

BUILDING A 100% RENEWABLE POWER SYSTEM FROM SCRATCH

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DESIGNING A 100% RENEWABLE POWER SYSTEM FROM SCRATCH IS CHALLENGING AND TRIGGERS FUNDAMENTAL QUESTIONS

Generation & Markets

- Who shall build, own, operate and dispose generation assets?
- How to ensure adequate capacity build-up?
- How to dispatch generation assets in a zero-marginal cost environment?

Transmission & Balancing

- How to balance a system based on intermittent and decentral generation?
- Balancing within NEOM vs. via KSA interconnectors?
- How to manage and price the carbon position that comes with KSA imports?

Distribution & Retail

- How to allocate grid costs to residential/industrial consumers?
- Do we need retail competition?
- Classical retailer vs. data-driven (energy-) service provider?

Regulation

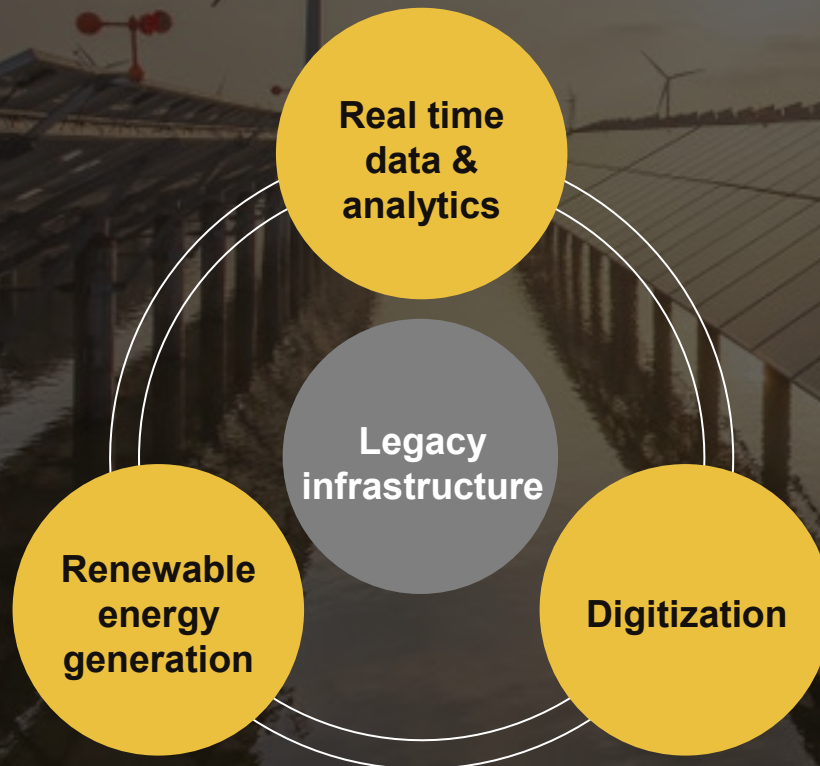
- How shall regulation cover data management and usage?
- How do we ensure alignment of NEOM and KSA regulation during build-up and in the end state?



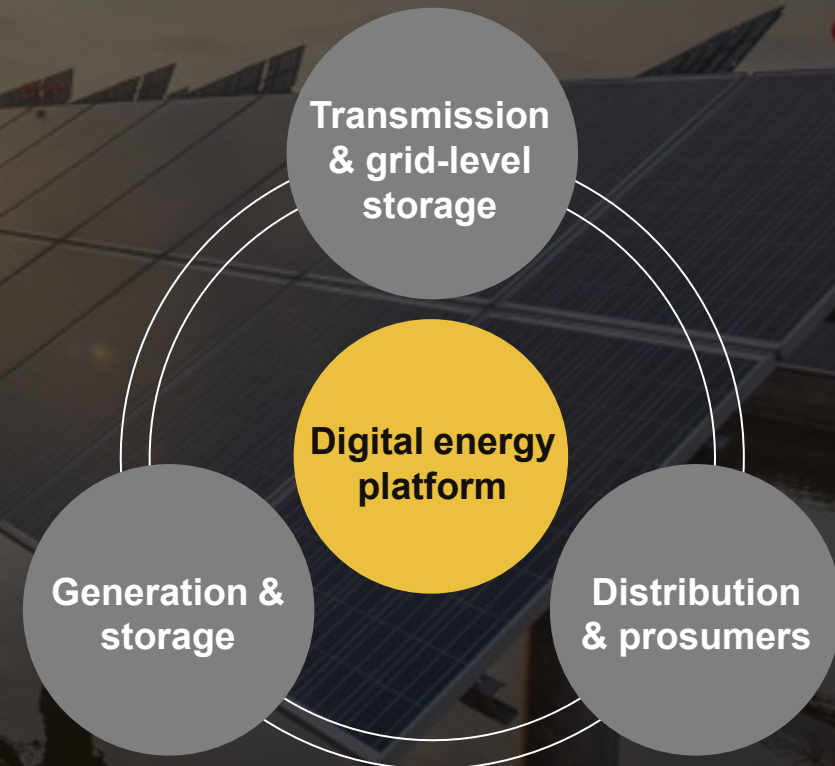
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DIGITAL INNOVATIONS ARE FUNDAMENTAL TO BUILD NEOM'S 100% RENEWABLE, CARBON FREE ENERGY SYSTEM AT LOWEST COST

