High-Power Charging Urban Infrastructure Deployment
About Black & Veatch

- Power Infrastructure / Reliability & Sustainability
- Transportation / Transformative Technologies
- Distributed Infrastructure / Mission Critical Facilities

- $3.2B Revenue
- 10,000+ Professionals
Transformative Technologies @ Black & Veatch

Scaling Distributed Clean Energy Infrastructure
- Electric Vehicle Infrastructure
- Hydrogen Infrastructure
- Energy Storage Networks
- Emerging Distributed Technology
- Autonomous, Connected Vehicle Infrastructure

We build complex networks faster
Step Change in Infrastructure Requirements

- High Power Corridor Charging
- High Utilization Vehicles
- Urban Charging Hubs & Depots
- High Power On-route
- Capital requirements
- Utility coordination
- Per Facility and Network Roadmaps

Optimize for least regret investments

Transit: 250KWh Per Day Per Bus
Implications for Site Design, Power Delivery

- Cooling, Cables & Compounds
- Multiple Low Voltage Transformers
- Medium Voltage Utility Service
- Switch Gear Capacity
- Centralized Power Conversion
- DC Power Utility Delivery
- Inductive Charging

Designs shaped by new technologies & host utility service provisioning
Power Availability, Energy Delivery, Resilience

- **Siting decision factors:**
  - Can you locate near power?
  - Cost to bring power?

- **Energy Management Tools:**
  - Distributed Generation
  - Energy Storage
  - Smart Charging

- **Microgrids**

The Grid has enough energy but not always in the right places.
Energy Storage, Renewables, Electric Vehicles

- Stationary & mobile storage
- Access to more value streams the closer to the grid edge
- Multiple roles & Network Effect
- Variable Renewables Energy Integration
- Geographic, Locational Value
- Autonomous Vehicles, Fleets

Maximize grid revenue by stacking value streams
How Can Energy Storage?

Leveraging infrastructure investment, providing 24x7 grid resource, balancing local loads

Client: Advanced Microgrid Solutions, 20 Locations, 50 Mega Watts
Services: Engineering, Design, Permitting, Construction Services, Safety
BUILDING A WORLD OF DIFFERENCE

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BUILDING A WORLD OF DIFFERENCE

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Additional Resources

Electric Power Research Institute (EPRI) EV Infrastructure Working Council Presentations:
Scaling Transit Infrastructure - Presentation

Electric Vehicle Symposium 30
Priming the US Grid for High-Power Charging - Presentation

To request a copy of the white paper “Priming the US Grid for High-Power Charging” email stithp@bv.com