

Community Choice Aggregation: Progress & Promise

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Maria Fields

Vice President, Sales and Market
Development

Joule Assets Inc.

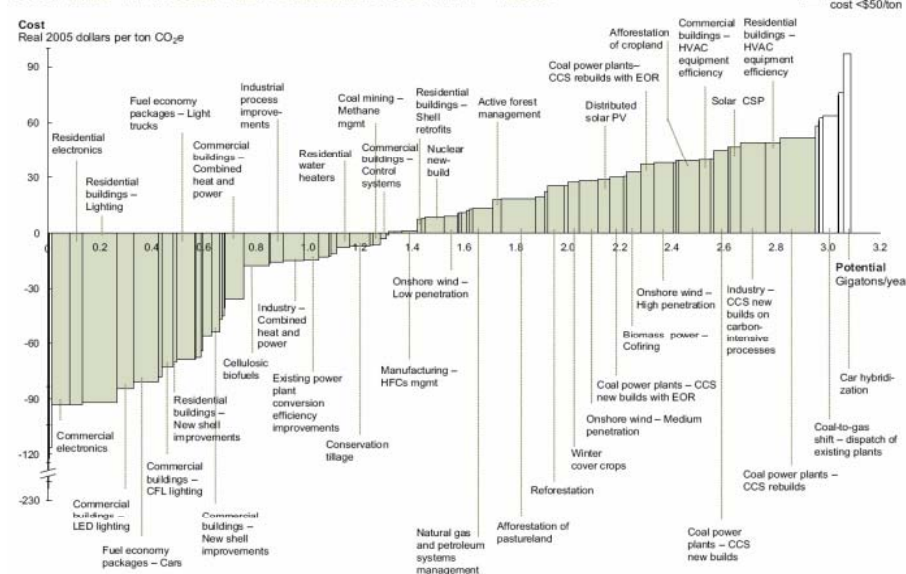




CCA - Progress and Promise

- 250+ municipalities adopted CCA, achieving energy cost savings up to 30%
- Original contracts up for renewal in 2013 and beyond – represents both a challenge and an opportunity
- CCA creates a market structure with potential for innovation
- Promise lies in unlocking hidden value:

U.S. MID-RANGE ABATEMENT CURVE – 2030



\$1.2 trillion in savings on investment of \$520 billion over 10 years.
Source: McKinsey

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Joule Assets creates Energy Reduction Assets by accessing value streams arising from the reduced use of traditional energy sources. We catalyze these markets, helping participants create and leverage returns on investment in demand response, energy efficiency, energy storage and distributed clean generation.



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Thought Leadership

- Joule's expertise enhances value for CCA participants:
 - Joule is lead by market pioneers – **Mike Gordon** and **Dennis Quinn**
 - Quantify, Value and Access ERAs
 - Expand ERA markets by creating innovative market designs
 - Microgrids
 - EE, REC markets
 - Community based energy efficiency and DR initiatives
 - “Energy Districts” with innovative locally-oriented energy policy



