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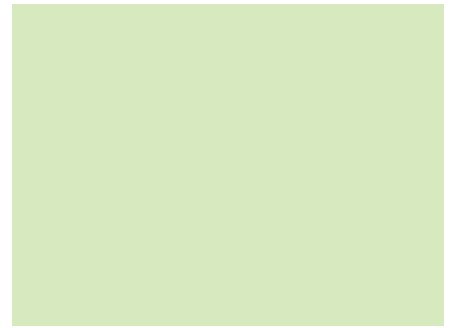
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Enhancing Cooperative Leadership and Entrepreneurship: Finding Competitive Advantage in Interstate Carbon Credit Markets

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Problem Statement



- EPA Clean Power Plan
- **Public Good:** Reduced Greenhouse Gas Emissions 32% from Electric Power Generation by 2030. Glide path starting (2022-2024).
- **Federated Policy Choice:** States Decide How to Supply Public Good (Plans Due Sept 2016, Extensions to 2018)
- **Selective Incentive Approach:** Interstate Carbon Credit Market- *Recommended (Excludability of Public Good: Defining and Developing Homogenous/Tradable Carbon Allowances/Credits)*
- **Coercive Policy Approach:** “State measures” (e.g. More Stringent Building Codes, Mandating Renewable Power Generation, Energy Efficiency Appliance Rules, Mandating Emissions at Affected Energy Generation Units)

“Ready Made Rules” for Interstate Trading



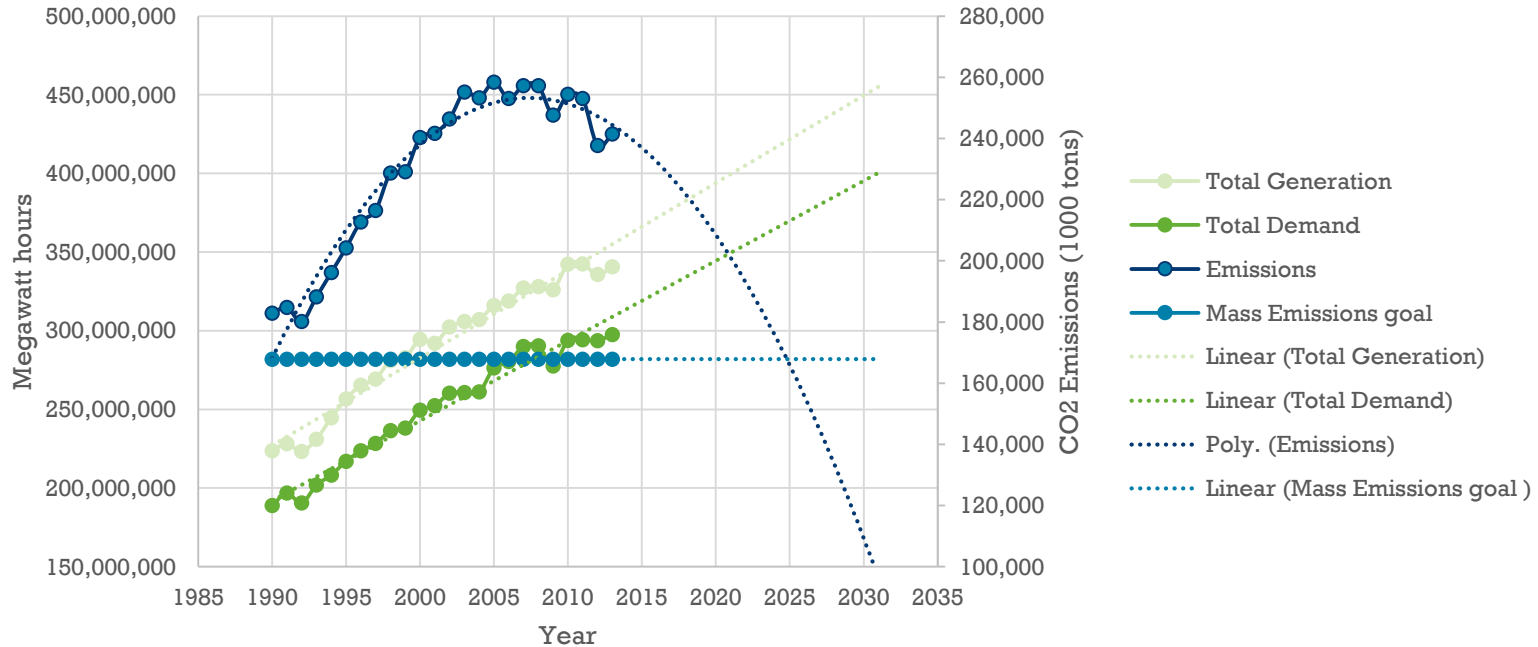
- **Rate Based (CO₂/ MWh)**
- **Emission Rate Credits (ERC):** (1 MWh/ with 0 CO₂)
 - Energy Reduction or Zero Carbon Energy Generation
 - ERCs administered by state regulatory body
 - EACH ERC adds 1MWh to denominator of state rate without adding any carbon emissions
- **Mass Based (CO₂ Tons Allowed)**
- Distribute **Allowances** to Affected Parties, or Auction Allowances
 - Allowances are tradable (Each unit allows 1 ton of CO₂ emission)
- Simple to Enforce and Easy to Define

