

WEBINAR: How bankable technology solutions can de-risk the Asia-Pacific region's energy storage potential

PRESENTED BY



RAJESH MEHTA

APAC Sales Director, Renewable Energy
Honeywell



VINEET SHAH

Director, Global Business Development and Partnerships
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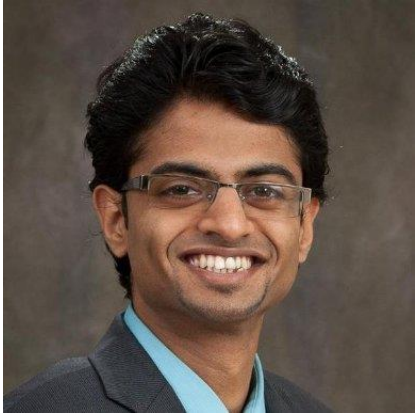
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ANDY COLTHORPE

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PRESENTER BIO



Vineet Shah

Director, Global Business Development and Strategic Partnerships, Renewables & Distributed Assets (RDA),
Honeywell

With more than 12 years in energy industry, Vineet is passionate about Energy & Sustainability. Over the last decade, he was involved in global business development and new technology commercialization in renewable energy, energy storage and conventional power generation.

I have no special talents. I **am** only **passionately curious** ~ Albert Einstein

PRESENTER BIO



Rajesh Mehta

Sales Director – APAC

Renewables & Distributed Assets (RDA),
Honeywell

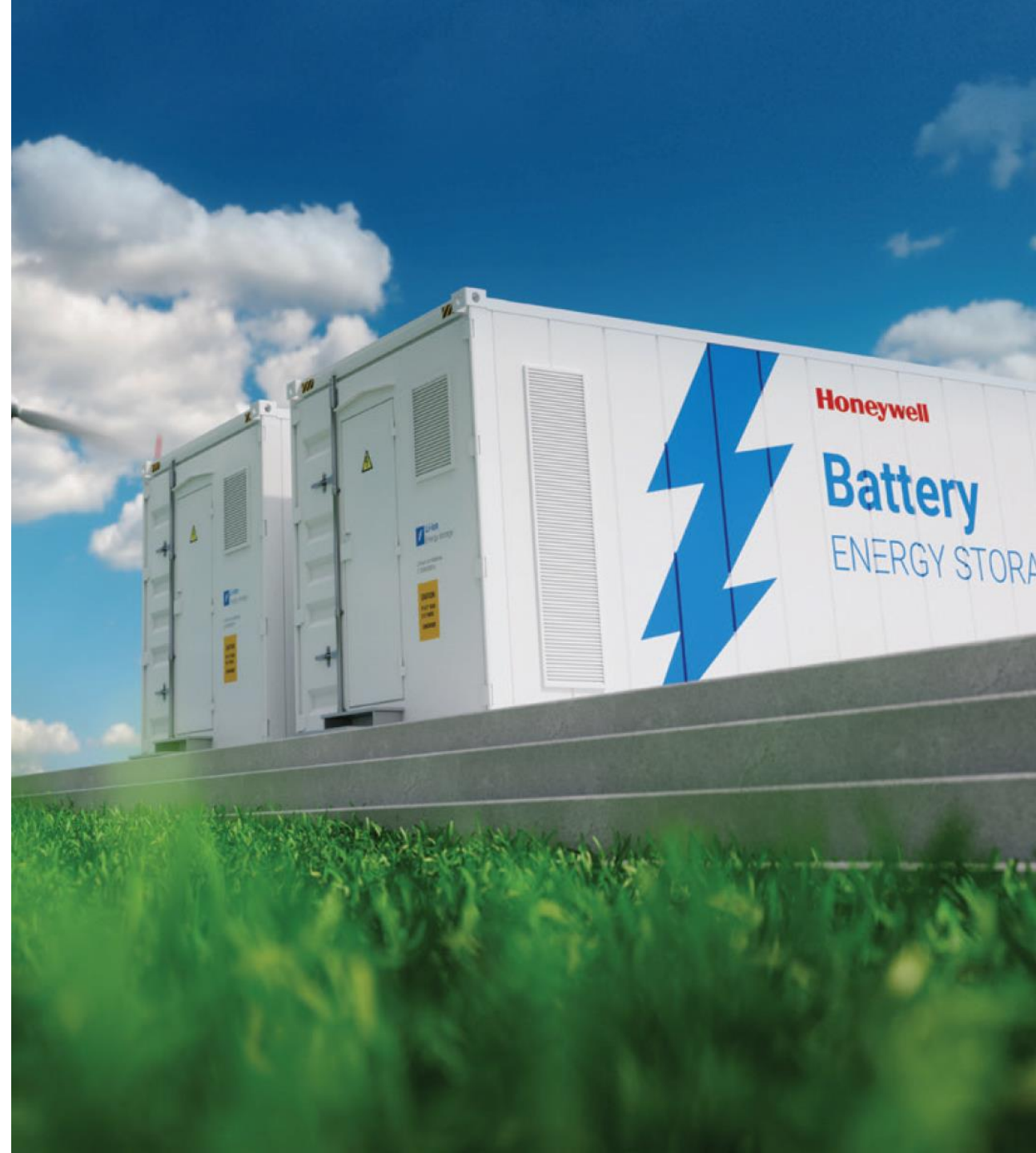
Rajesh has over 30 years of International experience in various industries with over half of that in **Power Generation**. Rajesh has worked for both customer and supplier organisations with roles ranging from Sales and Marketing to Project Management, Engineering and Maintenance.

