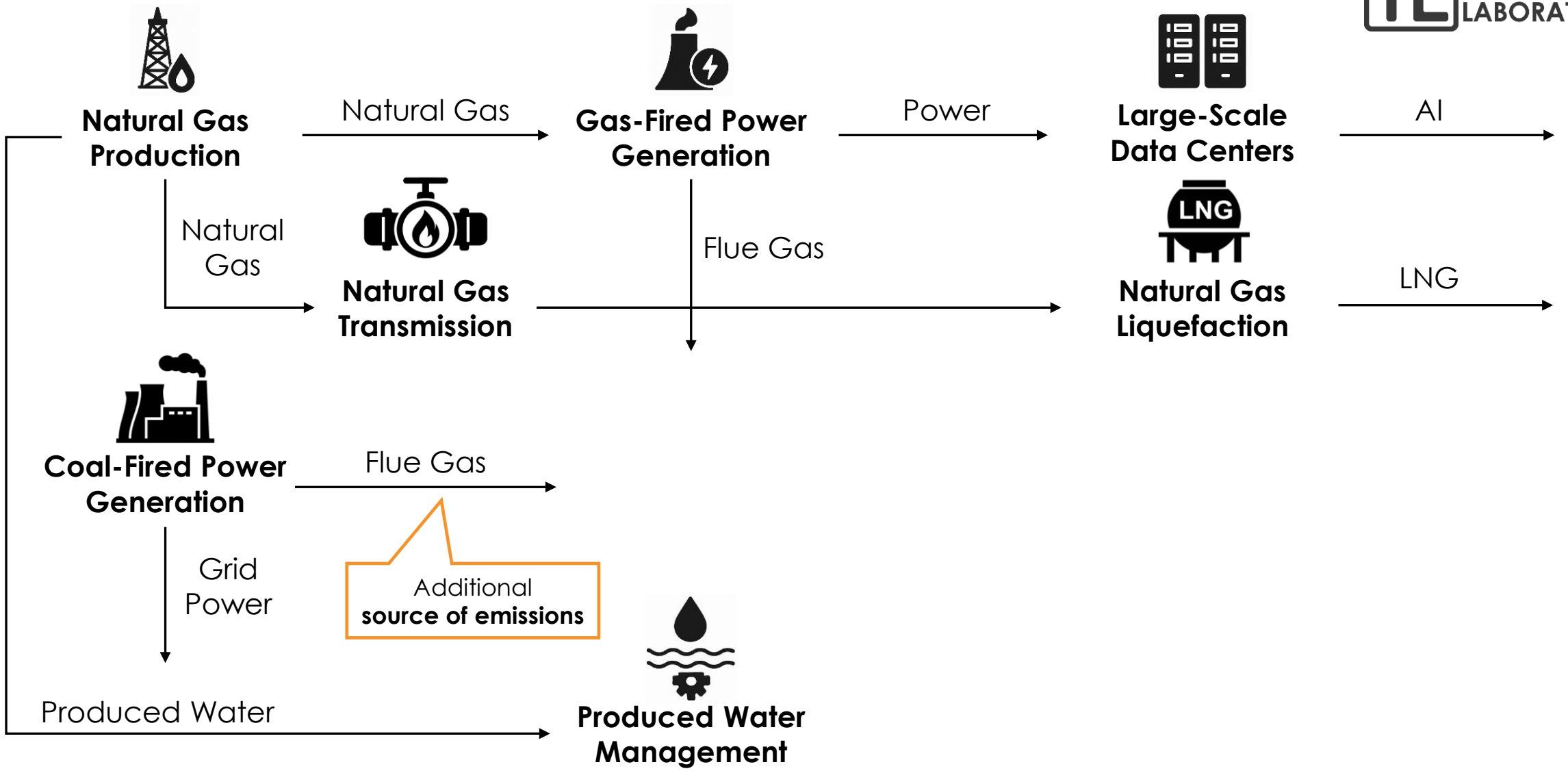
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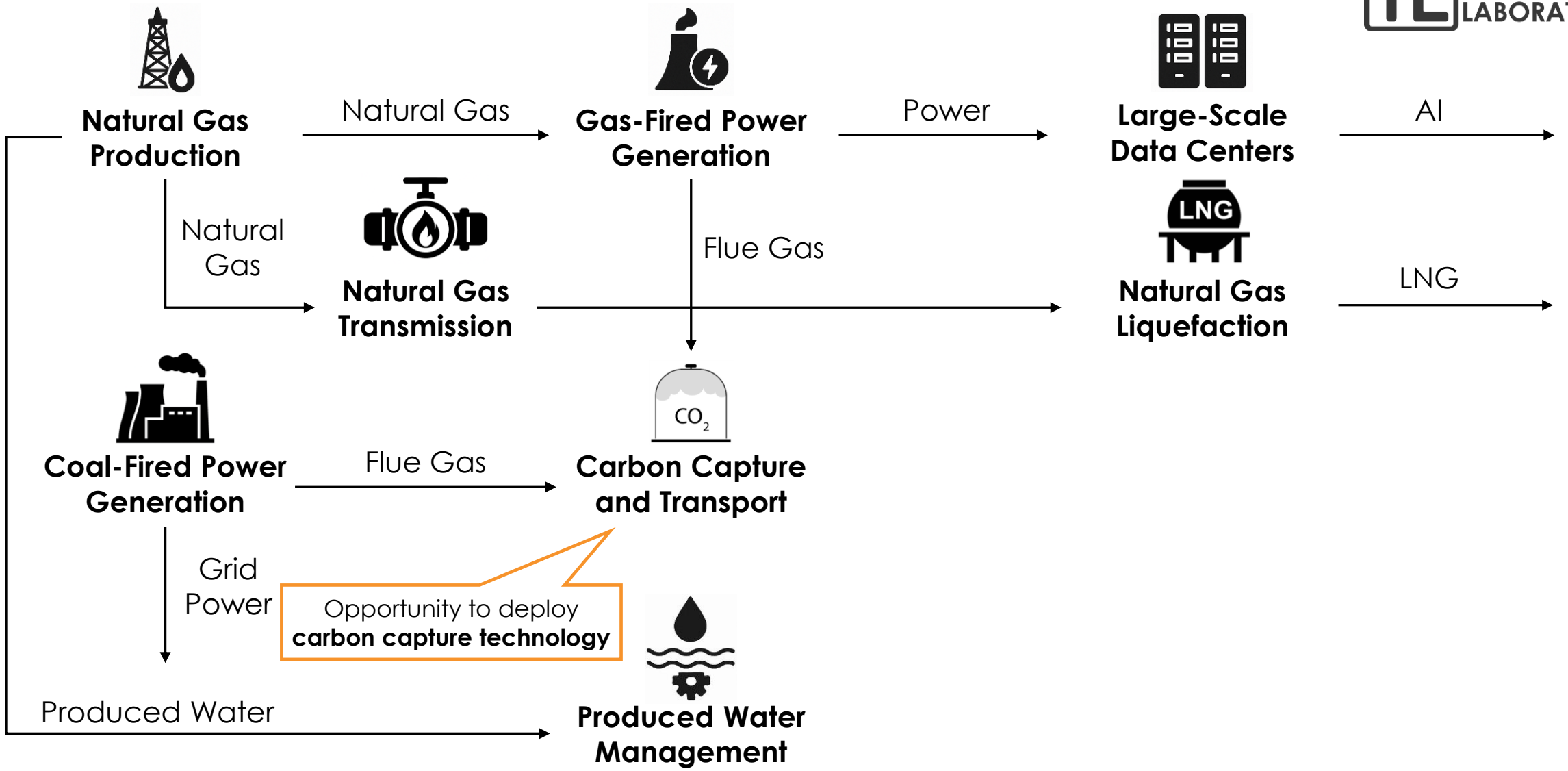
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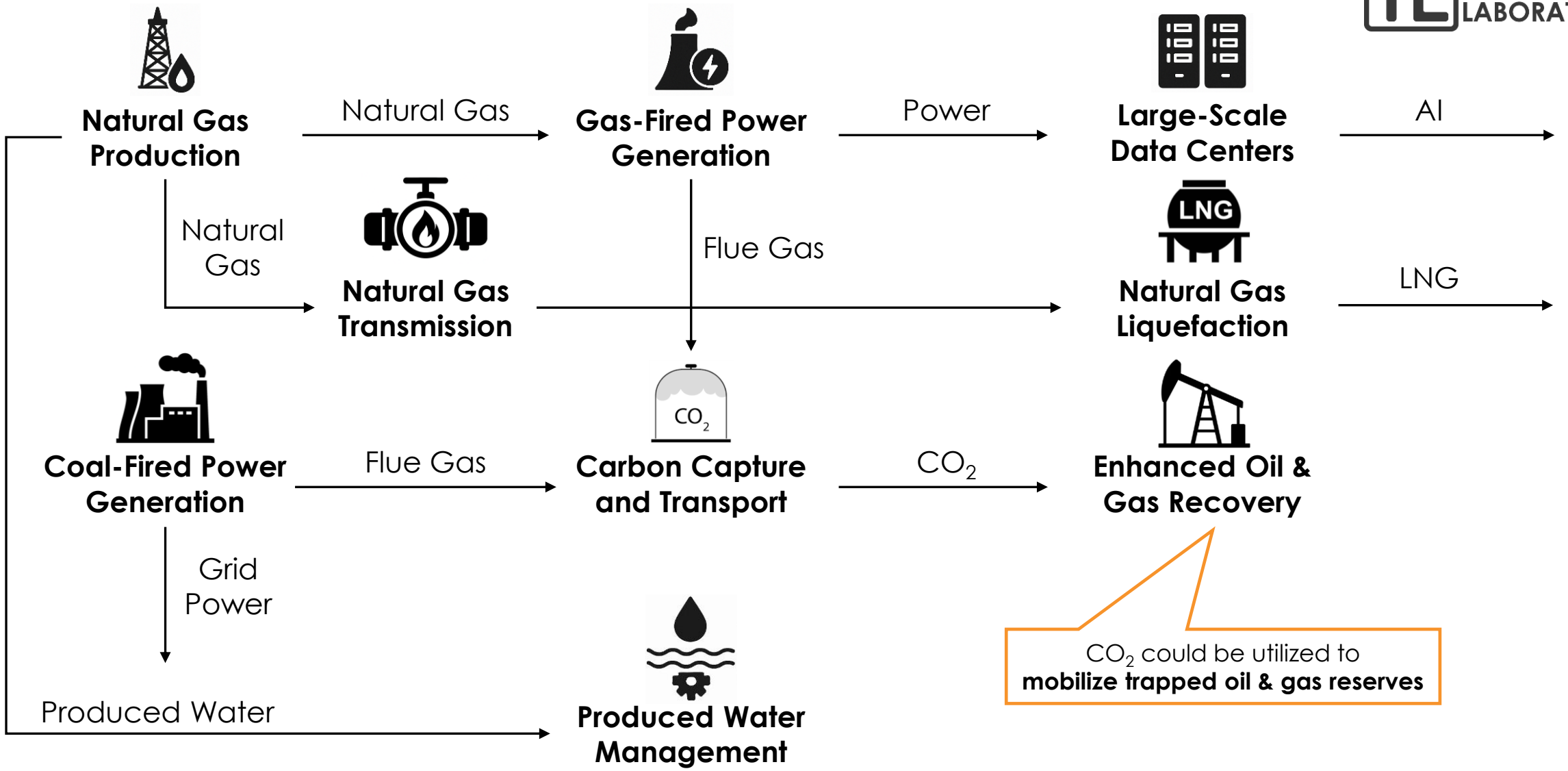
