



*Illinois - Korea
Smart Grid
Collaboration*



Bruce Hamilton
President and CEO

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Adica, LLC - A global provider of energy software and consulting

- **Committed to empowering individuals, companies and nations in pursuit of sustainable development**
- **Smart Market® software is distributed for use on 5 continents to support sound decision-making for energy operations, investment and policy**



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New Energy Issues Lead to Complex Decision-Making

THE ELECTRIC UTILITY

THE ELECTRICITY MARKET

- Old Utility Planning :
 - Supply-side optimization
- New Factors:
 - Supplier Competition
 - Smart Grid Technology
 - Consumer Choice
 - Environmental Regulation


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Adica's Smart Market® Software for Designing Energy Markets of the Future

Electricity Market Complex Adaptive System (EMCAS)

- Developed with Argonne National Laboratory
- Agent-based technology represents diverse market participants
- Supply and Demand side Smart Grid options analyzed in a common framework


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Adica – Smart Grid Services

- **Knowledge Transfer**
 - Provide insights on best-of-class practices for Smart Grid policy, technology and business models
- **Business Case Evaluation**
 - Smart Market® software for analyzing the impact of Smart Grid strategies on electricity prices, consumption, emissions and profits
- **Smart Grid Roadmaps**
 - Manage collaborative process for Smart Grid Roadmap development and implementation
- **Workforce Development**
 - Provide training to produce and maintain a highly skilled workforce to manage and support the Smart Grid

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Illinois and Korea – Model Partnership for Smart Grid Collaboration

- July 2008, Korean government funds 3-year International Collaboration Program on Distributed Energy Resources
- June 2009, Korea Ministry of Knowledge Economy (MKE) and U.S. Department of Energy sign smart grid collaboration agreement
- October 2009, Adica prepares *Feasibility Report on a Smart Grid and Green Technology Development Initiative Between The State of Illinois and Korea*
- January 2010, MKE and Illinois' Department of Commerce and Economic Opportunity (DCEO) agree to jointly develop and deploy smart grid and green technologies and business models

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Illinois is an Ideal Partner for Smart Grid Development and Deployment

1. Cutting-edge work being done at Illinois' world-class universities and federal laboratories
2. Illinois' collaborative approach to the smart grid, which involves and engages communities across the state
3. A wide array of smart grid and renewable energy projects underway in the state
4. Supportive public policy, state and local governments, utilities and consumers
5. Provide access to the worldwide smart grid through a first success story in Chicago

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Program Management Office Established to Engage Partners, Develop Projects

Efforts by the ISTC, CUB, Adica, DCEO, City of Chicago and other members of the Public-Private Partnership to build on the foundation activities.

- Recruit partners
- Disseminate market intelligence and best practices
- Identify potential funding sources
- Form strategic alliances
- Develop demonstration projects