Rajesh is passionate about Renewable Energy and its positive impact on the society and has dedicated the last 5 years to Renewable Energy including Storage Solutions.

The Stone Age Did Not End Because the World Ran Out of Stones ~ Sheikh Ahmed Zaki Yamani

AGENDA

1. Honeywell Overview
2. Market Trends
3. Energy Performance Contracts
4. Summary



HONEYWELL OVERVIEW

HONEYWELL OVERVIEW*

NYSE: **HON** | ~970 sites | ~110,000 employees | **Charlotte, N.C.** headquarters | **Fortune 100**

Aerospace



Our products are used on virtually every commercial and defense aircraft platform worldwide and include aircraft propulsion, cockpit systems, satellite communications, and auxiliary power systems.

Building Technologies



Our products, software, and technologies are in more than 10 million buildings worldwide, helping customers ensure their facilities are safe, energy efficient, sustainable, and productive.

Performance Materials and Technologies



We develop advanced materials, process technologies, automation solutions, and industrial software that are revolutionizing industries around the world.

Safety and Productivity Solutions



We improve enterprise performance and worker safety and productivity with automated material handling and voice scanning and mobile computing technology, software, solutions, and personal protective equipment and sensing technology.

Honeywell Connected Enterprise

Honeywell Connected Enterprise (HCE) was established in 2018 to accelerate software development and IIoT solutions. We focus on software development, from the gateway to end-user applications, bringing scale and capability across all of Honeywell. These new offerings are then commercialized through Honeywell's businesses.

Aligned to Key Global Macro Trends

HONEYWELL SUSTAINABILITY SOLUTIONS*



HONEYWELL SUSTAINABILITY SOLUTIONS*



MARKET TRENDS

HONEYWELL | TRENDS DRIVING THE NEED FOR ENERGY STORAGE & DIGITALISATION

Climate Emergency

- Urgent action is needed globally to prevent a climate disaster.
- Government Net Zero Targets
- Large corporations Net Zero Targets

Increasing Renewables and Demand for Clean Energy

- Base load fossil fuel powered generation getting replaced by VRE (Solar and Wind) increasing demand for Storage for grid stability.
- Demand for Green Hydrogen will further drive demand for Renewable Energy – mainly Solar and Wind – pushing up the demand for Long Term Storage.

Greater Flexibility Needed

- Increased renewables and decreasing synchronous machines on the grid.
- Alternative models for utilities to procure flexibility services

Technology Advancements

- The cost of Li-ion batteries has fallen significantly over the past 10 years.
- Alternatives to Li-ion batteries are gaining more traction especially for longer duration solutions.
- Software key to unlocking real value and flexibility.

Reliability/ Resiliency

- In 2021 alone there have been three major black out events. Across the globe Europe, Texas, Mexico and in APAC (Australia)



Honeywell BESS using appropriate Technology
supported by
Sophisticated Controls and Remote Operations

HONEYWELL | CHALLENGES OF STORAGE PROJECTS

LCOS

Need to reduce this to achieve scale for both short and long term storage.

