New Mobility Trends

UMTRI Automotive Futures: Focus on the Future Conference

02/18/2015
NextEnergy: Who we are

- One of the nation’s leading accelerators of advanced energy technologies, businesses, and industries
- Non-profit founded in 2002 to drive investment and job creation in advanced energy in Michigan
- Helped attract over $1.4 Billion in investment to Michigan, participated in +$160 Million in programs with industry partners
NextEnergy: How we work

Public Private Partnerships with funds from State, Federal agencies, Industry and Philanthropy

- Industry Partners include large, global players (Ford, GM, FCA, Daimler Benz, Bosch, Denso, General Dynamics, DTE Energy, Qualcomm)
  and start-ups (Nextek, NextCat, TM3, Arborlight, Toggled, Coritech, Skyspecs, Inventev, Intellistreets, Solartonic, Sakti3, Na4B)

- Federal Support from DOE, DOT, EPA, EDA, NIST, NSF

- Research collaborations with UM, WSU, MSU, MTU, ANL, NREL, NETL, PNNL
NextEnergy: What we do

- Provide services
- Host demonstration and commercialization programs at NextEnergy Center
- Provide input to policy
Our Services

To research teams and companies:
- Business consulting, tech vetting, access to funding

To industry clusters:
- Market research, promotional support

To companies and collaboration teams:
- R&D Demonstration, Testing services, Incubation space
Our Center

- 2.8 acre 45,000 sf “Living Lab” in Midtown Detroit
- “Advanced Energy” infrastructure + Conference Space + Company Incubation
New Mobility at NextEnergy

- Definition: Systems of Systems
  - Devices, Infrastructure, Software Solutions, Business Models
  - People, goods and information

- Our interest: Convergence
  - Underlying technologies: Communications and controls, power electronics, energy storage
  - Infrastructure Investment
  - Business Models

- Our focus: Optimizing Energy, Value = time/money/ease of use, Access, Safety
MOBILITY ECOSYSTEM IN MICHIGAN

- Rail (passenger & freight)
- Highway (planned V2V/DSRC)
- Airport
- Border crossing

Detroit Innovation District

Roads with existing V2V/DSRC
BENEFITS OF ECOSYSTEM APPROACH:

Stage of Technology: from “research” to ready to deploy

Scale: from one of a kind to simulated system to full scale

Diversity of use cases: Urban, suburban, highway, air, rail, international border crossing, all weather/ four seasons

Relevant Technologies: vehicles (connected, autonomous, electrified); multi-modal transportation for people and goods; energy systems at building, campus, and neighborhood levels; interactive smart grid for electricity and communications; integrated transportation, energy, communications and security infrastructure
Recent/Current Initiatives


- **Vehicle to Infrastructure**: Electrification programs (AC/DC, bidirectional, retail aggregation, Smart charge/discharge), connected vehicle infrastructure (DSRC, consumer apps)

- **Distributed Generation and Energy storage**: advanced battery technologies, community energy storage, SHINES proposal (integrated energy storage), PV solar

- **Smart building technologies**: Lighting, controls, sensors communications, SCADA, BMS/HEMS
Thank You

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