

MAKING VIRTUAL POWER PLANTS A REALITY: CULTURE, REGULATION, & ECONOMICS

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VIRTUAL POWER PLANTS

CONCEPT AND EXAMPLES

Concept

Intelligent aggregation and optimization of DER can provide the same essential services as a traditional 24/7 centralized power plant

Definition

A system that relies upon software and a smart grid to remotely and automatically **dispatch retail DER services** to a distribution or wholesale market via an **aggregation and optimization platform**

VPP Market Segments

Demand Response (DR) VPPs

- Smart thermostats
- C&I curtailment
- Event-based pricing (CPP, PTR)

Supply-Side VPPs

- Variable renewables
- Optimized diesel

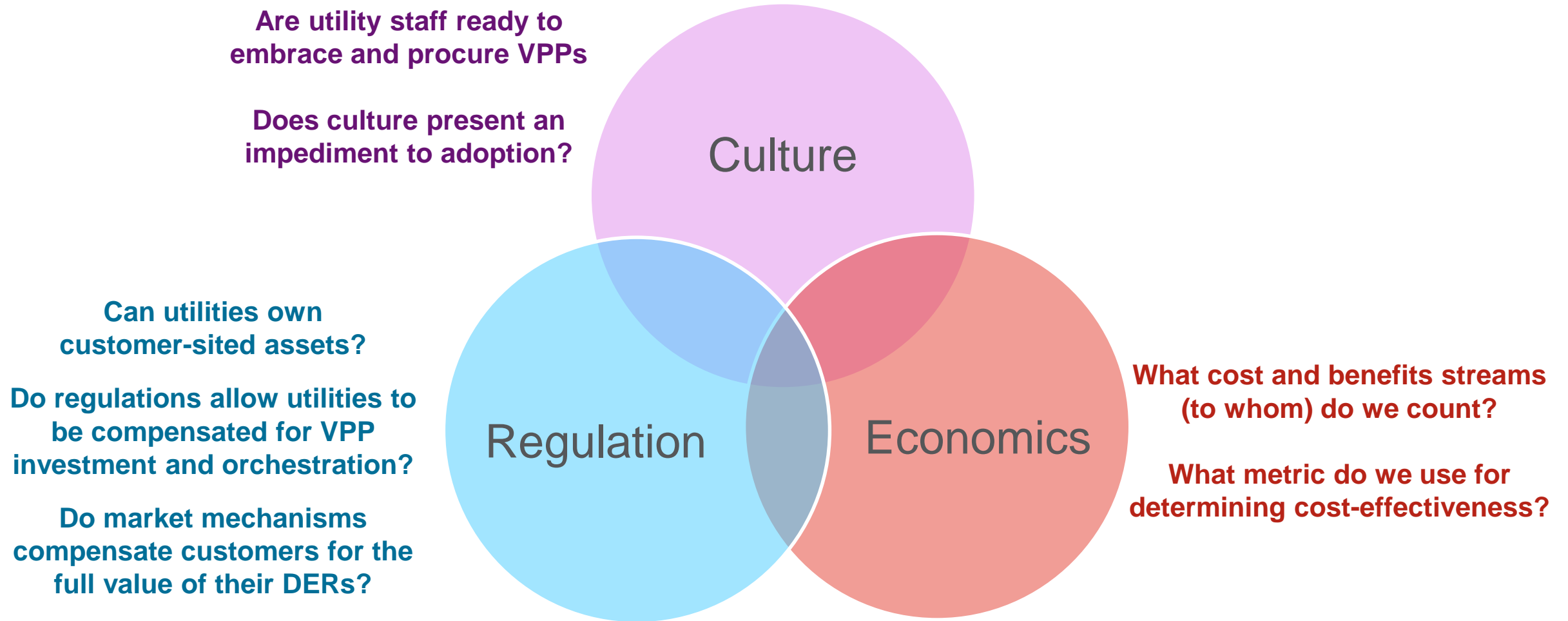
Mixed-Asset VPPs