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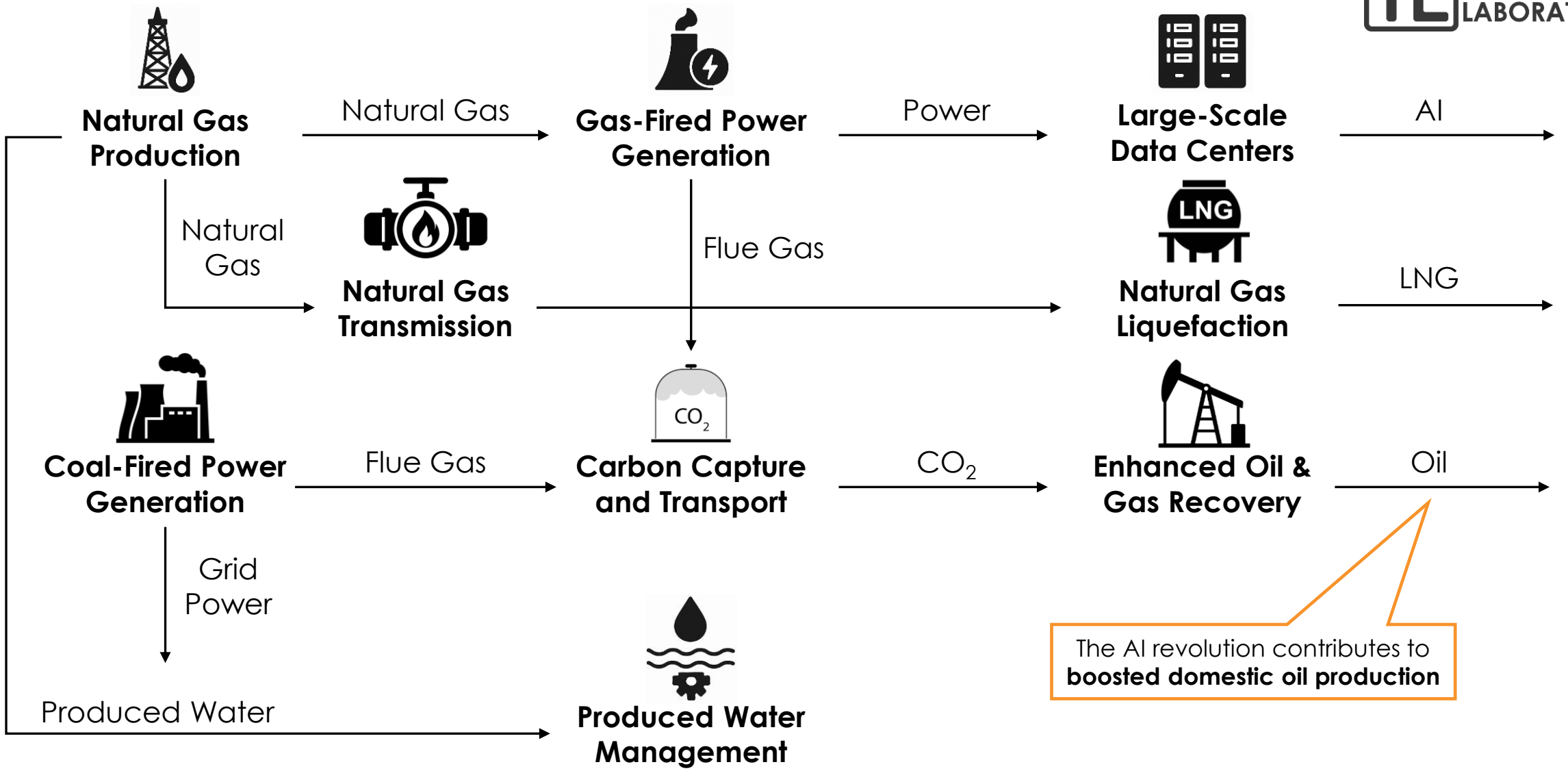
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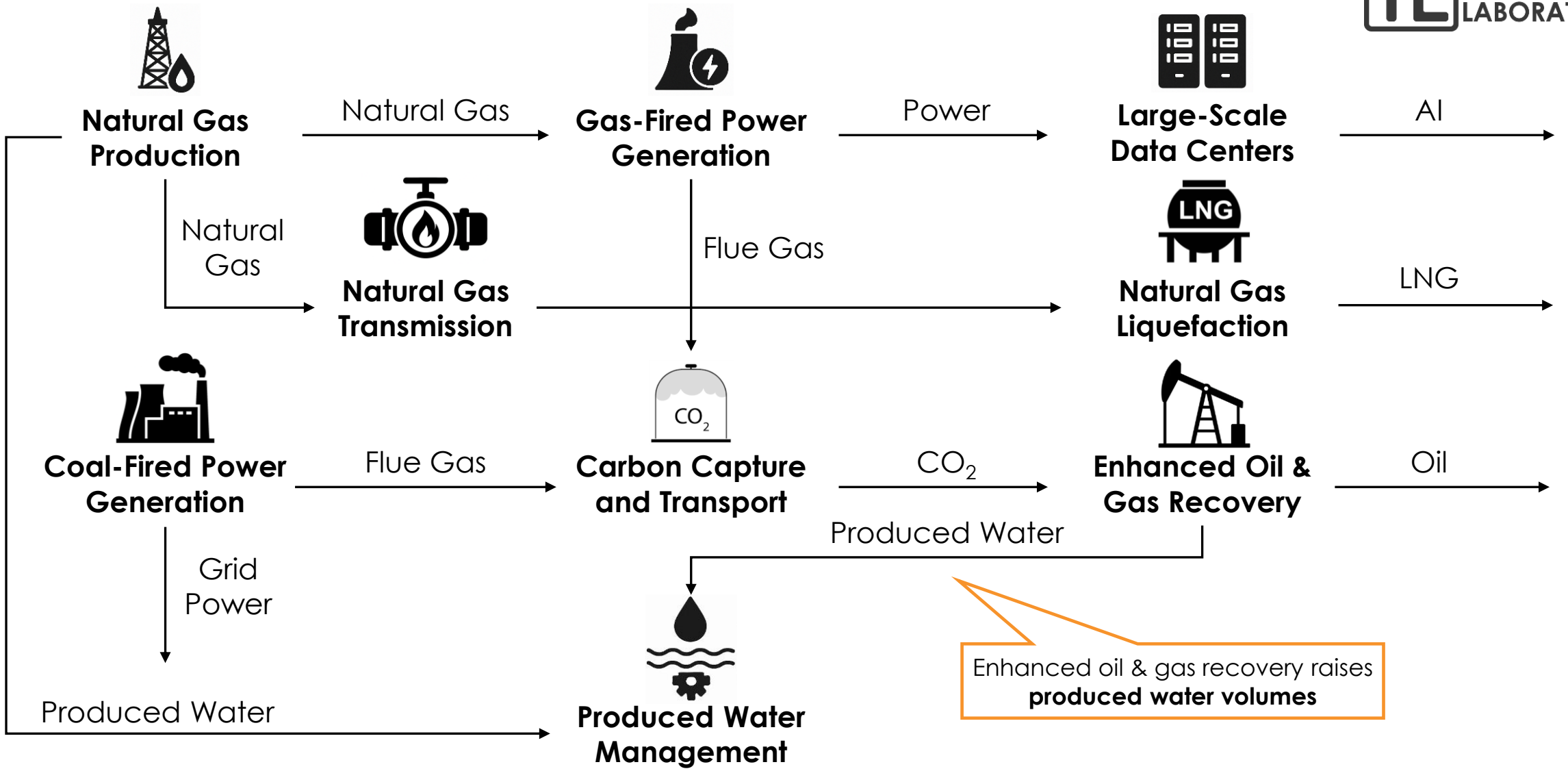
