SAFE
RESILIENT
SUSTAINABLE
COMMUNITIES

FOR THE IEEE PES
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MARKET CONTEXT & KEY DRIVERS OF SUCCESS

TRANSFORMATIONAL MULTI-STAKEHOLDER SWEET SPOT
- Social Equity
- Electrified Mobility
- Community Resiliency

UTILITY

CITY & COUNTY

CITY-UTILITY INTERESTS
- Grid Reliability
- Emergency Response
- LED / Smart Streetlighting
- Fleet Electrification

BUILT ENVIRONMENT

UTILITY-DEVELOPER INTERESTS
- Grid Reliability
- Peak Load Management
- Energy Efficiency & DR

CITY-DEVELOPER INTERESTS
- Economic Development
- Innovation Test Beds

1) Multi-Stakeholder Alignment; 2) Sustainable Business Models; 3) Show Quick Wins
SMART CITY SOLUTION ELEMENTS

OUTCOMES FOR CITY ADMINISTRATION & CITIZENS

Ensure continuity of city infrastructure & improved response time to deliver city services
Improved quality of life for citizens
Higher citizen awareness & engagement

HONEYWELL CITY SUITE & THIRD-PARTY APPLICATIONS

City Operations Center
Public Safety
Emergency Response
Muni Building Management
Smart Streets
Multimodal Mobility
Sustainability & Resiliency
Energy Equity
Omnichannel Engagement

HONEYWELL’S CITY SUITE IOT & AI PLATFORM

IOT Hub, Service Bus
Stream Analytics
GIS Engine
Analytics Engine

FIELD DEVICES + SENSORS

Utility Meters
Parking Sensors
Street lighting controllers
Bin Sensors
Environmental Sensors
Cameras
Traffic controllers
Vehicle mounted displays
Social Networks

Comprehensive capabilities that lead to compelling outcomes
READY-TO-DEPLOY AI TEMPLATES

PUBLIC SAFETY
Video Analytics
Emergency Response

CITIZEN ENGAGEMENT
Citizen Services
Resource Planning
Social Media Analytics

TRANSPORTATION
Yield Analysis
Bus Scheduling
Predictive Maintenance

INFRASTRUCTURE
Water & Wastewater
Parking
Garbage
Energy

Accelerating time to value for multiple departments
INPUT

• IoT data – rain, flood & sewage sensor
• Weather data
• Rainfall and flooding records
• Terrain level

OUTPUT

• Flood impact area
• Resource planning
• Citizen alerts

VALUE

• Improve situation awareness
• Coordinate response
• Save lives and property
PREDICTIVE PUBLIC SAFETY

INPUT
- 911 calls
- Crime records
- Weather data
- Census data

OUTPUT
- Crime type prediction
- Crime location prediction
- Event count prediction
- Patrol recommendation

Value
- Reduce response times
- Create safer communities
- Optimize public safety resources
CITY-UTILITY USE CASES

Streetlight & IOT Management
- Native support for streetlight management & 3rd party systems
- Provides granular and grouped control (on/off/dim) & reporting
- Can manage individual or multiple commercial & municipal customers
- Can manage multiple pole-attached IOT devices across entire territory from “single pane of glass”

Integrated DSM
- Integrates various loads and stakeholders for flexible, feeder-level control to reduce peak demand and improve grid reliability
- Integrates key utility systems & offers integrated DERMS functionality tightly coupling utility and customer loads when needed
- Supports wide range of customer load types and systems

Community Resiliency
- Monitors & controls a diverse set of DERs and microgrids
- Integrates city and utility IT & OT systems for collaborative resource management
- Extends City Suite’s IDSM features to help cities & utilities monitor and optimize system-wide resiliency resources during service interruptions

Energy Equity VPP
- Eases energy burden of low- and moderate-income (LMI) households
- Extends traditional VPP program to provide additional & focused benefits to LMI households
- Addresses a critical need of city leaders nationwide
- Can help utilities gain rate case support