Rate and Mass Goals-- %Change from 2012

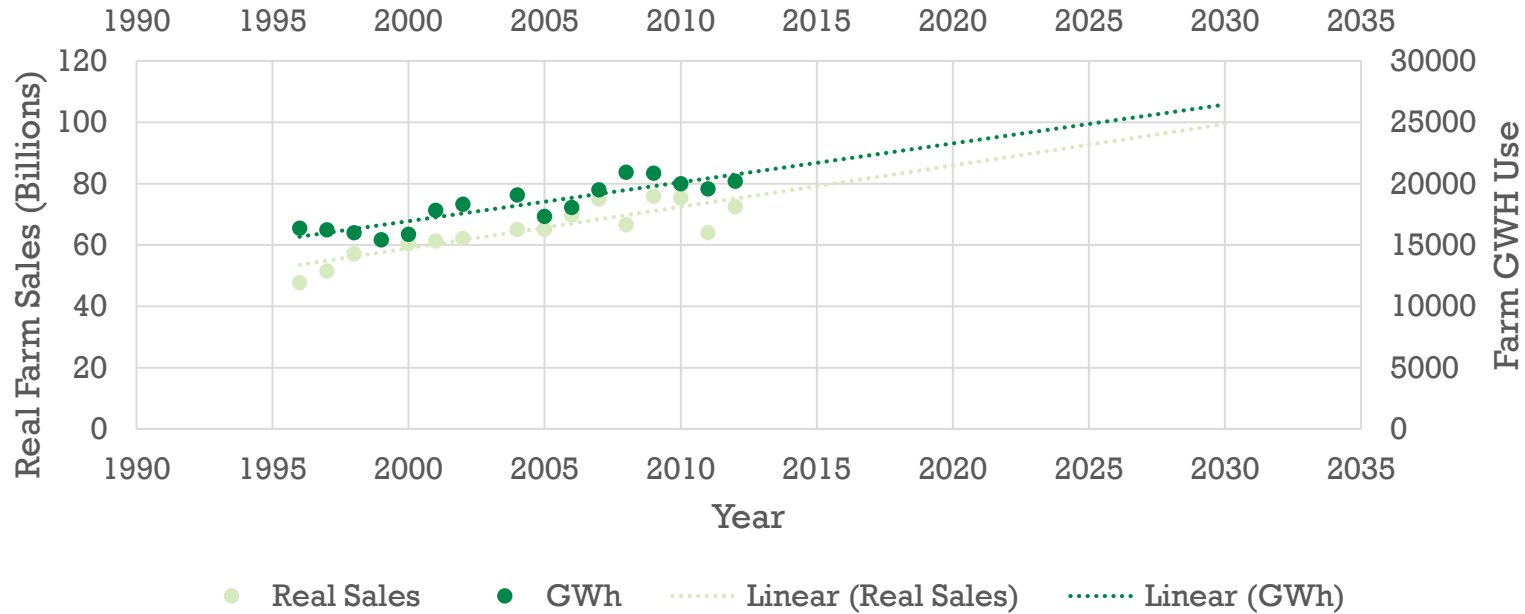
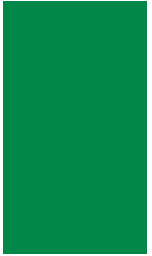


