



Improving the operational efficiency of your renewable assets with digitalization technologies



19 November 2020



AGENDA



Patricia Rubio

01

Advanced Control Requirements

02

Evolving Systems

03

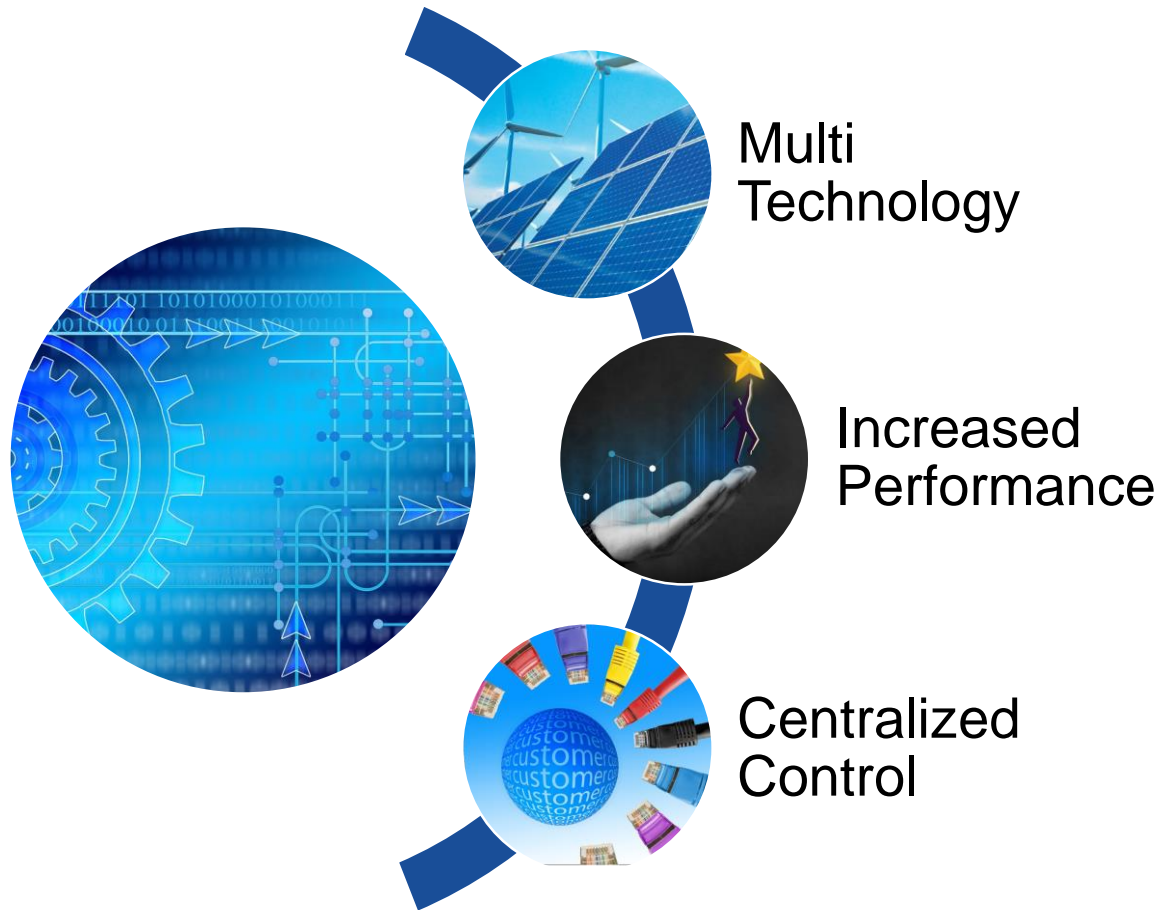
Applications: Master PPC and Hybrid Projects, and EMS with BESS