Important to reduce both CAPEX and OPEX

Revenue Streams

A number of storage markets are moving to a merchant risk model.

Important for the Batteries to be at right charge to maximise value from all revenue streams.

Subsidy Free

Subsidies are short-term support measures, in the long run the Storage Projects need to be viable on their own

Curtailments harm the goal to Net Zero.

Bankability

Large scale projects being delivered by companies with smaller balance sheets than the projects value.

LTSA bankability – will the company still be around in 10+ years?

Microgrids

Grid extensions can be costly and cumbersome.

UN defined SDG is universal energy access by 2030.

Performance

Performance of BESS to match or better the performance of conventional generation.

Emerging C&I

Reducing electricity costs.

Reduce Emissions.

Improving power quality – especially for critical sites.

Local Jobs/Training

Maintain high uptime with less experienced workforce.

Local content and production requirements to boost jobs.

ENERGY PERFORMANCE CONTRACTS

HONEYWELL | WHY HONEYWELL?*

Selecting the right technology for the right application.

Technology Agnostic



Provide a route to market to monetise battery assets

BESS Operations



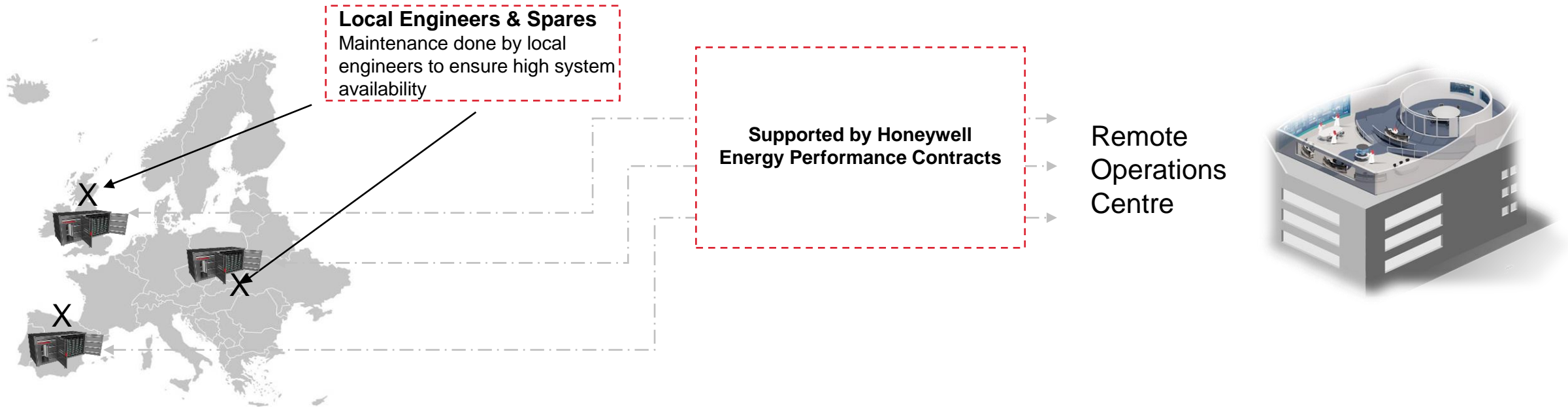
Help support key KPI's which de-risk cash flow and make the projects more bankable.

Energy Performance Contracts



Flexible platform for future technology advancements to ensure you don't end up with a stranded asset.