	Rate-2012	Rate-2024	Rate-2030	Rate Change	Mass-2012	Mass-2024	Mass-2030	Mass Change
South Dakota	2,229	1,400	1,167	-47.64%	3,184,962	4,045,000	3,539,481	11.13%
North Dakota	2,367	1,590	1,305	-44.87%	33,370,886	24,244,000	20,883,231	-37.42%
Minnesota	2,332	1,465	1,213	-47.98%	25,732,441	26,068,000	22,678,368	-11.87%
Wisconsin	2,515	1,413	1,176	-53.24%	37,938,966	32,025,000	27,986,988	-26.23%
Iowa	2,250	1,560	1,283	-42.98%	37,128,850	28,980,000	25,018,136	-32.62%
Missouri	2,388	1,545	1,272	-46.73%	75,879,841	64,169,000	55,462,884	-26.91%
Nebraska	2,353	1,579	1,296	-44.92%	26,894,699	21,194,000	18,272,738	-32.06%
Kansas	2,365	1,575	1,293	-45.33%	33,079,019	25,500,000	21,990,825	-33.52%

Electricity Generation, Demand, Emissions, and Mass Emissions Goal (SD, ND, MN, NE, IA, MO, KS)



- Avg. Farm Electricity Use is 4 X Avg. Household
- Every \$2,700 in real farm income growth increases farm electricity consumption 1 MWh (SD, ND, MN, NE, IA, MO, KS, WI)



State & Firm Managerial Dilemmas: Judgment in Best System of Emission Reduction



- Resistance and inaction- avoid compliance costs (EPA dictates)
- Coercion Policies, Selective Incentives
- **Incentivize Entrepreneurship for BSER**

Smart Grid:

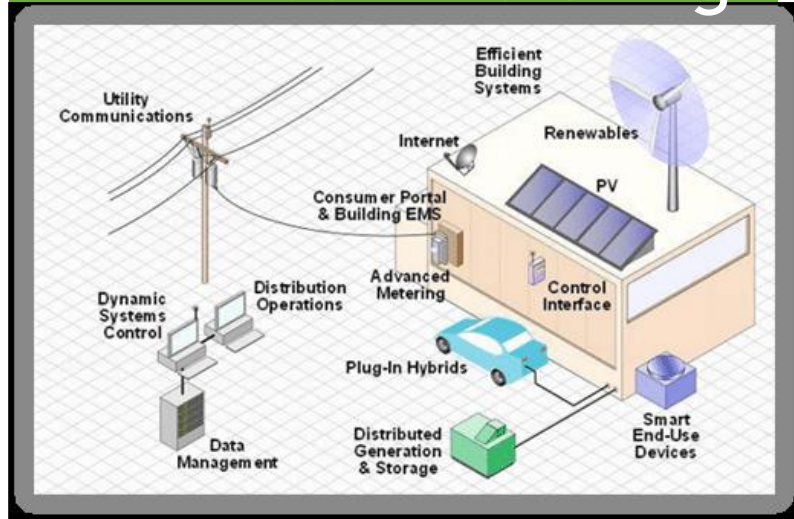
Electric Consumers **Passive** to **Active** Participants

Centralized Generation to more **Decentralized Generation**

Portable Biomass
Generator (150kwh)