04

Value Chain

Advanced Control Requirements

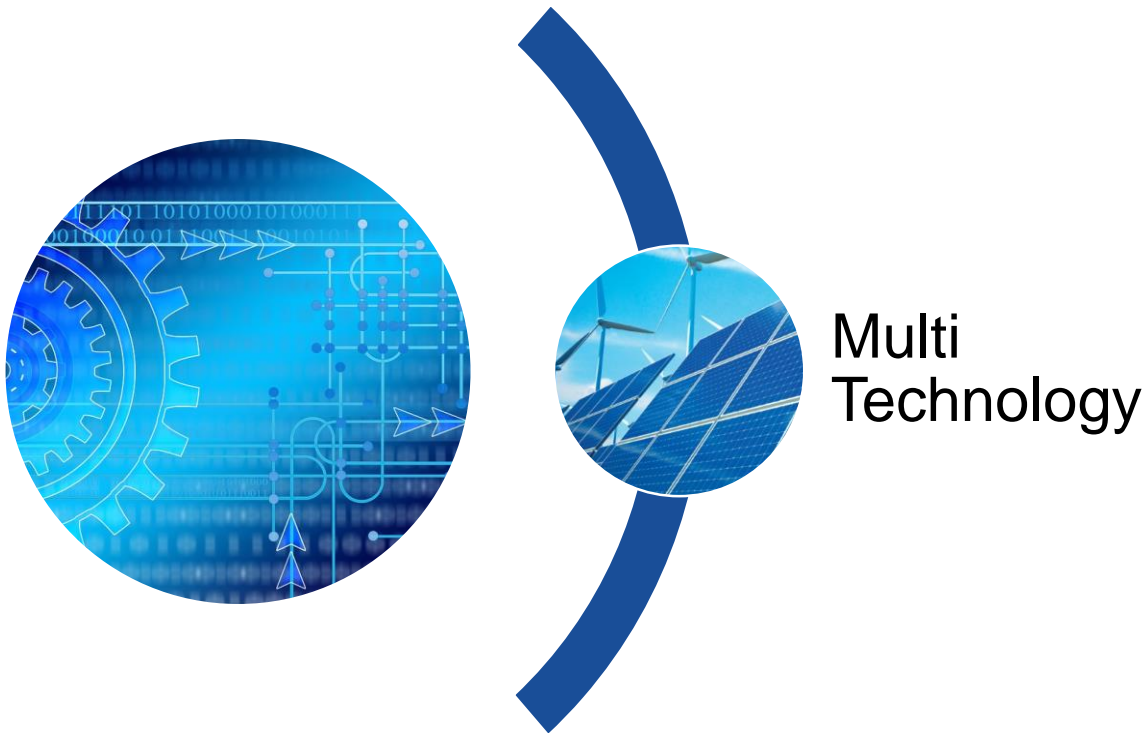
The Industry Demands



- Hybrid Plants
- Higher and faster data loads demands.
- A Platform for all.

Advanced Control Requirements

Advancing towards growing Demands



- Integration compatibility with Multiple Technologies.
 - Controllers, BMS, RTACs, Inverters, Turbines.
 - Vendor Agnostic
- New Level of Control Hierarchy.
- Eliminating subsystems.
- Simplified Maintenance.