Joule Market Tools & Financing

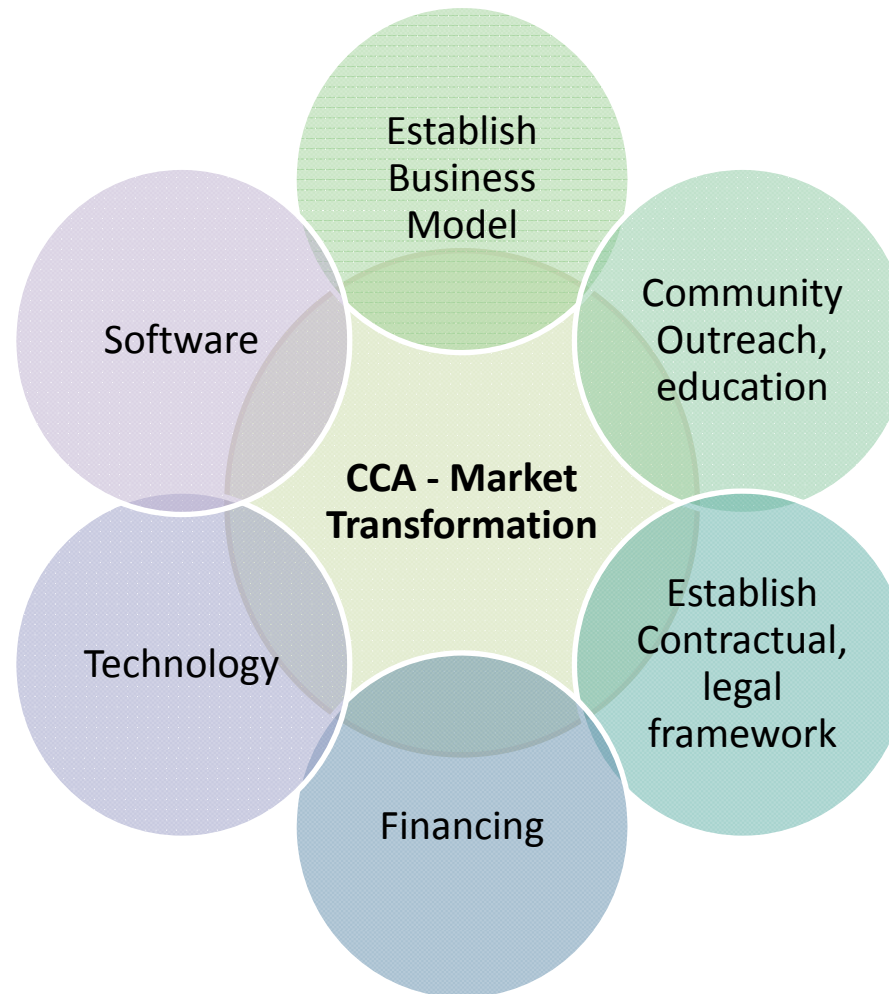
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- Easily accessible online tools to:
 - Quantify EE + DR asset value
 - Tailor a DR revenue notification/monetization software specifically for the CCA market
 - Connect consumers, service/product suppliers, and financiers through actionable tool pulling from query able database
- Joule's dedicates proprietary funds and creates innovative community based financing to access ERA value streams:
 - Community green fund
 - Crowdfunding
 - Standard offer for RECS, PDRs, EE credits