Experion Energy Platform

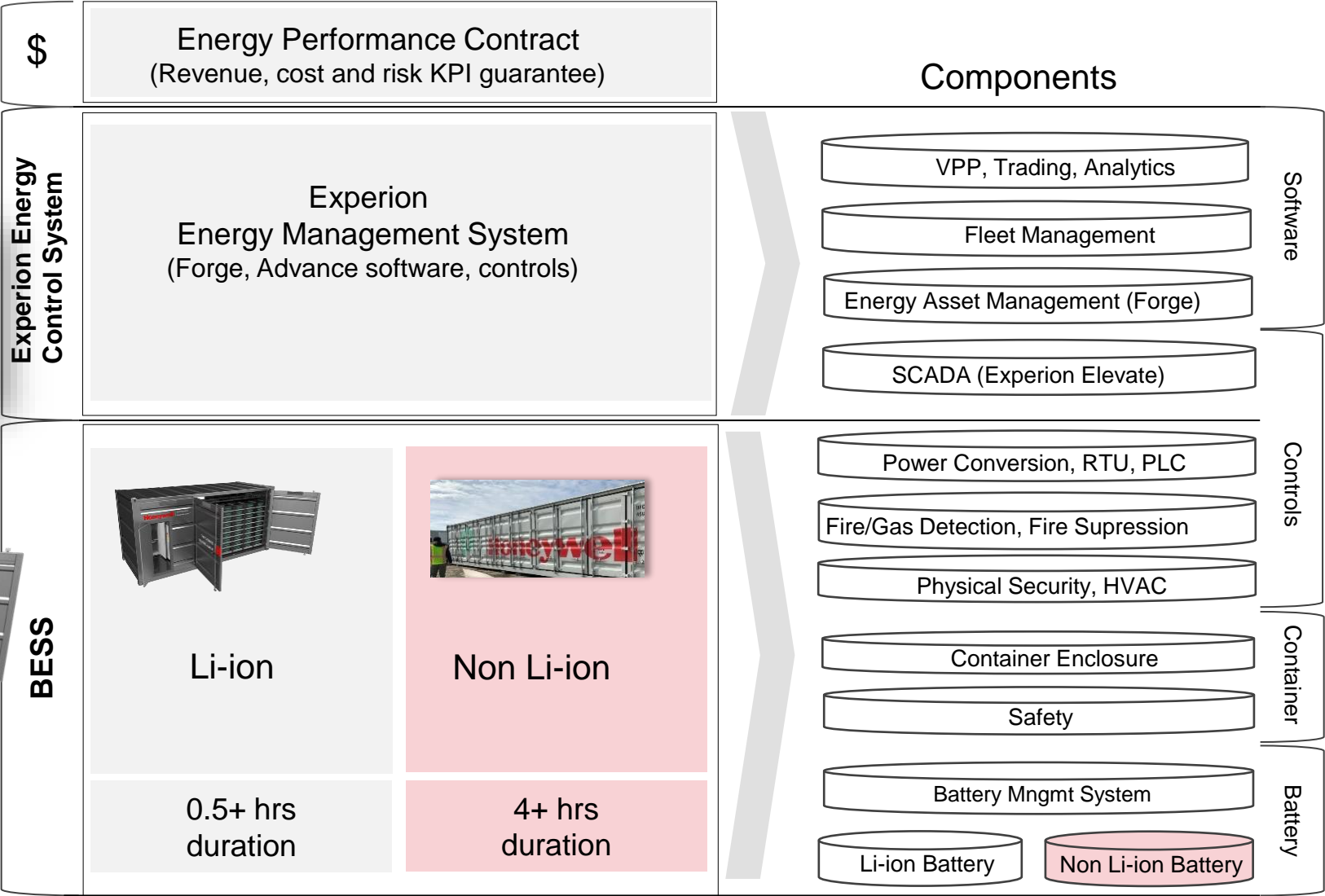


HONEYWELL

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END TO END BESS SOLUTIONS*

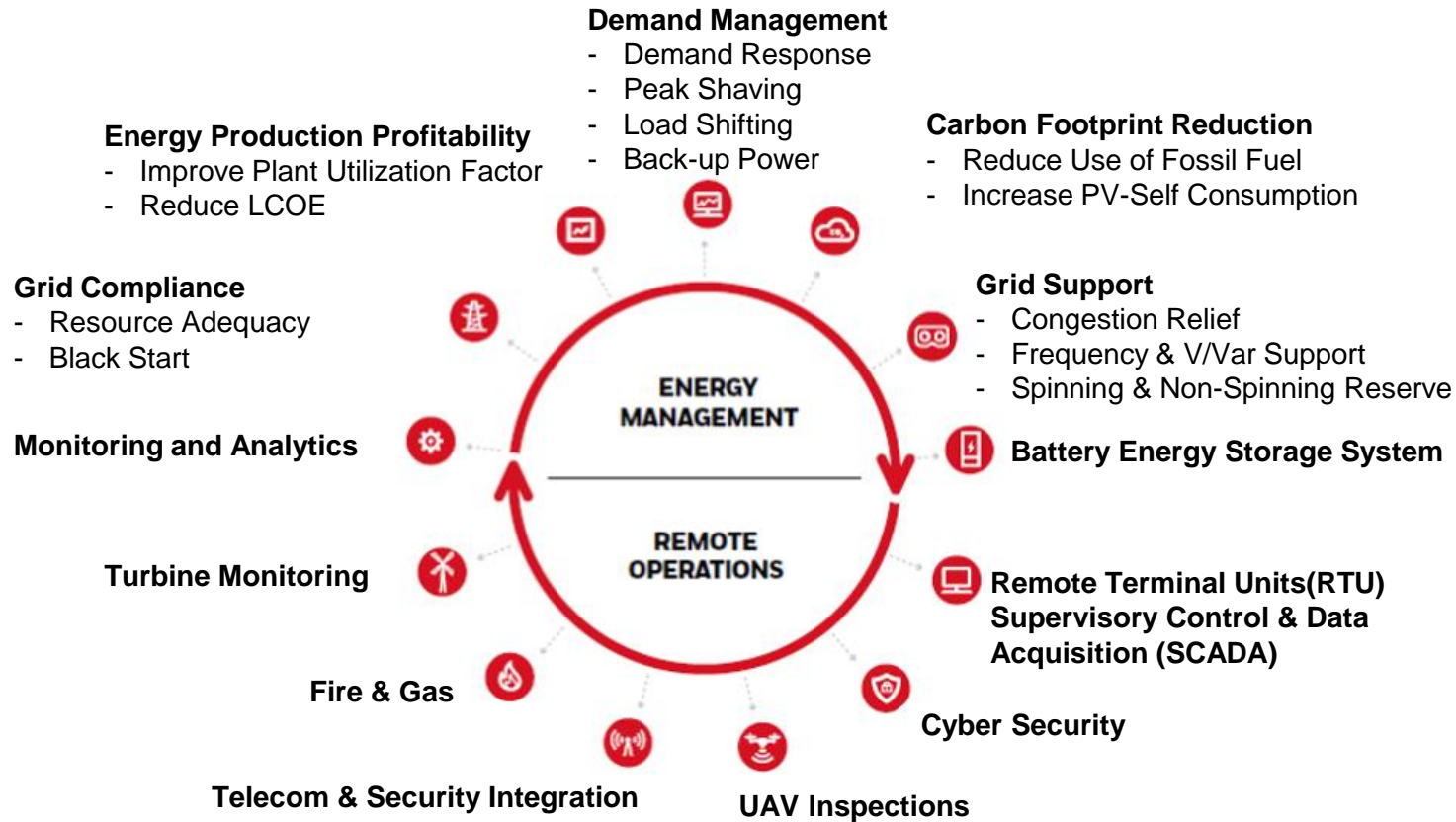
Offer



Drive Profitability through Energy Performance Contracts

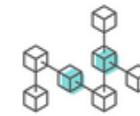
HONEYWELL | ENERGY PERFORMANCE CONTRACTS*

Key Performance Indicators (KPI) Driven Guarantees



Honeywell Differentiation

KPI Category



Asset and O&M



Revenue/Cost



Technology & Security



HSE



Workforce

KPI Focus

Cost Savings, MTTI, MTTC

Energy Production & Capacity, Availability, Reliability, Facility Uptime, Peak Shaving, Ancillary Service, Energy Arbitrage