Advanced Control Requirements

Complexity and Adaptability Demands

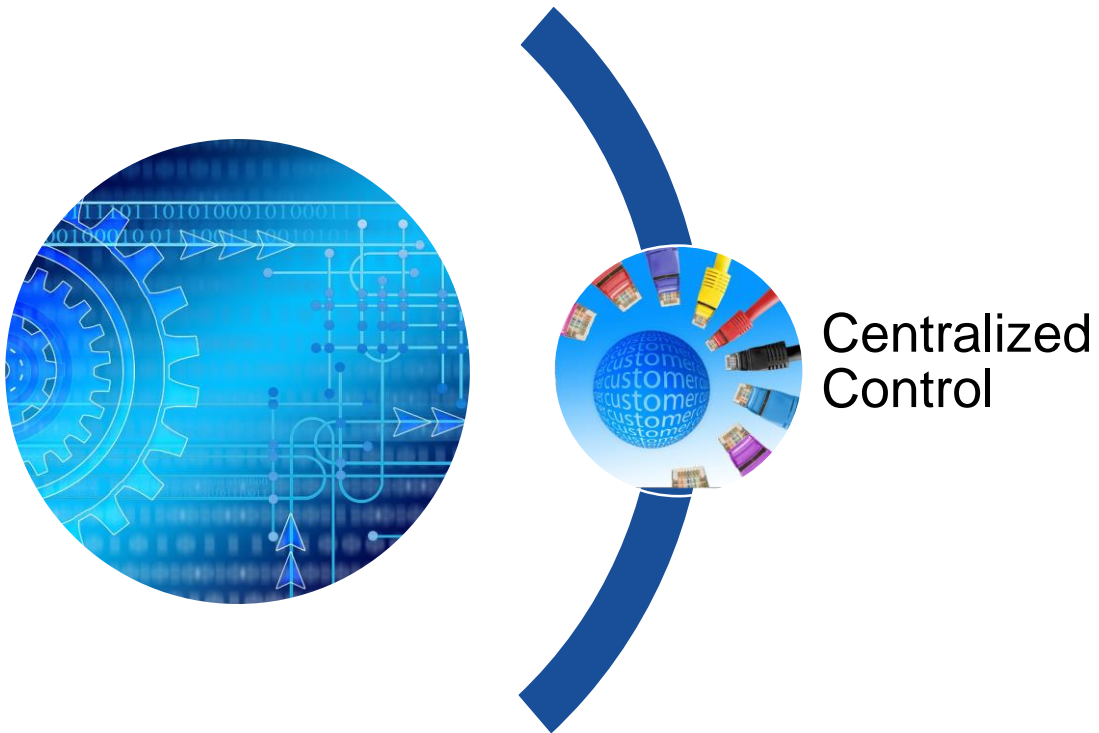


Increased Performance

- Faster Automated responses.
- Increases Control Precision.
- Capacity to store and publish data in real time.
- Improved availability.

Advanced Control Requirements

Complexity and Adaptability Demands



- Control of multiple phases, in one Point of Interconnection.
- Compliance with Point of Interconnection Requirements.
- Unified Dynamic Visualization.
- Company – wide Platforms.
- Simplified Maintenance.

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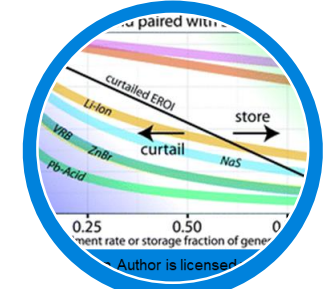
Plant / Local
SCADA



Control Centers



Master Power
Plant Controllers



Energy Management
Systems



Evolving Systems



Allow Compliance with
Demanding Grid Codes



Decrease Deviations
and Penalties



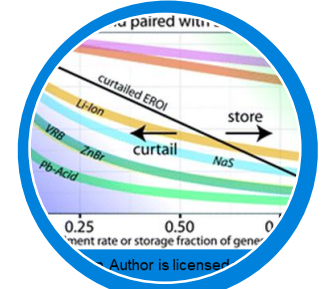
Increase Operational
Flexibility and Reliability



Maximize Output



Master Power
Plant Controllers



Energy Management
Systems



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Applications

Master PPC and Hybrid Plants

Master Power Plant Controller

- ✓ Oversees other PPCs and/or directly command the generation units.
- ✓ Closed loop iterations from a higher level of Hierarchy Control.
- ✓ Multiple Working Modes
- ✓ Compatible with mixed working modes for the different generation unit manufacturers and technologies.
- ✓ Includes all standard PPC functionalities.
- ✓ Stand Alone