Traditional energy system



NEOM's energy system

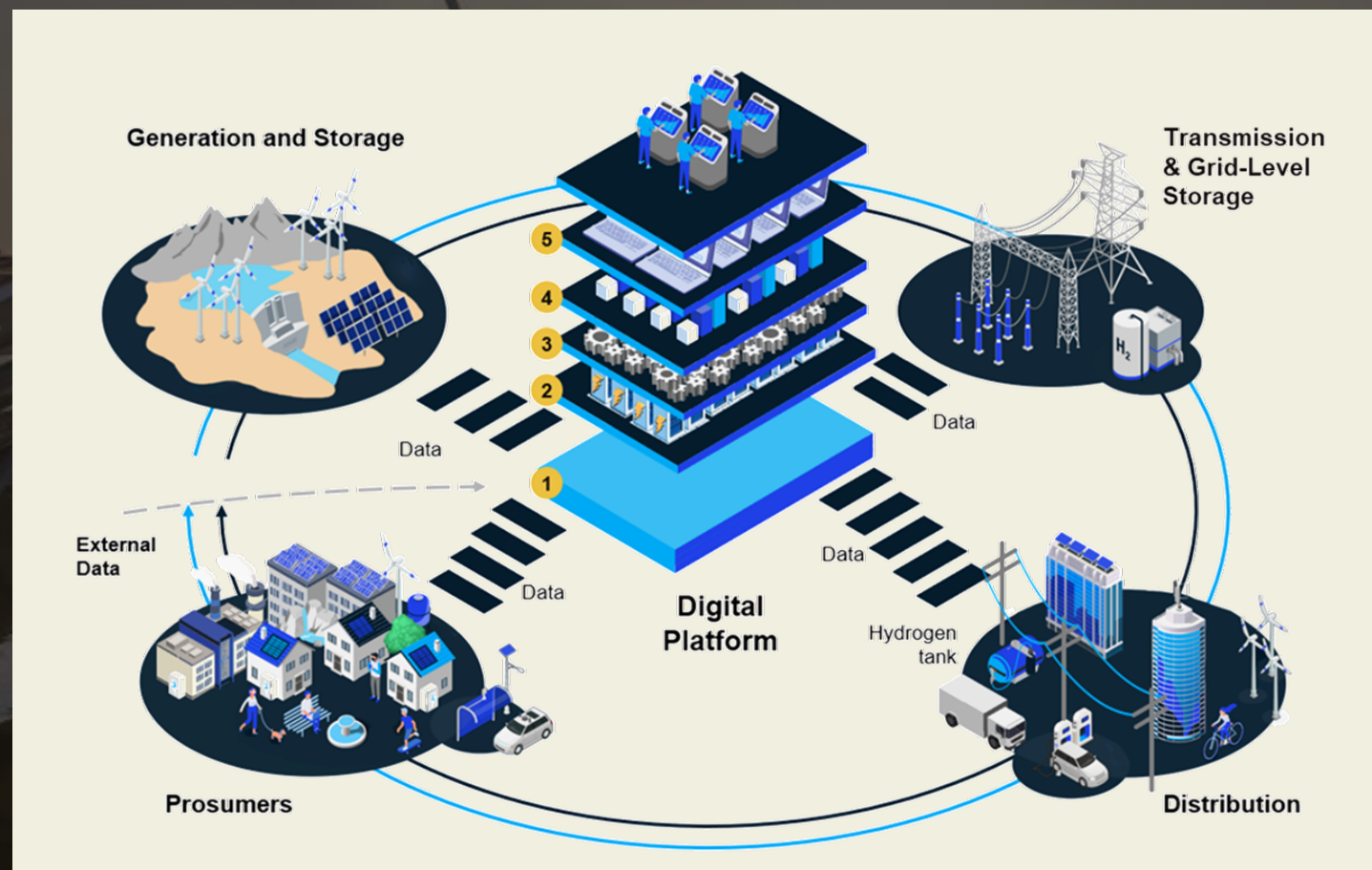




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NEOM'S ENERGY OPERATING SYSTEM

WILL BE EMBEDDED WITHIN AN AI-LED DIGITAL ENERGY PLATFORM



- 01 Cloud layer**
Connectivity, storage
- 02 Data layer**
Data input/output
- 03 Enablement layer**
AI, IoT, VR, AR¹
- 04 Blockchain layer**
Distributed ledger
- 05 Marketplace layer**
User applications

¹ AI = Artificial intelligence, IoT = Internet of things, GIS = Geographical information system, VR = Virtual reality, AR = Augmented reality



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