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Exploring the Electric Company Role in Smart Communities

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Executive Summary

Increasingly, electric companies are coordinating with a broad range of community stakeholders to use data and technology to help drive efficiencies, improve sustainability, spur economic development, and enhance the quality of life for their customers and communities. While each community may have different reasons for wanting to be smart, all smart communities share common attributes—and they all are powered by smart connections and by smarter energy infrastructure.

In April 2018, Edison Electric Institute (EEI) conducted a workshop with electric company smart community leaders to explore how electric companies more effectively can advance their initiatives with communities beyond pilot projects.

Based on discussions with workshop attendees, it is clear that electric companies vary greatly in where they are on their smart community journeys. While many companies already are working closely with their communities to pilot initial projects, there is not yet a comprehensive framework that will enable early work to be captured, connected, and scaled. Attendees recognized that there are barriers to overcome for pilots to be adopted at the scale required to drive substantial value for both electric companies and the communities and customers they serve.

In the last decade, electric companies have made significant investments in smarter energy infrastructure, including physical assets and digital capabilities. In addition, other utility sectors and communication providers are investing in new infrastructure. The consensus from workshop attendees was that the physical infrastructure, data, and information required to enable smart communities increasingly are important, create opportunities to leverage electric company investment in new ways, and may become a new pillar of integrated infrastructure systems. As this new, integrated smart community infrastructure increases in importance and value, electric companies uniquely are positioned with the expertise required to design, build, finance, own, and operate infrastructure investments that maintain security, equity, affordability, reliability, and privacy for customers and citizens.

This paper summarizes the key takeaways from the workshop:

- **Identification of the critical stakeholders** to engage, including those from within the community, beyond the community, and internal to the electric company.
- Preliminary **identification of electric company core value propositions** that are enduring, transferrable across smart community projects, and differentiated from commercial entities.
- **Framing of the primary drivers** of smart community business models.

Attendees recognized that an initiative such as envisioning and delivering smart community services is fundamentally different than the day-to-day demands of executing the current electric company business of delivering safe, reliable, affordable, and increasingly clean energy. As smart community initiatives are pursued, electric companies and their employees will face an

ongoing tension between day-to-day execution and innovation that must be managed proactively. The sustained progress required to capture the potential transformational value of smart community initiatives will require treating innovation management as a core organizational capability.

Engaging Smart Community Stakeholders

Workshop attendees universally recognized the complex set of stakeholders involved in successful smart community initiative development and that a new approach to conversations is required. Robust discussions in working groups explored not only how smart communities potentially could bring value to each stakeholder group, but also what is most likely to concern these groups.

While some likely common patterns were identified, all attendees recognized the imperative to engage with these stakeholders early and consistently to better understand their aspirations and fears in the context of their local jurisdictions. Importantly, they concluded that these stakeholder discussions needed to be conducted on a regular cadence and in a separate time and space than existing meetings focused on current electric company service to explore different ways that value can be delivered in the future; what current practices may need to be changed to deliver value in that new way; and how to build pathways from the current operating state to the future vision without introducing unacceptable levels of risk or cost.

Workshop attendees recommended that electric companies develop engagement plans for three distinct types of stakeholders. The value propositions for electric companies in the smart community future, which are explored further in the next section, ultimately derive from helping these stakeholders achieve their goals and mitigate their fears.

- **Community stakeholders** are defined as those who have direct power over, or are directly impacted by, a particular smart community initiative in defined geographic areas. These stakeholders may include mayors, city council, city staff, city committees comprised of elected officials and citizens, city departments, chambers of commerce, neighborhood leaders, management districts, media, local influencers, other utility providers, and customers (rural, urban, residential, commercial, and industrial).
- **Beyond community stakeholders** are defined as those who have direct power over, or are directly impacted by, smart community initiatives but whose interest spans communities. These stakeholders may include governors, federal agencies, state agencies, state regulators, regional economic development entities, developers, potential big business customers, smart community solution providers, private industry partners, customer advocates, and NGOs.
- **Electric company stakeholders** are defined as those with direct power over or interest in the operational performance of the electric company. These stakeholders may include business leaders, technical staff, boards of directors, shareholders, finance partners, ratings agencies, and electric company executives.

Despite the diverse set of stakeholder groups, common themes of aspirations and fears associated with advancing smart community initiatives emerged.

Aspirations

- Attracting new businesses and enabling the next generation of economic development as well as a modern and desirable place to live and work.
- Identifying no-regrets, durable investments with demonstrable returns that will catalyze new markets, enable competition, and provide longer-term value.
- Enabling communities to efficiently meet their goals for sustainability, resilience, safety, affordability, clean energy, and mobility.
- Deploying equitable solutions that address the different needs of urban and rural populations, residential and commercial customers, and affluent and disadvantaged communities.