Solution for Multi Technology Plants



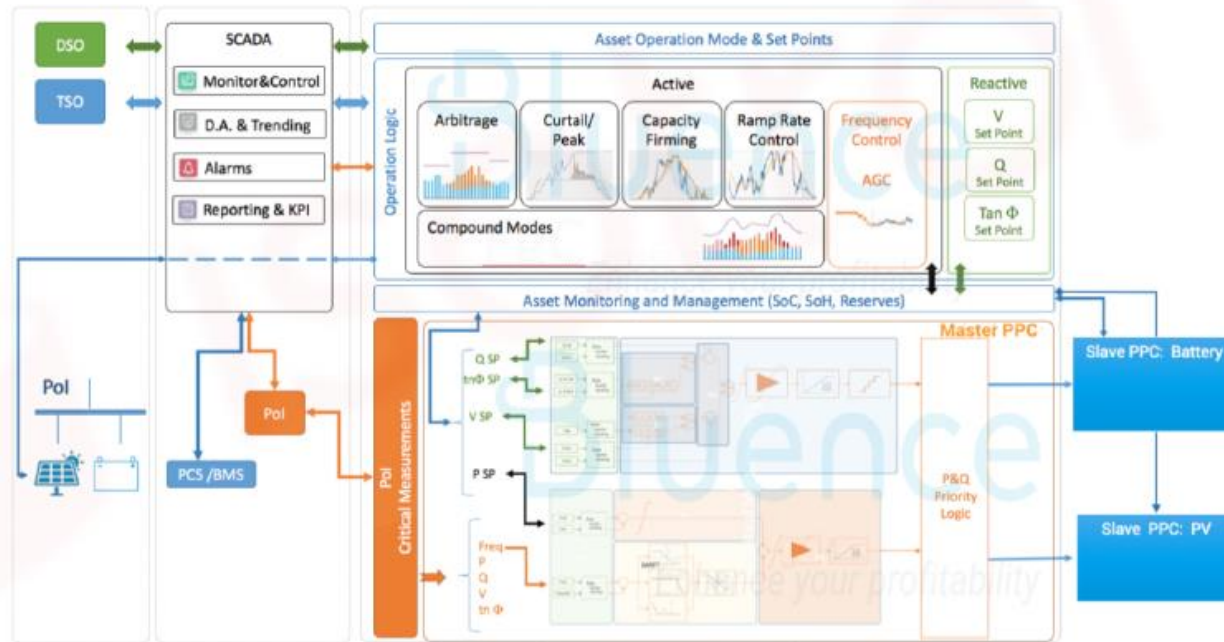
Performance Improvement



Centralized Control

Applications

Energy Management System and BESS



Automate Operation

Alignment with agreed services
Grid Code Compliance



Vendor Agnostic

Cooperate with Proprietary BESS systems and other technology and vendors to optimize the assets response.



Multiple Roles

Offtakers, TSO / DSO, Remote Operators or Site O&M Crew.