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Illinois Partners

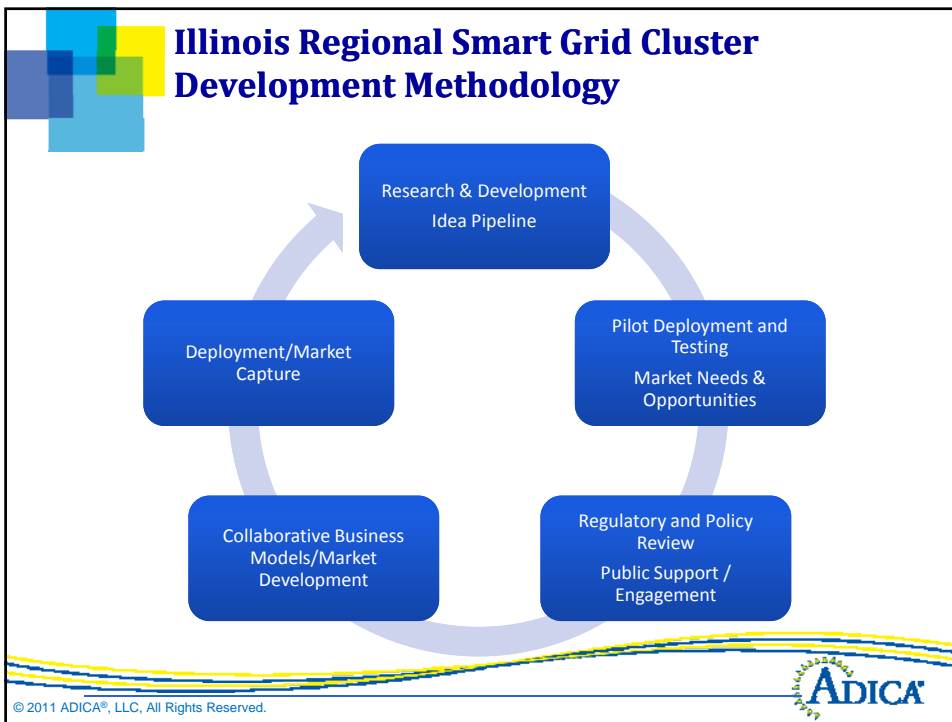
ILLINOIS SCIENCE & TECHNOLOGY COALITION DCEO CITY OF CHICAGO CUB

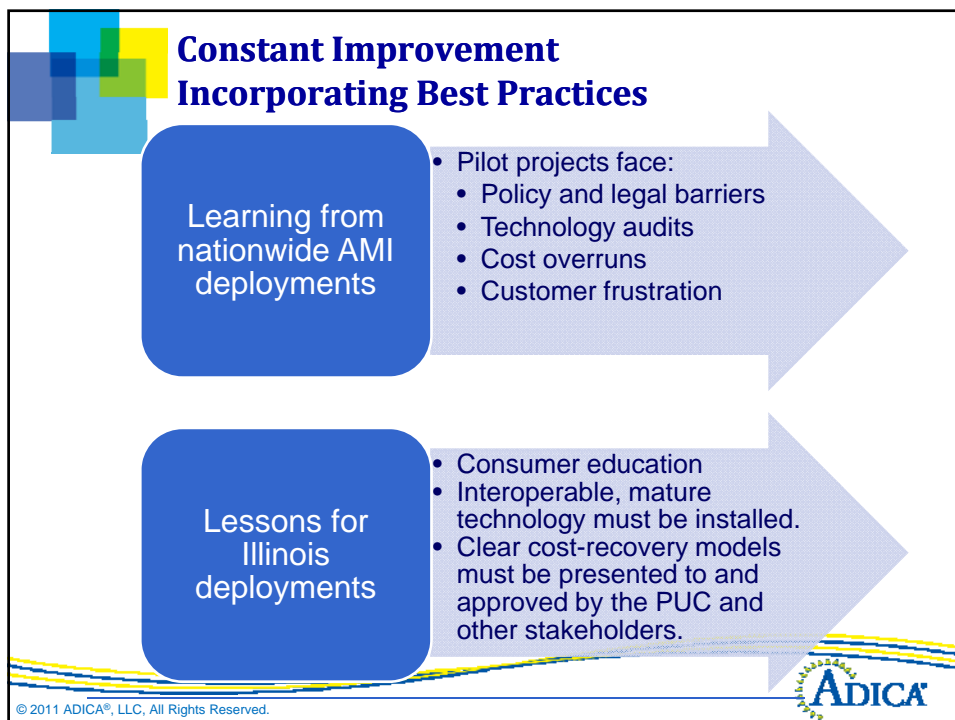
ADICA ComEd An Exelon Company Comcast CLEAN ENERGY TRUST

GALVIN ELECTRICITY INITIATIVE Sponsored by The Galvin Project, Inc. IBM ILLINOIS COMMERCE COMMISSION ILLINOIS INSTITUTE OF TECHNOLOGY