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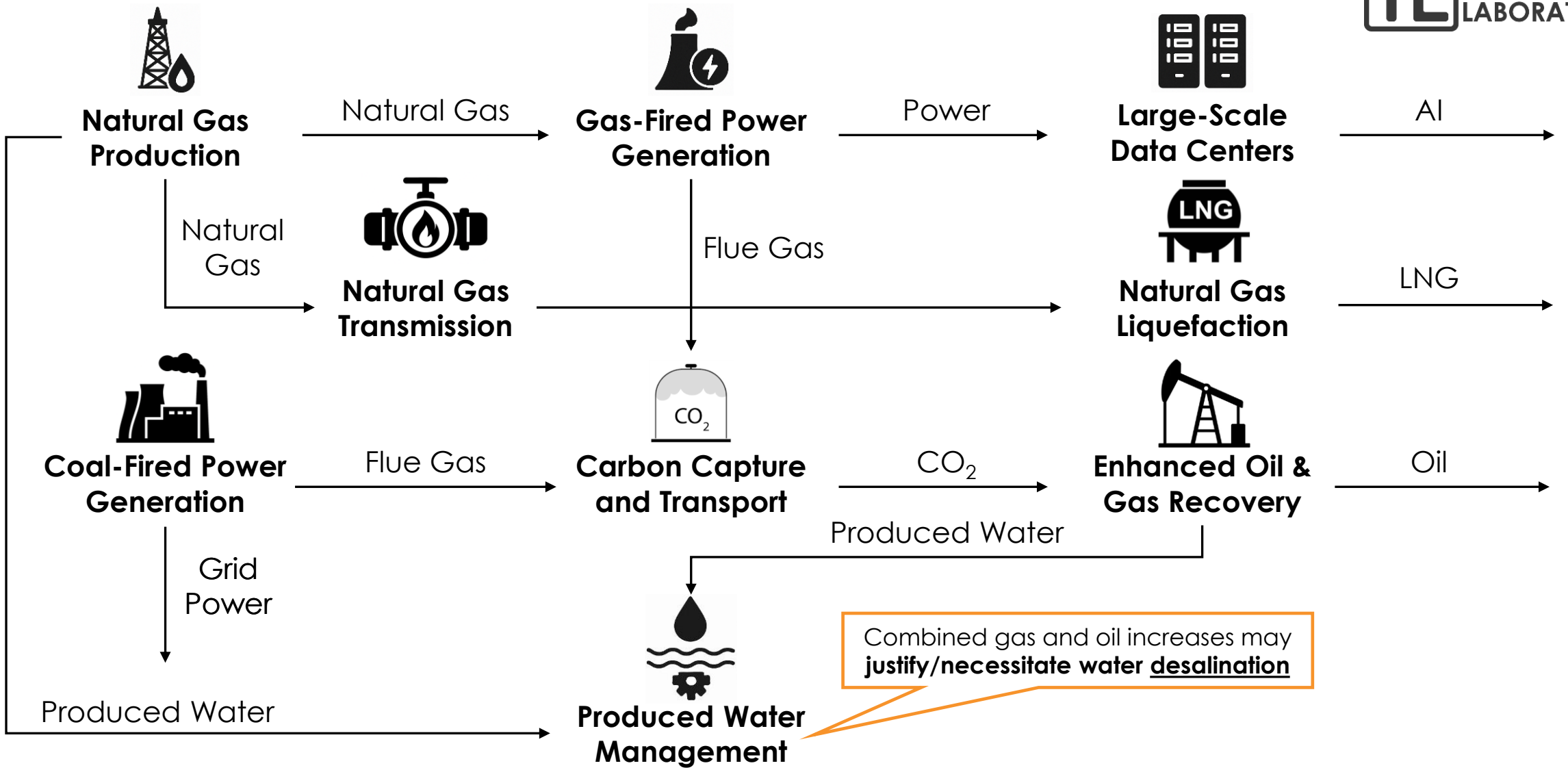
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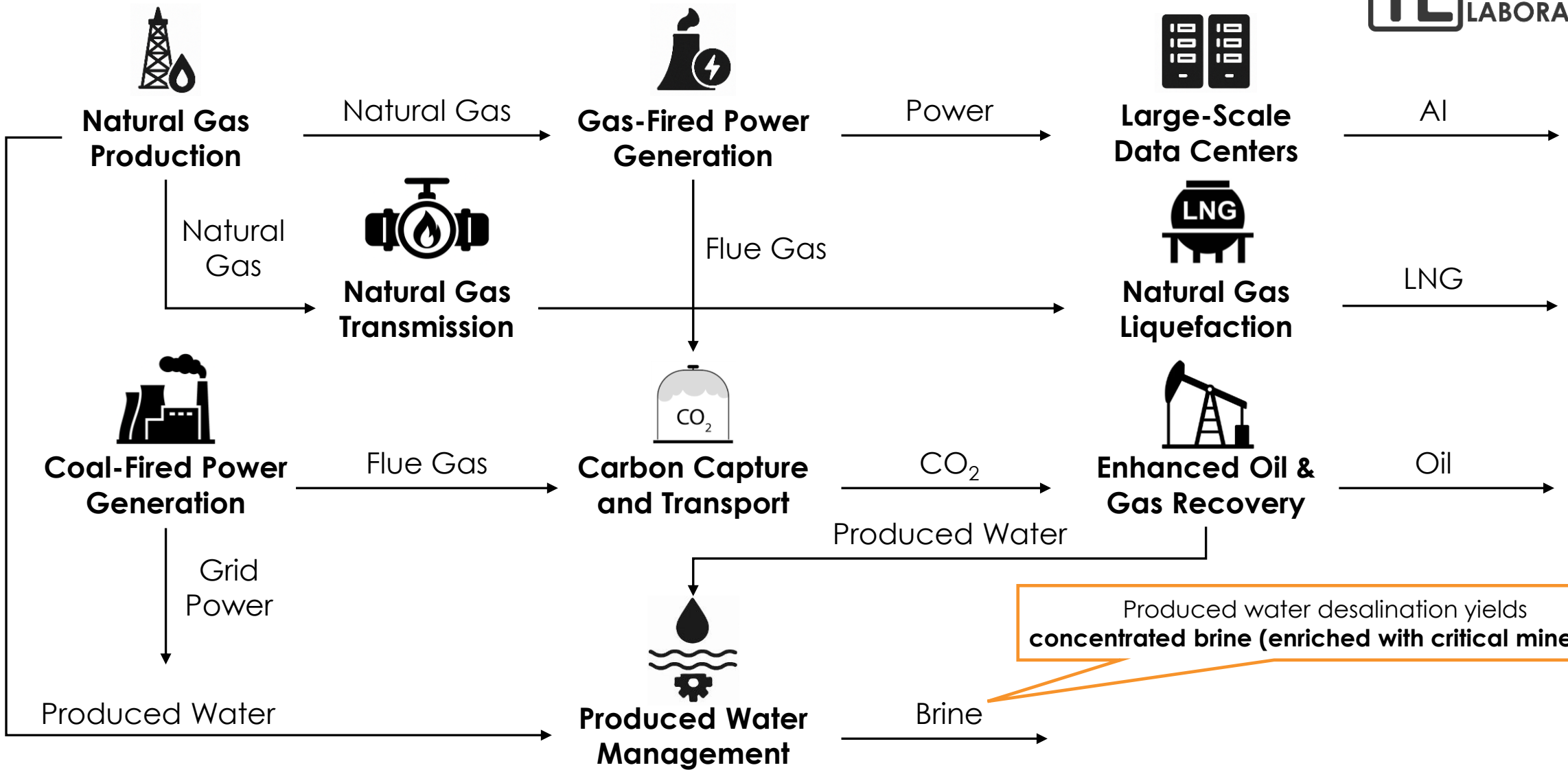
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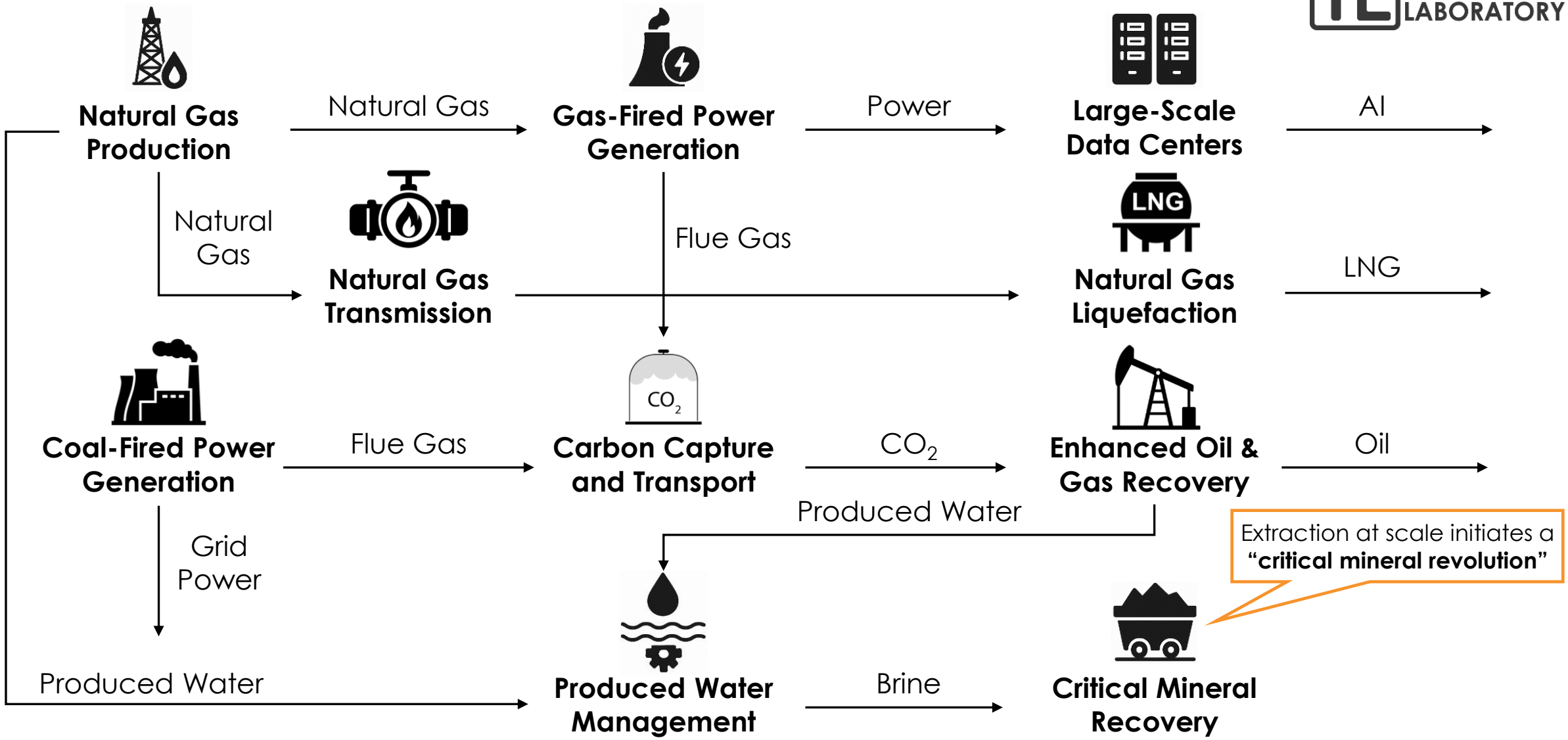
