Session II

Envision a Smarter Greenville and Upstate

November 30, 2015
Urban Infrastructure: An Approach for Sustainable Economic Development
“A smart city is characterized by the integration of technology into a strategic approach to sustainability, citizen well-being, and economic development.”

- Navigant Research, A leading market research group
Cities must become smarter

a smart city strategically approaches technology with emphasis on sustainability, efficiency, and liveability

**Efficient**
- Better information sharing
- Improved resiliency to disruptions
- Increased control over city systems

**Sustainable**
- Reduced Carbon emissions and energy consumption
- Operational cost savings
- Decreased need for massive infrastructure investments

**Liveable**
- Higher quality of life for city residents
- Increased attractiveness to jobs & talent
- Increased global competitiveness
Environmental Sustainability & Resiliency:
What is Included? Solutions for cities’ challenges; solutions to seize new opportunities

Smart Energy
- Smart Grid Automation & Flexible Distribution
- Smart Metering Management & Demand Response
- Renewables Integration & Micro Grid
- Street Lighting Management
- Gas Distribution Management

Smart Mobility
- EV Charging Infrastructure & Supervision Services
- Traffic Management
- Integrated Mobility • Public Transit • Traveler Information

Smart Water
- Distribution Management & Leak Detection
- Power, Control & Security Systems integration
- SCADA and Telemetry Software
- Stormwater management and Urban Flooding

Smart Public Services
- Public Safety • Video Surveillance • Emergency management
- Digital Services • Tourism • Retail Applications
- Access Control • Key Card • Retail Card • User Profile Management

Smart Buildings & Homes
- High-performance Buildings • Energy Efficiency & Security solutions • Energy Services
- Efficient Homes • Home Energy management
- Connection to the Smart Grid

Smart Integration
- Power, Security, Building, IT, & Process Management Systems integrated Architecture
- Integrated Management Platform

Smart Collaboration & Development Services
- Technology, Systems & Infrastructure Planning & Design
- Technology, Systems & Infrastructure Contracting
- Technology, Systems & Infrastructure Operation & Optimization
- Sustainability Strategy & Advisory Services

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Engagement Model: Intelligent Integration

Intelligent Integration is an end to end (Charrette to Operation and Maintenance) oversight model that utilizes leading construction methodologies to execute projects turn-key. **The model takes priority on customer outcomes** as we co-create the business strategy with innovative clients.

The model incorporates themes and best practices of …

- Whole systems approach
- Integrated Project Delivery (IPD)
- Public-Private Partnering
- Long term Own, Operation & Maintenance Arrangements
- Power Purchasing Agreements (PPA) & Structured Leases
And the Results...

Abundance of consumer choice, value-added services and game-changing development models lead to...

- Significant Cost Advantages (CAPEX & OPEX)
  - Capital Expenditures go down
  - Operational Expenditures for the Tenant go down
  - Overall variable risks (utilities)

+ Quality of Life Factors
  + Site Selection
  + Marketability
Intelligent Infrastructure - Example

DER (Distributed Energy Resources)
- On-site renewables and power generation utilized in parallel with grid

Storage

Switch
- May be possible to sell excess power to the grid
- May be possible to purchase in bulk, store to redistribute at optimal times

Utilities

Facilities/ Property Owned By Developer and End Users

Single Point of View for Tenant Web – Enabled real-time control, monitoring, reporting

Intelligent Middleware Platform

- Energy Mgmt
- Weather Intel
- Demand Response
- Building Analytics

EcoDistrict Operating System Platform

- Security Devices
- Power Devices
- Lighting Devices
- BMS
- Meters

Overall Site Security & Lighting

Treatment