- Combinations of...*
- Generation
 - Load
 - Storage

Source: Navigant Research, *Market Data: Virtual Power Plants, Q2 2019*

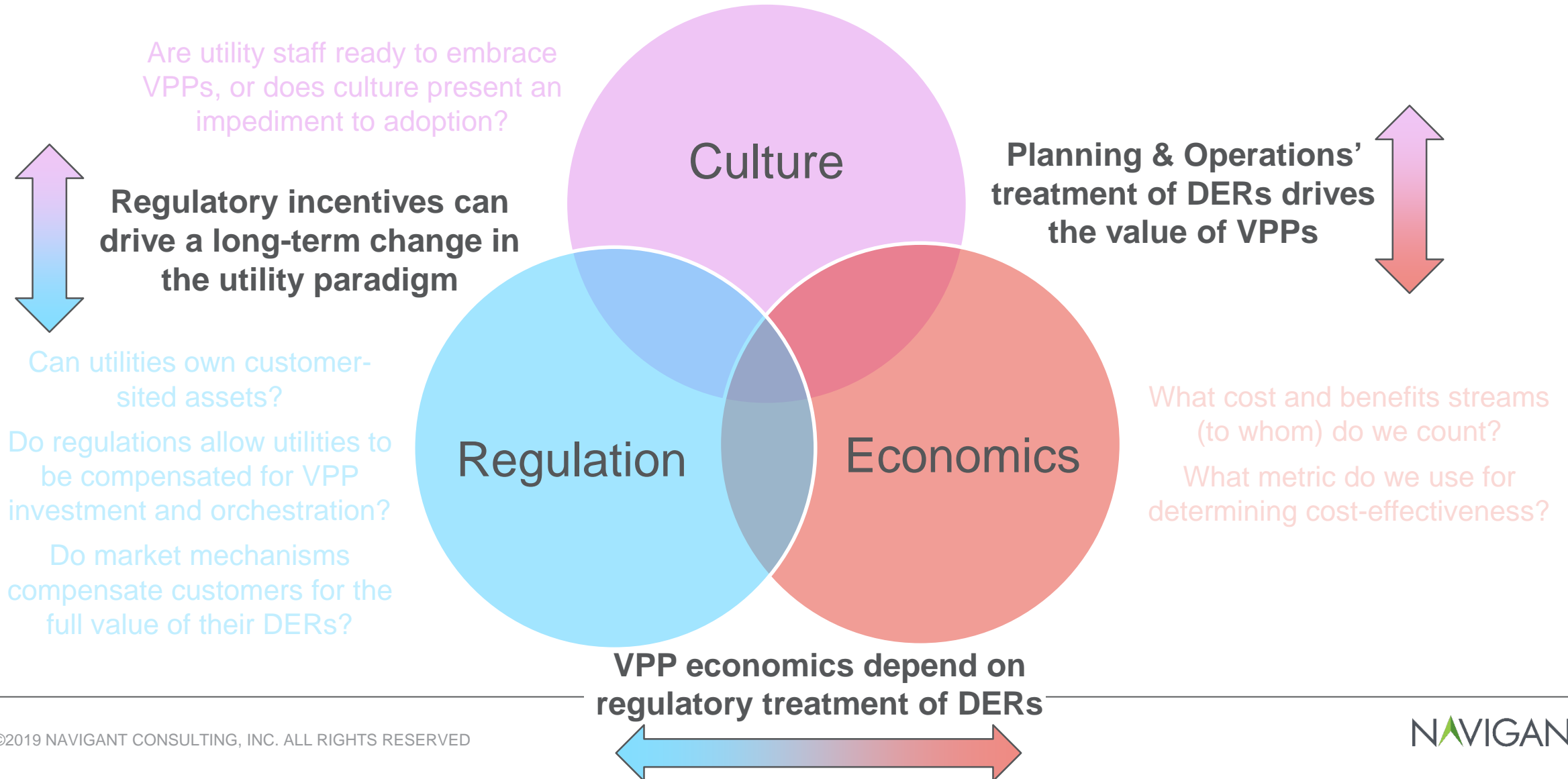
MAKING VPPs A REALITY

THE THREE PILLARS



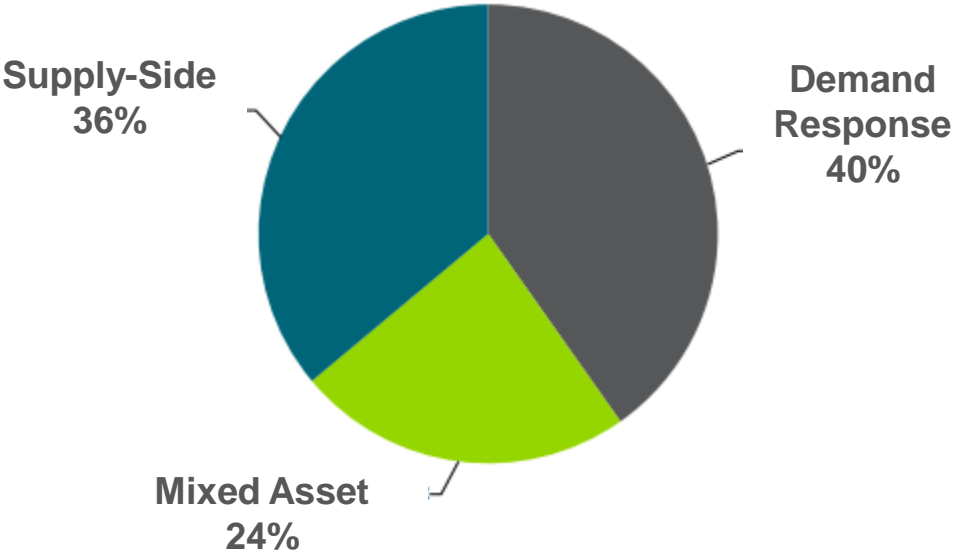
MAKING VPPs A REALITY

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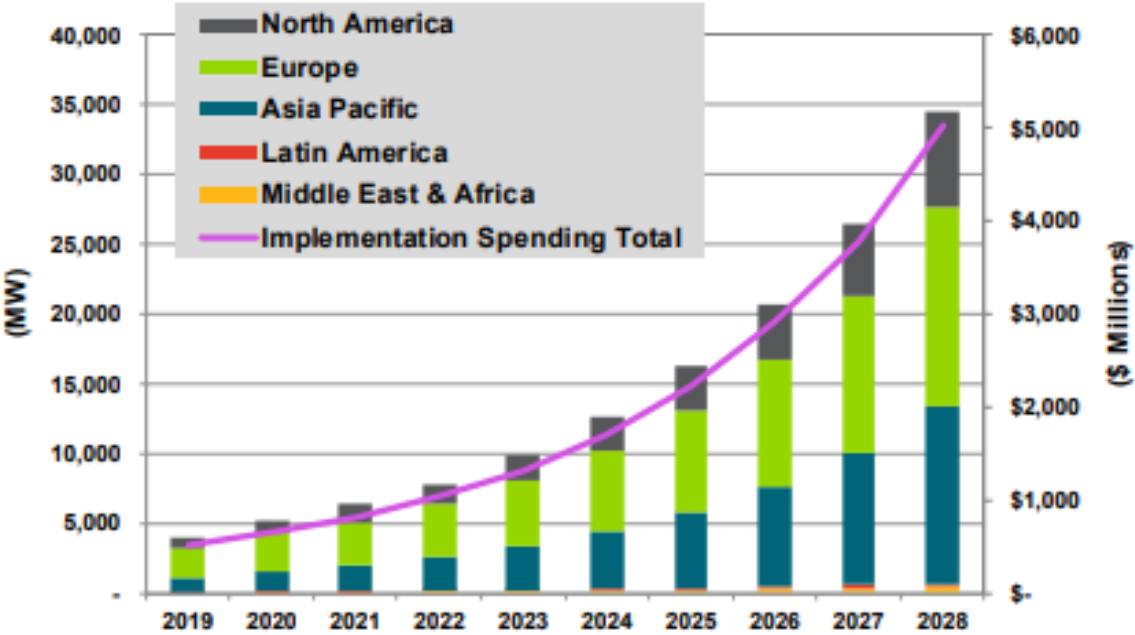


LOOKING FORWARD TO A FUTURE OF VPPs

VPP Capacity Share by Type (Global)



Total VPP Capacity and Implementation Spending (Global)



Source: Market Data: Virtual Power Plants, Q2 2019

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The image shows the front cover of a research report. At the top left is the Navigant Research logo. Below it is a horizontal banner with a magnifying glass over a globe. A green bar below the banner contains the text 'RESEARCH REPORT'. The main title is 'Market Data: Virtual Power Plants', followed by a subtitle: 'Demand Response, Supply-Side, and Mixed-Asset VPP Segment and Regional Forecasts for Capacity, Implementation Spending, and Market Revenue'. Below this is the publication date 'Published 2Q 2019'. At the bottom, two authors are listed: Peter Asmus, Research Director, and Roberto Rodriguez Labastida, Senior Research Analyst.

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RESEARCH

RESEARCH REPORT

Market Data: Virtual Power Plants
Demand Response, Supply-Side, and Mixed-Asset VPP
Segment and Regional Forecasts for Capacity,
Implementation Spending, and Market Revenue

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