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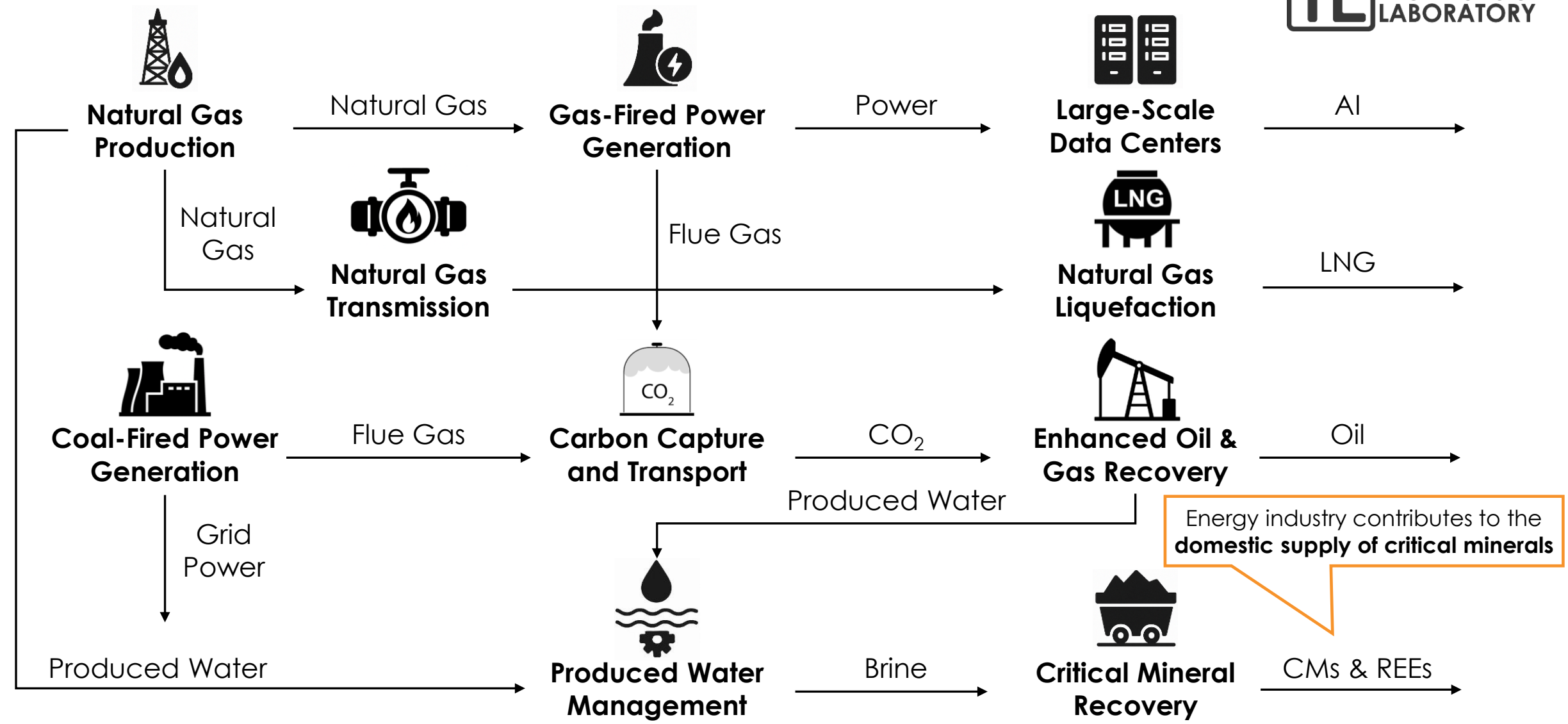
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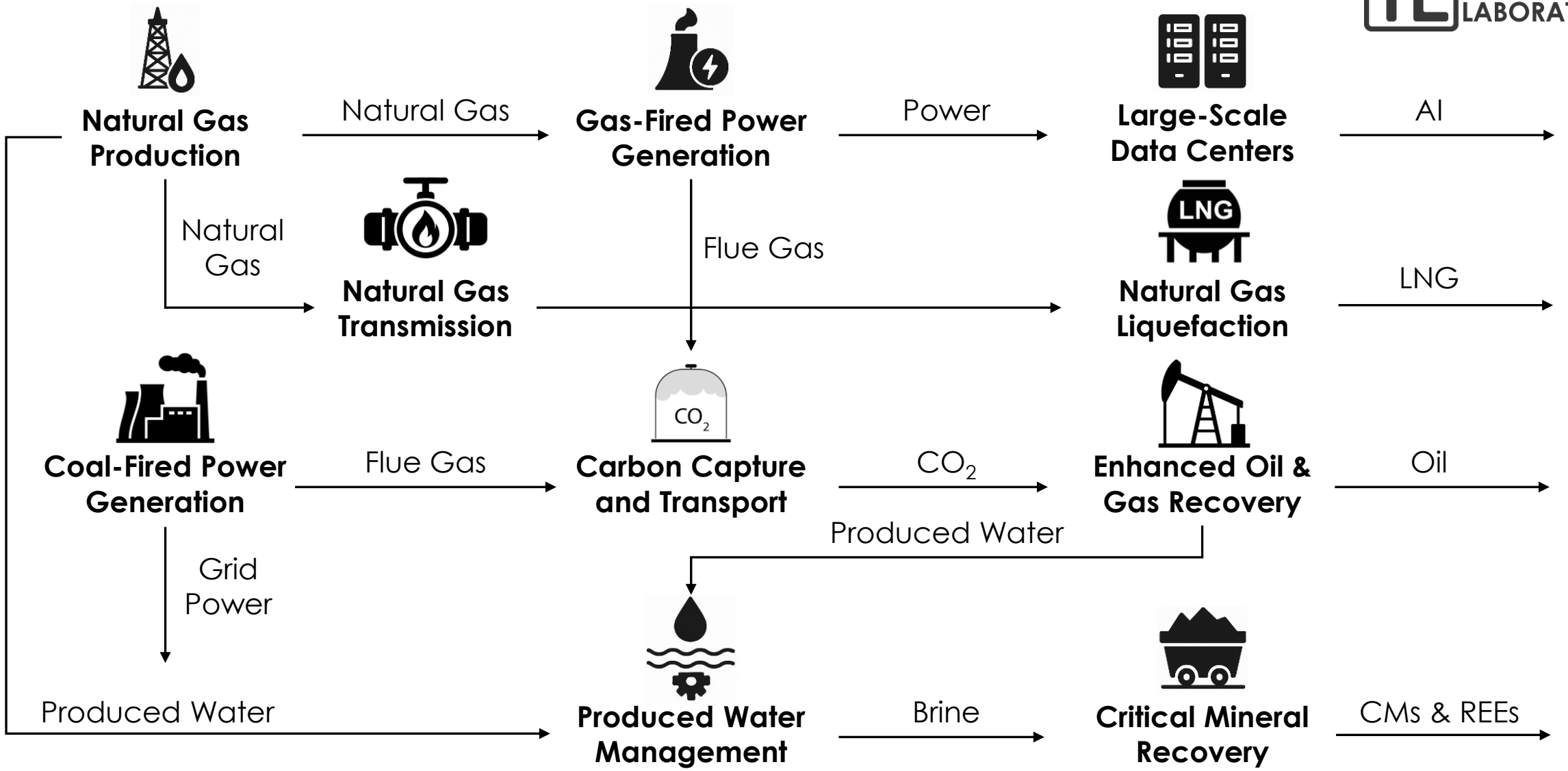