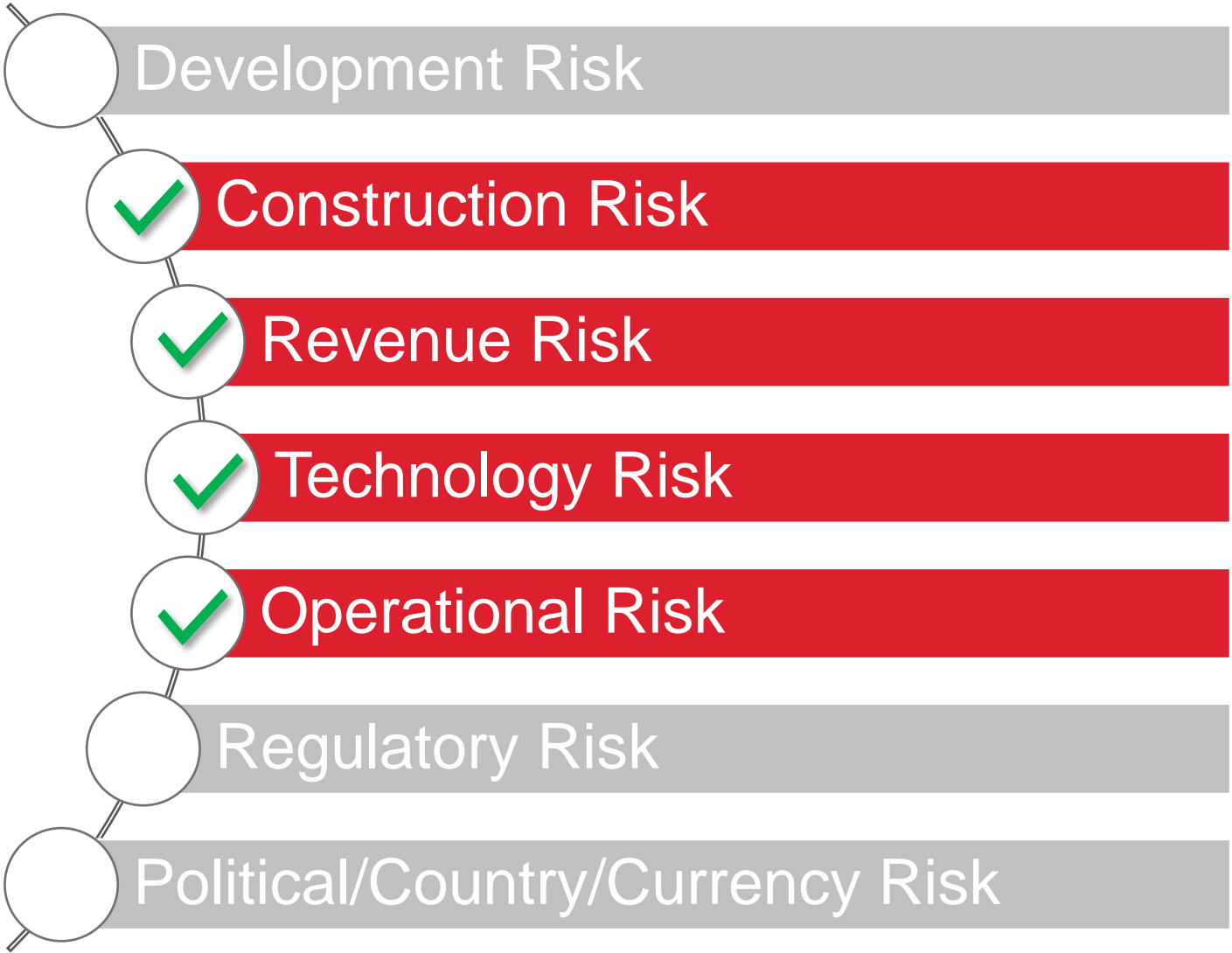
Data Reliability & Availability, Cyber Security

Safety & Compliance

Competency Management

Honeywell offers revenue and cost KPI performance guarantees

HON | ATTRACT INVESTMENTS*



Policy Maker

Honeywell KPI
Guarantees

Policy Maker

Insurance – MIGA,
EIB, AfDB

Honeywell Makes Projects Bankable

HONEYWELL | AYPa POWER EXPERION ENERGY PROGRAM*

BESS for Energy Service Provider

Honeywell Operated ROC Energy Management Optimization Dashboard



Canada

Battery Energy Storage (BESS)

ControlEdge RTU
Cisco IE3000
PaloAlto 220

Typical Architecture

Calgary (HON)

Asset 1

Asset 2

Asset 3

Asset 4

Asset 5

Ontario (Customer ROC)

Asset 6

Asset 20

KPI based Performance Contract

- Energy Capacity Availability
- Peak Prediction
- Data Reliability
- ROC Availability

Customer Need

- Peak Prediction
- Battery Availability
- Remote Operation Center Availability

Outcomes

Segment

- BESS
- C&I via Energy service Provider

Offerings

- BESS
- O&M with ROC (10 Years)

Region & Size

- Canada
- Size : 90 MW/180 MWh

Success Factors

- Turnkey BESS project delivery
- Predictive Analytics for maintenance
- DVM, Access Control, Mobile Access
- Remote Operation Center (ROC) managed by Honeywell
- Asset Management Services
- Peak Prediction

Energy Service Provider is providing energy as a service to end users to reduce their peak electricity costs by supplying energy from on-site BESS.