Fears

- Implementing system changes that compromise the delivery of safe, reliable, and affordable electricity.
- Incurring large costs without generating tangible returns for citizens and businesses or investing in technologies that may become obsolete before achieving payback.
- Losing local control to technology providers that are not invested in the community and that cherry-pick the most profitable customers without broader benefit.
- Failing to develop the sustainable business models required for long-term sustainability and extension of foundational smart community projects.

The diverse and complicated ecosystem of stakeholders highlighted the need for electric companies to be proactive in driving smart community conversations and to develop comprehensive and transparent engagement strategies. Based on the legacy of deep and broad connections with critical stakeholder groups and experience with robust public engagement processes, electric companies are well-positioned for this responsibility. However, if electric companies do not lean forward and seize the opportunity to be a convener, they risk being caught in a perpetual reactive loop of responding to narrow needs and requests without driving toward a more comprehensive strategy with broad support that will yield higher value and lower risk outcomes for customers.

Electric companies need to be proactive in driving smart community conversations and to develop comprehensive and transparent engagement strategies.

Workshop Insights Regarding Stakeholders

- **Smart community value** at scale is likely to cross the boundary of an individual community. Electric companies should leverage their experience working across jurisdictions and with key regional stakeholders to develop scalable, repeatable, and equitable paths forward. Attendees recommended working with regional economic

development authorities to convene targeted, cross-jurisdictional smart community discussions that could address the needs and opportunities for customers of all types, including urban, rural, disadvantaged, commercial, and industrial customers.

- **Smart community conversations** with stakeholders should be structured to enable the co-creation of priorities and solutions not designed as one-way presentations of pre-conceived ideas. These meetings should include stakeholders who are both forward-looking pioneers driving change and guardians who will challenge assumptions and be more reticent to provide buy-in and support. Electric companies may benefit from using neutral facilitators with relevant subject matter expertise to drive progress while including multiple perspectives.
- **Regulatory and governance conversations** should be prioritized and not left until after potential projects are identified. The regulatory and governance process must be transparent and public to foster the trust and engagement across stakeholder groups required to properly review soundness of investments and deliver the greatest customer value.
- **Stakeholder insights** and resulting value propositions are likely to share common elements across electric company jurisdictions. Several attendees expressed a strong desire for continued and regular discussion among electric company smart community leaders to share lessons learned and accelerate progress.
- **Internal electric company conversations** are as critical as external stakeholder communications. In addition to the recommendation to establish dedicated teams, electric companies also would benefit from elevating innovation management as a core organizational discipline. Internal discussions explicitly should address how pilot projects will be integrated into the larger company performance engine to be replicated and maintained at scale.

Developing Unique Electric Company Value Propositions for Smart Communities

The insights from the exploration of stakeholder aspirations and fears provide opportunities for electric companies to develop durable and transferrable value propositions. In the emerging smart community space, electric companies are not entitled to any particular role.

However, given the common aspirations and fears across multiple stakeholder groups when considering smart community initiatives, workshop attendees were able to identify two overarching electric company value propositions that are applicable across multiple types of projects and customers.

Promoting Community-Aligned, Cross-Jurisdictional, and Equitable Economic Development

- Electric companies are **invested in the long-term well-being** of their communities as anchor institutions with substantial physical infrastructure, local workforces, and stakeholder relationships. Electric company interests are aligned with community leaders, local businesses, and citizens in terms of privacy, safety, trust, economic enablement, security, and equity. Commercial vendors are more likely to be transient without long-term community commitment or commitment to equity.
- Electric companies are **well-positioned to be the responsible stewards** of cross-jurisdictional smart community initiatives. Electric companies have a long history of coordinating regionally to maximize returns from infrastructure investment, ensure proper interoperability, and avoid redundancy of investments (in this case physical and digital infrastructure) and of extending services to be inclusive of rural areas. An over-emphasis on cities / urban areas during the initial phases of smart community growth risks furthering the urban / rural divide and failing to deliver smart community value propositions cost-effectively to non-urban or disadvantaged customers.
- Electric companies have a **proven track record of enabling economic growth** with third party partners. To maximize economic opportunity while minimizing security threats and technical obsolescence risks, smart community infrastructure must be managed to promote a competitive, secure, and equitable smart community marketplace for third-party vendors. While commercial entities will be incentivized to maximize control and market share, cherry-pick the highest-value customers, and minimize access to potential competitors, electric company smart community management incentives will be aligned better with community priorities to promote growth, competition, privacy, security, and equity. Electric companies also have the ability to partner with communities on financing the required infrastructure and service enhancements to enable projects while accepting longer timelines for returns on the investments.