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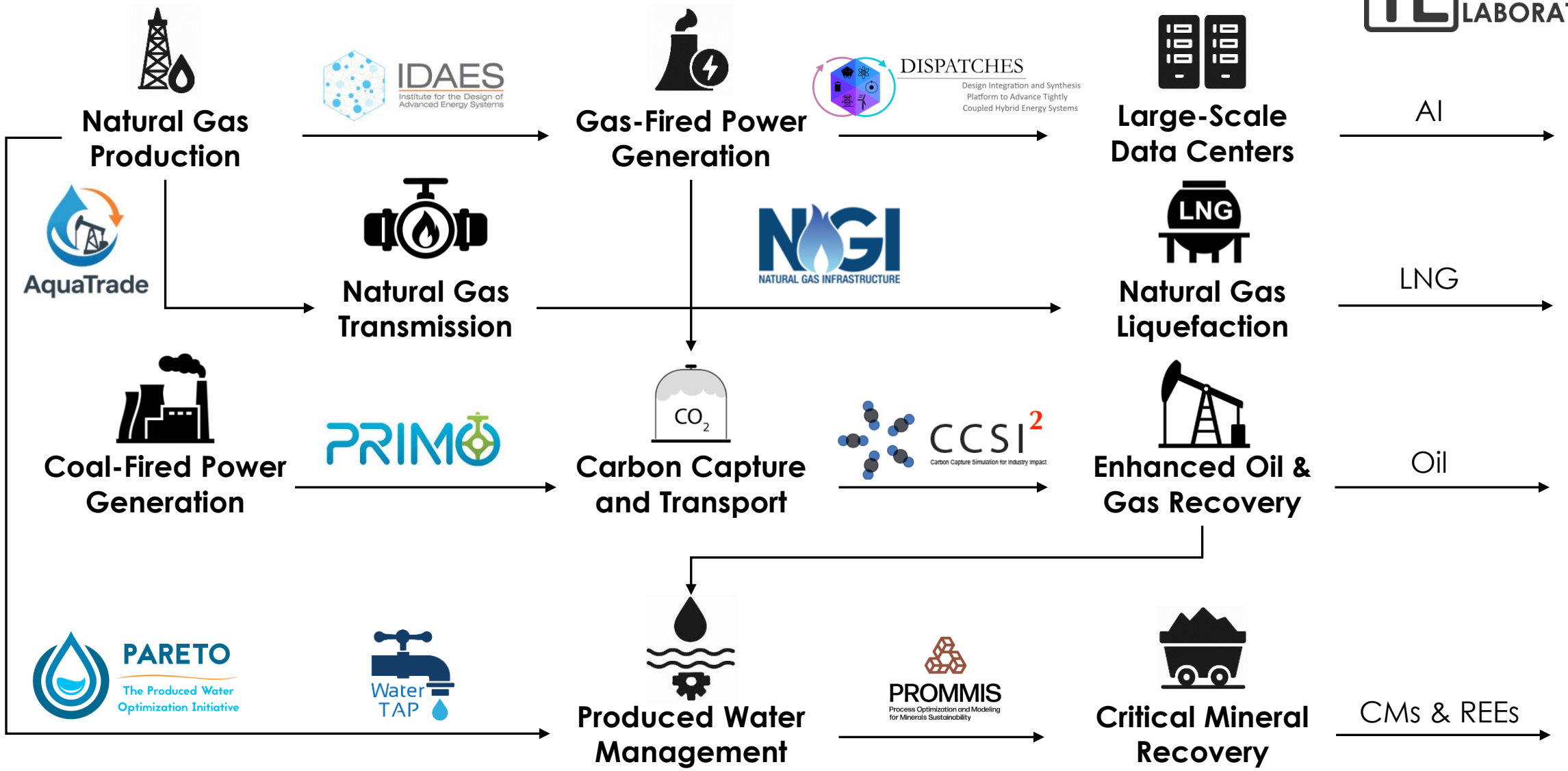
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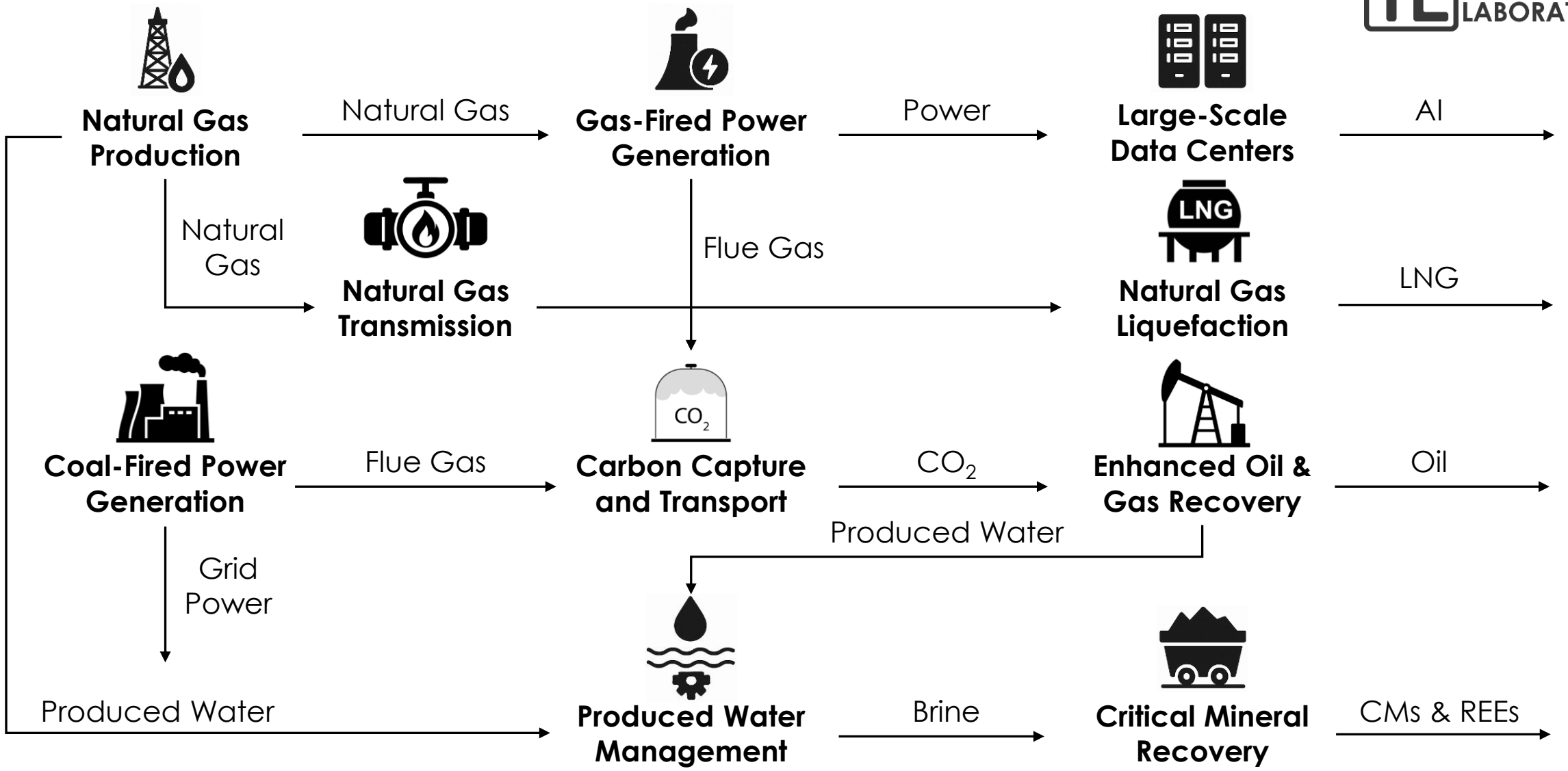
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