MOTOROLA Oak Park TechAmerica WHERE THE FUTURE BEGINS ILLINOIS UNIVERSITY OF URBANA-CHAMPAIGN

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Over \$500 million in investment secured in Illinois for energy efficiency and green

- **\$25 million** to the Chicago Metropolitan Agency for Planning and the City of Chicago for energy efficiency retrofit program design and execution.
- **\$24 million** in American Recovery and Reinvestment Act (ARRA) funds to Beacon Power Corporation to construct a 20 MW flywheel energy storage plant in Chicago, Illinois.
- **\$18.8 million** over 5 years to the Information Trust Institute to the University of Illinois Urbana-Champaign by the U.S. Department of Energy to extend their Trustworthy Cyber Infrastructure for the Power Grid initiative.
- **\$12.6 million** including, \$5 million in ARRA funds and \$2.5 million in State funds, to the Illinois Institute of Technology to establish a Smart Grid Education and Workforce Training Center. The \$5 million award was the largest university award of the ARRA project category.
- **\$8.8 million** to Argonne National Laboratory for advanced battery and energy storage R&D. This research will set the stage for mass electric vehicle adoption.
- **\$5.1 million** in ARRA funds to S & C Electric for a distributed generation project.
- **\$245 million** captured for 17 ARRA broadband awards leveraging a total value of \$350 million.

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Leveraging Investment Capital Illinois Jobs Now! Capital Bill

- **\$80 million** for R&D facilities and projects at universities and federal laboratories located in Illinois.
- **\$50 million** for broadband deployment and related improvements.
- **\$37.5 million** for American Recovery and Reinvestment Act (ARRA) matching funds.
- **\$15 million** for grants and loans to emerging technologies.
- **\$10 million** for electric car manufacturing and transportation electrification infrastructure projects.

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Illinois Specific Resource Collaboration Regional Electric Vehicle Infrastructure

- Co-investment by the City of Chicago and the State of Illinois leveraged at approximately 3 to 1.
- First phase comprised of 270+ level II and III charging stations to be deployed over 2 years.
- Success of project will lead to further deployment in additional communities, public facilities and is expected to induce additional public co-investment.



International Collaboration and Market Development

Smart Grid Green Technology Memorandum of Understanding between Illinois and Korea:

- Mission: To advance the adoption of innovative smart grid and green technologies that will generate economic opportunity, create jobs and produce environmental benefits for consumers, communities and shareholders in Illinois and elsewhere.
- Signed at World Smart Grid Forum in Seoul, January 2010.
- Objectives:
 - Generate economic opportunity
 - Partner with businesses
 - Attract investment
 - Deliver benefits
 - Foster ongoing collaboration



Collaboration Results Illinois-Korea Phase I MOUs

Project Based MOUs

Smart Grid Cyber Security R&D
Partners: UIUC and The Attached Institute of ETRI

**Distributed Energy Resources
Integration and Building Energy
Management Systems R&D**
Partners: IIT, KERI, KT, LSIS, KSGI

Workforce Development Training
Partners: IIT, Adica, KESRI

Illinois Smart Building Initiative
Partners: BOMA/Chicago, CUB, ISTC, KT, LGE, KSGA

Business Development MOUs

International Business Collaboration
Partners: ISTC and KSGI

International R&D collaboration
Partners: ISTC and KETEP

Smart Utilities Strategic Partnership
Partners: ComEd and KEPCO

Business Development Letter of Intent

**Smart Communities Strategic
Partnership**
*Partners: Oak Park, CUB, ISTC, Galvin Electricity
Initiative and Deloitte Korea.*

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Korean Partners

Ministry of Knowledge Economy

한국스마트그리드협회

Korea Smart Grid Institute

Korea Electrotechnology Research Institute

Electronics and Telecommunications Research Institute

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**IEEE Power & Energy Magazine (Jan-Feb 2011)
Highlights this Successful International
Smart Grid Collaboration**



**We look forward to building on
this successful collaboration**

and

Hope to see you in Chicago.

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Thank You

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