Leveraging Existing Infrastructure, Governance Structures, and Expertise as a Springboard

- The existing electric system is a platform that can be **leveraged to deliver additional value**. More services (e.g., data in a usable form) can be provided more cost-effectively by leveraging legacy investments. The physical distribution network (including the energy grid and rights-of-way) can provide the foundation for smart communities and should be leveraged for savings. In addition, electric companies have the financial strength and stability for cost-effective deployment of large capital-intensive projects.
- Electric companies have the **independent, vendor-neutral expertise** and proven track records to successfully manage all foundational elements of smart community infrastructure (physical, data, and information) enablement including asset operation; interoperability planning; system orchestration; new technology integration; partner management; critical infrastructure security; regulated governance; and multi-level community stakeholder coordination.

- Smart community operating systems will, in the very near future, become critical systems that cannot fail. Data governance, cybersecurity, privacy, interoperability, and equity should be regulated strictly to **ensure the delivery of a trusted, high reliability system** that maximizes outcomes and minimizes the risk of unacceptable failure. Electric companies already have the established regulatory and governance structure required to manage the foundational elements of the system (physical, data, and information) and the independent expertise required for future integrations, maintenance, and upgrades.

The preceding value propositions cut across electric company service territories, operating models, and smart community project-types. Workshop participants recognized the need for electric companies to articulate clearly and credibly the value propositions that are most relevant to their priority initiatives for engagement and investment in smart communities and to develop business models that build off these value propositions to ensure the long-term economic viability of projects.

Electric Company Smart Community Business Models Are Still in an Exploratory Stage

Workshop participants acknowledged there is not a “one-size-fits-all” business model approach for smart community investments and that many companies currently are developing and evaluating potential roles. There are a number of factors impacting the business model choice for smart community investments including the current electric company operating environment (vertically integrated and restructured markets), the state regulatory compact, as well as federal, state, and local legislative policies and mandates.

The business model for the electric power industry is evolving due to changes in regulatory/legislative policies at the federal and state levels, emerging technology, increasing numbers of distributed energy resources, changing customer expectations, and other factors.

Similarly, the business models for smart community projects and initiatives are just starting to evolve. The smart communities’ business model may be a continuum from electric company infrastructure ownership to municipality owned infrastructure with varying degrees of hybrid models in the middle, consisting of partnerships and alliances with various third-party technology providers and/or businesses, universities, governmental agencies, NGOs, philanthropic organizations, and other interested parties. The electric company ownership model likely will include a combination of rate-based assets, unregulated business unit or affiliate assets, and performance-based regulation for smart community investments.

The main takeaway from workshop participants is that business model approaches are not well understood at this time and are evolving. The business models for discreet projects as components of a smart community, such as smart street lighting, smart transportation, smart buildings, distributed energy resources, and data, are in various stages of development as well.

Workshop participants embraced the premise that electric companies will be instrumental in the creation of business models that will enable smart community investment in a manner that is coordinated, economically feasible, and scalable.

Conclusion

Proactive and effective electric company engagement is foundational to the successful development of smart communities. The workshop explored the key elements of proactive and effective engagement, including managing innovation versus execution; identifying key stakeholders; articulating unique electric company value propositions; and evolving the business models to enable infrastructure investment to deliver the new products and services expected by communities and citizens.

The workshop participants explored the ways in which electric companies are uniquely positioned to advance smart community initiatives and projects at scale with reliability, security, cost-effectiveness, and focus on all customers. However, while smart community initiatives have been on going across the country to various degrees for several years, many workshop participants acknowledged that the conversation is in the early stages for many electric companies. They expressed a desire for continued discussion and collaboration among peers and across the stakeholder groups identified in the workshop.

To realize the transformational value promised by smart communities, electric companies must continue to collaborate with stakeholders to co-create new and innovative business models to deliver smart community initiatives at scale. This path forward creates an exciting opportunity for electric companies and communities to drive efficiencies, improve sustainability, spur economic development, and enhance the quality of life for customers and communities.

In the last decade, electric companies have made significant investments in grid modernization and smart infrastructure, including physical assets and digital capabilities. Going forward, the electric companies have a significant role to play in the design and implementation of smart community initiatives.

Electric companies must collaborate with stakeholders to co-create new and innovative business models to deliver smart community initiatives – an exciting opportunity for electric companies and communities to drive efficiencies, improve sustainability, spur economic development, and enhance the quality of life for customers and communities.

The **Edison Electric Institute** (EEI) is the association that represents all U.S. investor-owned electric companies. Our members provide electricity for about 220 million Americans, and operate in all 50 states and the District of Columbia. As a whole, the electric power industry supports more than 7 million jobs in communities across the United States. In addition to our U.S. members, EEI has more than 60 international electric companies with operations in more than 90 countries, as International Members, and hundreds of industry suppliers and related organizations as Associate Members.

Organized in 1933, EEI provides public policy leadership, strategic business intelligence, and essential conferences and forums.

For more information, visit our Web site at **www.eei.org**.



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