SUMMARY

HONEYWELL | ADDRESSING CHALLENGES OF STORAGE PROJECTS

LCOS

Need to reduce this to achieve scale for both short and long term storage.

Important to reduce both CAPEX and OPEX

Reduce CAPEX by reducing project risks and efficient system design.

Biggest opportunity is operational costs.

Revenue Streams

A number of storage markets are moving to a merchant risk model.

Important for the Batteries to be at right charge to maximise value from all revenue streams.

Maximise revenue by use of Honeywell's intelligent EMS to stack various revenue streams.

Subsidy Free

Subsidies are short-term support measures, in the long run the Storage Projects need to be viable on their own.

Maximise revenue and minimize LCOS to make Storage projects subsidy-free.

Bankability

Large scale projects being delivered by companies with smaller balance sheets than the projects value.

LTSA bankability – will the company still be around in 10+ years?

Honeywell's unique value is in long term support backed by the Fortune 100 company.

Microgrids

Grid extensions can be costly and cumbersome.

UN defined SDG is universal energy access by 2030.

Honeywell can optimize the design of Microgrid to achieve the primary objective of – minimizing fossil fuel, lowest LCOE, reduced emission or a combination thereof.

Performance

Performance of BESS to match or better the performance of conventional generation.

BESS has significant advantages compared to conventional generation such as speed of response. New developments are reducing the spinning reserve and replacing inertia with synthetic.

Emerging C&I

Reducing electricity costs.

Reduce Emissions.

Improving power quality – especially for critical sites.

BESS used BTM can help reduce Electricity costs, improve Power Quality (Power Factor, etc.) or help the end-users meet their emission reduction targets.

Local Jobs/Training

Maintain high uptime with less experienced workforce.

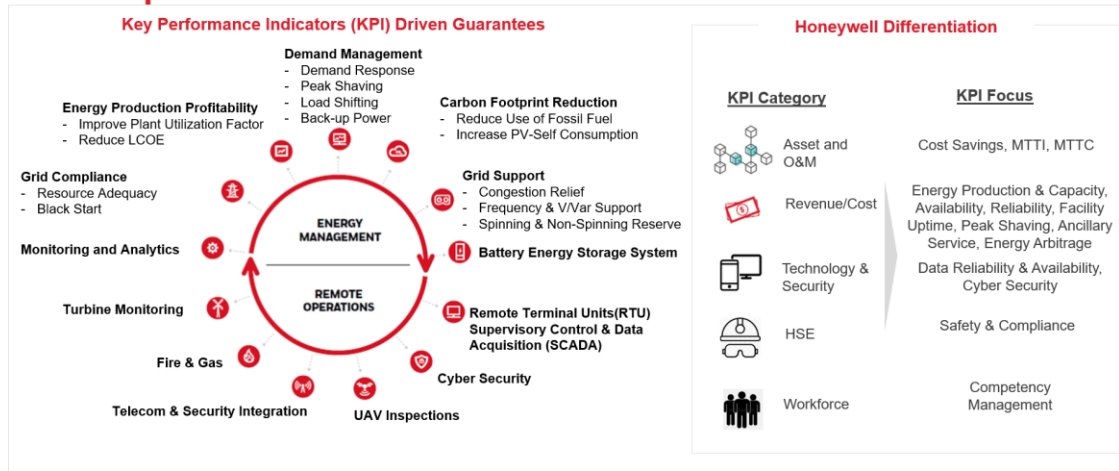
Local content and production requirements to boost jobs.

Competency management supported by remote support platforms to maintain high uptime of the assets while utilizing trained local resources.

Turn Challenges into Opportunities

HON | SUMMARY*

HON | ENERGY PERFORMANCE CONTRACTS



Honeywell offers revenue and cost KPI performance guarantees

12 Honeywell Internal

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HON | ATTRACT INVESTMENTS*



Honeywell Makes Projects Bankable

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Partner With Honeywell



THANK YOU!
QUESTIONS?

Honeywell