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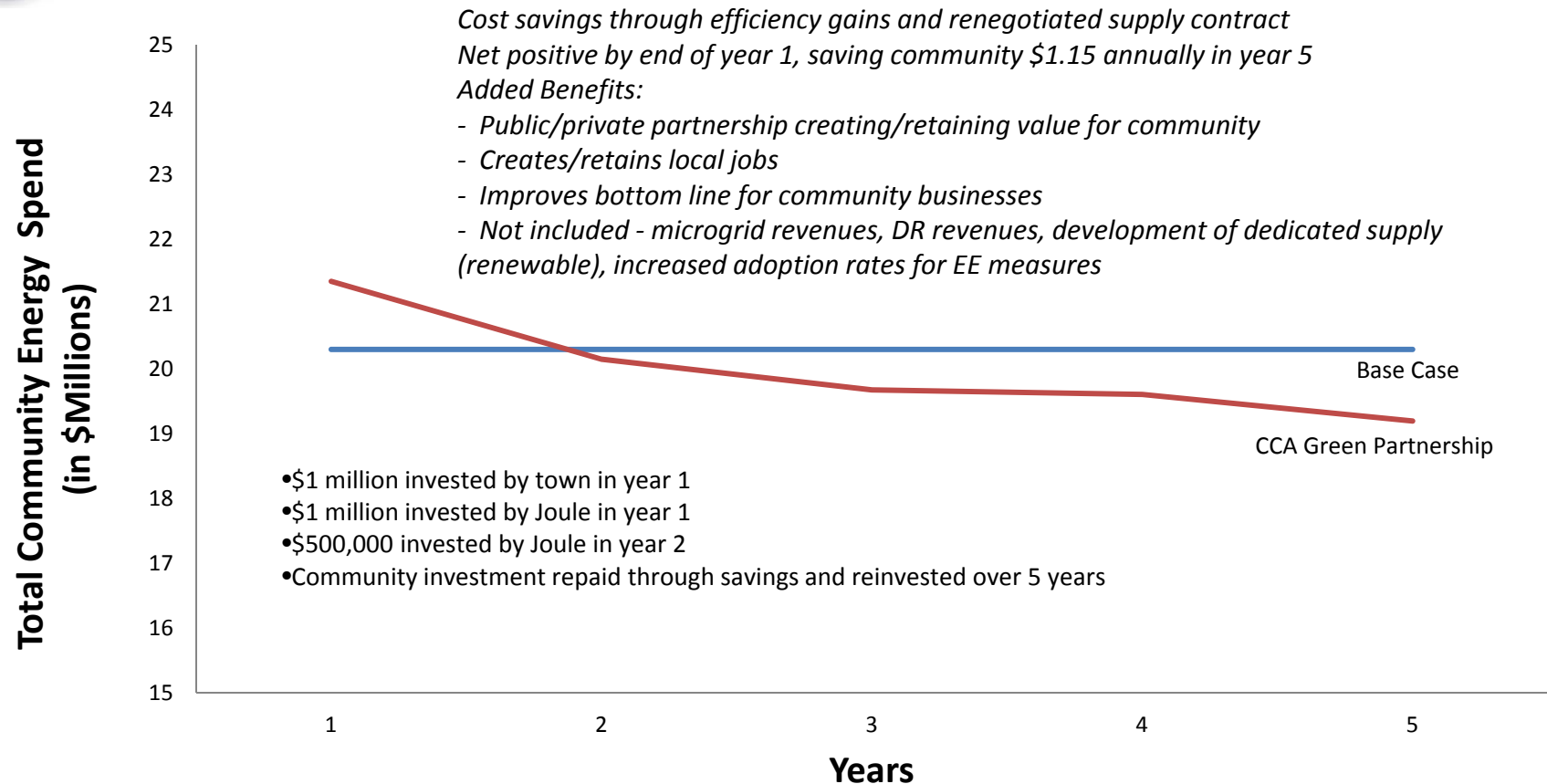
CCAs – Green Market Innovators