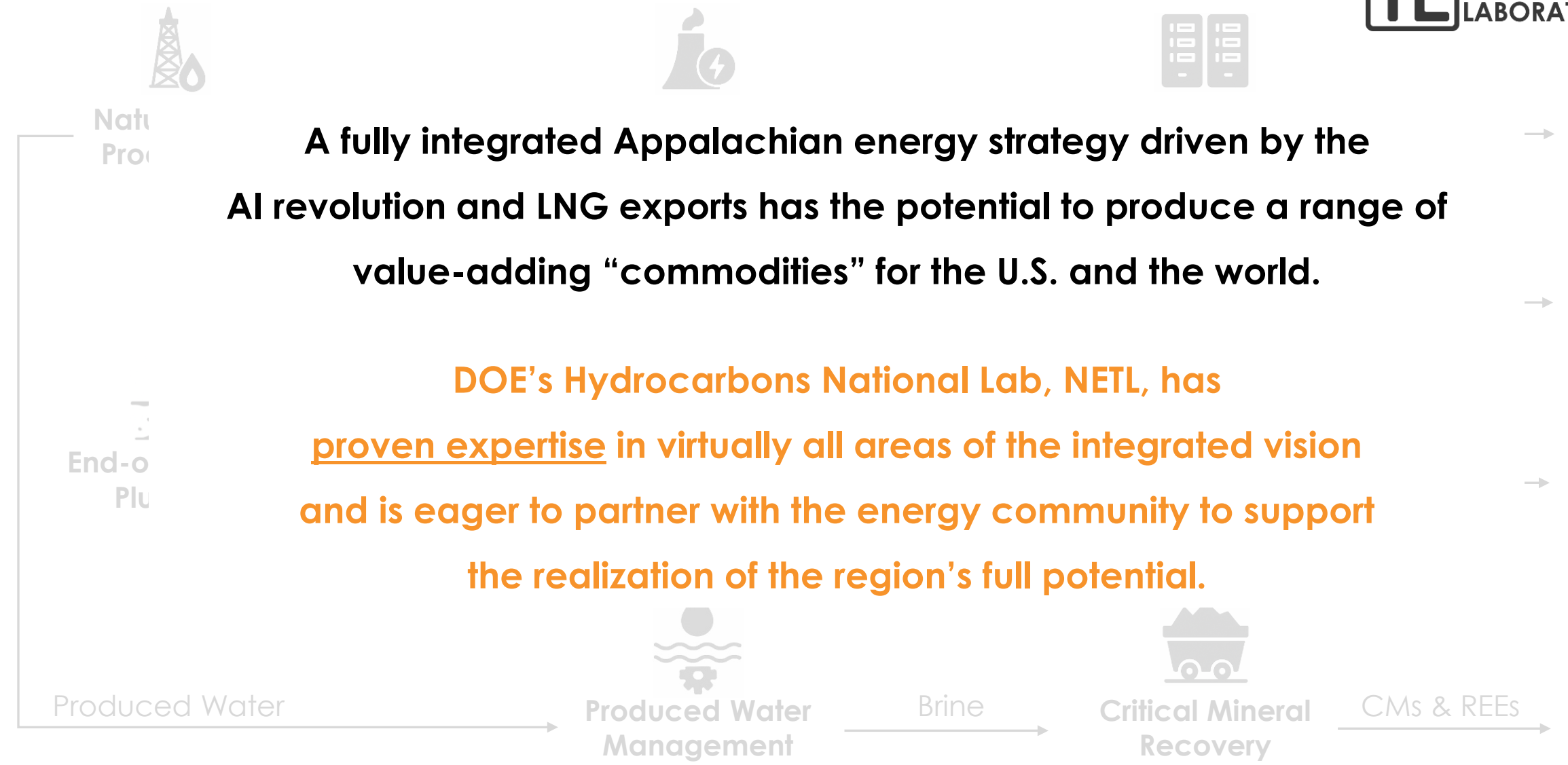
NETL's R&D Across the Hydrocarbons Landscape



Realizing the Appalachian Basin's Full Potential



An Integrated Energy Vision for Appalachia



A fully integrated Appalachian energy strategy driven by the AI revolution and LNG exports has the potential to produce a range of value-adding "commodities" for the U.S. and the world.

DOE's Hydrocarbons National Lab, NETL, has proven expertise in virtually all areas of the integrated vision and is eager to partner with the energy community to support the realization of the region's full potential.

Acknowledgement & Disclaimer

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