Smart City Platforms Help Utilities Evolve and Better Serve Municipal Customers
ACUD, EGYPT – THE WORLD’S ‘SMARTEST CITY’
THE ADMINISTRATIVE CAPITAL FOR URBAN DEVELOPMENT

275 Square Miles
8 Million Citizens
4 Million Visitors / Year
50 Petabytes Data / Year

80% reduction in response time
20% reduction in energy cost
200% increase in revenues
20% reduction in crime

Unmatched Scope, Scale & Impact
HONEYWELL CITY SUITE

Includes City Operations Center and pre-integrated analytics

Enables situational awareness and control across all city systems

Provides system-of-systems integration and data analytics

Supports both Honeywell and third-party applications

Speeds response times and improves operational efficiency

Enables data-driven decision making and city-scale management

Integrated Insight, Monitoring and Control Across City Silos
HONEYWELL ENERGY EQUITY & RESILIENCY (HEER)

Honeywell City Suite

- IOT Data Integration and Normalization
- AI and Machine Learning
- System-of-Systems Command and Control
- City-Utility System Integration
- Stakeholder Reporting
- Measurement & Verification

End-to-end Cybersecurity

Unique energy innovation delivered via single point of accountability
ENERGY EQUITY VIRTUAL POWER PLANT (VPP)
Reducing Peak Electric Load Through Energy Efficiency and Demand Response

Program Summary
• DOE-supported program combines market integration (Recurve), project financing (Dividend) & delivery (Honeywell)
• Supports multiple utility business models and aligns city-utility strategic priorities
• Provides focused benefits for low- & moderate-income (LMI) households via shared risk-reward ESPC model

Program Benefits
• Enables energy flexibility at different time scales to improve grid reliability & resiliency
• Accurately values full system benefits (grid benefits, emissions benefits, etc.) of energy efficiency and demand response resources (more lucrative)
• Integrates a diverse set of Commercial and Residential loads and systems (t-stats, PV, batteries, heat pumps, fuel cells, EVs, etc.)
• Can uniquely address energy burden of LMI households, who typically struggle with energy efficiency project financing due to credit rating

Energy Equity VPP Solution Architecture

Integrated demand side management delivered through a social equity lens
COMMUNITY RESILIENCY (1)
Creating Resilient and Sustainable ‘Net Zero Multifamily Microgrid Communities’

Program Summary
- DOE-supported program combines modular builder (Guerdon), project financing (Innovatus) & energy resiliency solutions (Honeywell)
- Complexes typically 300-500 units, $350M value & can be mixed-use
- 10% of units workforce / affordable via P3 model if city donates the land

Program Benefits
- Creates market-based model for resilient multifamily development nationwide (targeting 10 US cities initially)
- Advanced apartment-level load management via smart breaker panel and mobile app (manage ‘energy budget’ during microgrid islanding)
- Accelerates EV infrastructure build out and adoption of EVs among traditionally underserved communities
- Can uniquely address energy burden and resiliency gap for low- and moderate-income (LMI) households

*$ Parties are jointly applying to DOE; application currently under review.
COMMUNITY RESILIENCY (2)
Creating Interconnected Municipal Microgrids

Program Summary
- Commercially financed nationwide program combines project financing (TBA utility) & municipal microgrid solution development (Honeywell)
- Comprehensive resiliency solutions span municipal needs (e.g., large, medium, small & highly distributed)
- Local utility gets time-limited right of first refusal on asset ownership

Program Benefits
- Creates market-based model for municipal microgrid development nationwide
- Comprehensive approach can drive resiliency broadly throughout a city
- Batteries and natural gas generators (for long-duration large loads) replace unreliable and dirty diesel generators
- Business model reduces capital investment needs for cities and provides more consistent service
- Offloads need for city staff for advanced skill sets to plan, operate and maintain complex microgrids

Resiliency and EV charging integrated into sustainable apartment living
THE FUTURE IS WHAT WE MAKE IT