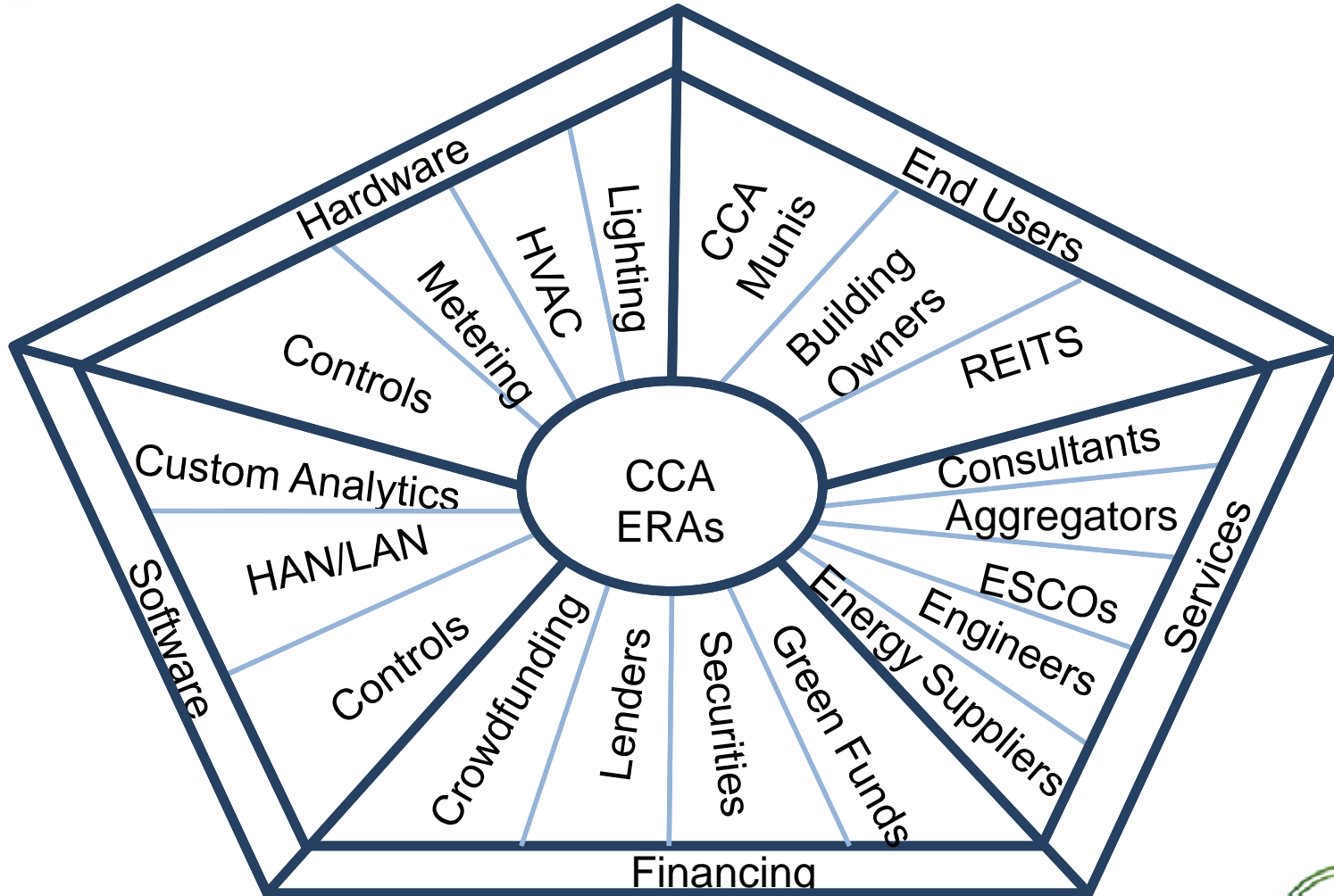
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Impact of CCA Green Partnership





Joule The CCA Economy - Market Map





Contact Information

Maria Fields

Vice President of Sales and Market
Development

mfields@jouleassets.com

(914) 977-3444 ext. 106

Joule Assets Inc.

2 Depot Plaza, Suite 402

Bedford Hills, NY 10507



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Supplement - ERA Opportunity: What you can do now

Example: Mid-Sized community – 50,000 residents, 40MW peak load

	Year 1	Year 2	Year 3	Simple Payback (yrs)
Energy Efficiency Savings (res)	\$96,000	\$115,344	\$134,568	5.2
Energy Efficiency Savings (C+I)	\$135,000	\$270,000	\$270,000	3
DR Revenue (Residential A/C Control)	\$132,000	\$132,000	\$132,000	N/A
DR Revenue (C+I controls)	\$281,400	\$449,500	\$464,300	2.5 years

Source: Lawrence Berkeley Lab, ComEd, PJM

Note:

Annual Consumption – 350 GWh, energy cost \$.058 per kWh

Green Fund created with \$.003 /kWh charge totaling \$1,000,000 supplemented with

50% spent on EE, 50% on DR - DR investment supplemented with \$500,000 of private investment



Supplement: Market Innovation The Power of Community

The CCA structure can make use of available value in creative ways:

Funding Sources:

- Crowd sourced – funding by and for community
- Revolving loan fund

Enhanced value streams

- Community savings on commodity price by shaving peak load

Market innovations

- Energy districts with locally-oriented energy policy
- Community solar
- Community supported DR (Microgrid) for example:

	Year 1	Year 2	Year 3	Total
Microgrid aggregation (PJM markets)	\$62,000	\$98,000	\$101,000	\$261,000
Individual (ComEd programs)	\$18,000	\$18,000	\$18,000	\$54,000

Note: assumes participation of 300 homes and 15 commercial customers of the 2000 on a typical 10MW feeder