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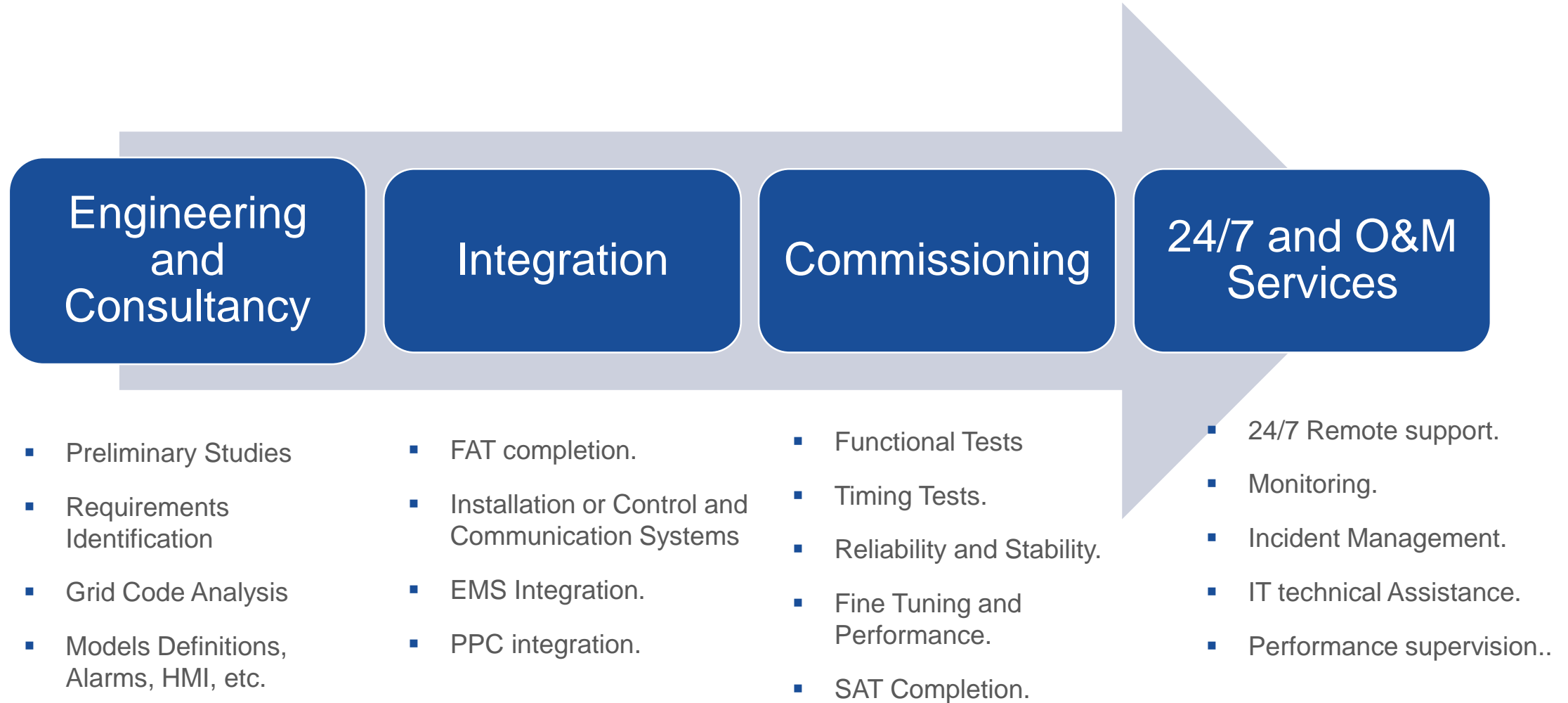
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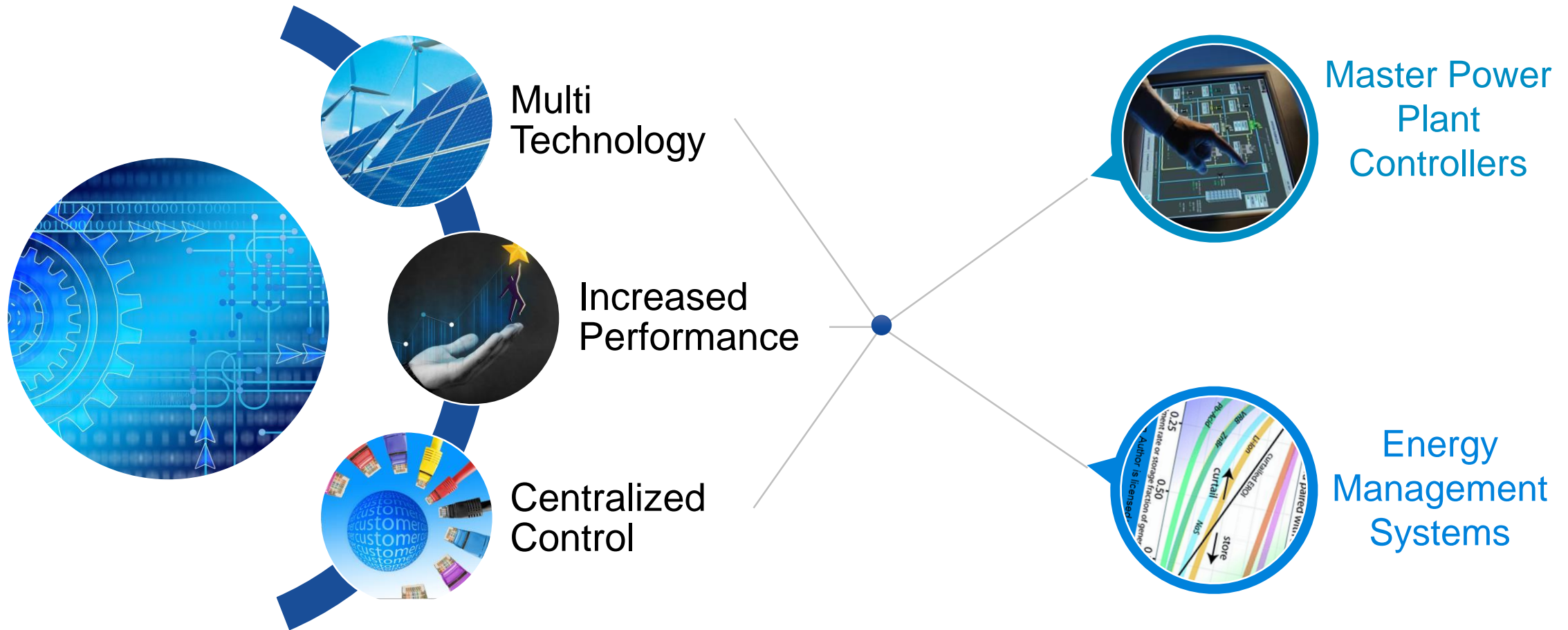
Value Chain

Value Chain



PPC Technologies in Renewable Energies

Conclusion





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Thank you