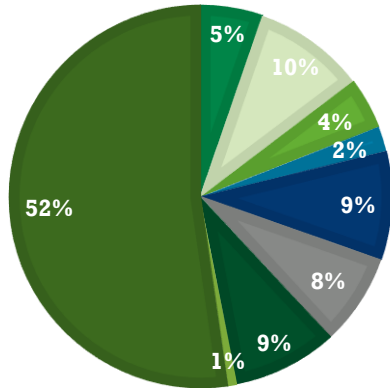
Smart Grid Concept
Advanced Metering



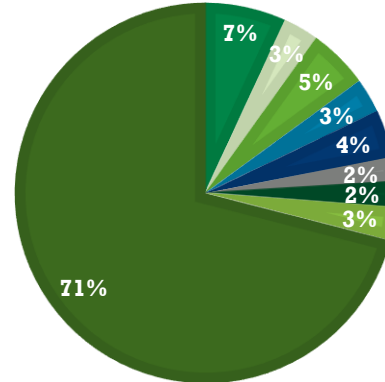
U.S. Renewable Energy Technical Potential



ONSHORE WIND (GWH)

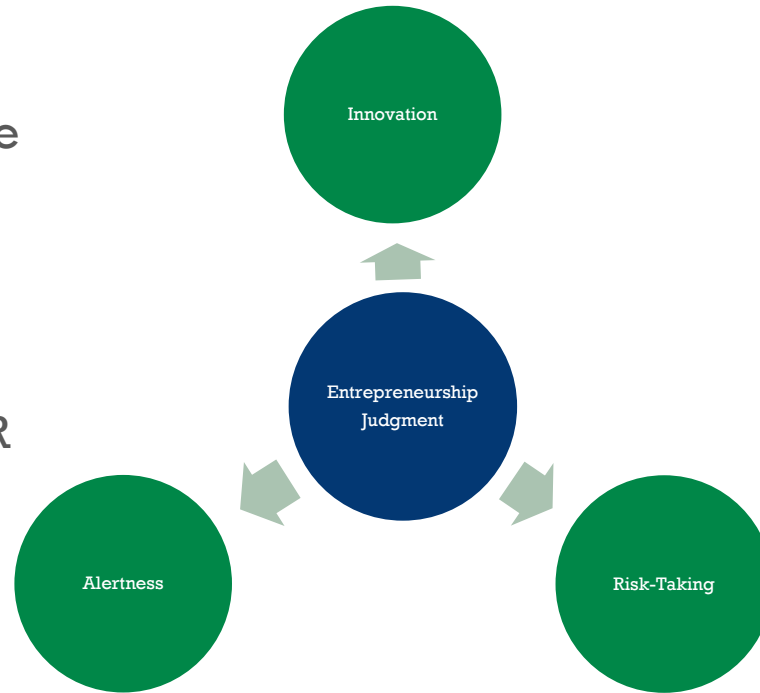


BIOPOWER-SOLID (GWH)



Entrepreneurship for BSER (Unknown Combination of Entrepreneurial Traits)

- **Innovation** (Schumpeter)
 - Value creation in Renewable Power Generation and Energy Efficiency
- **Alertness** (Kirzner)
 - Proactive to Capturing Selective Incentives to BSER
- **Risk-Taking** (Knight)
 - Uncertainty



Competitive Advantage in Market for BSER

■ Sole, Corporate, or Collective Entrepreneurship?

	Sole	Corporate (intra-firm)	Collective (inter-firm)
Innovation	Strictly Dominated Disadvantage in Overcoming Transaction Costs to System Innovation	Weakly Dominated Constrained Network For System Innovation or Coordinated Technology Adoption Through New Organization	Dominant Economize on Transaction Costs for System Innovation Through Markets: Social, Development, Political
Alertness	Dominant Acute Judgment and Efficiency in Being Proactive	Weakly Dominated Managers/ CEO Proactive With Greater Control Through Fiat	Strictly Dominated Collective Decision-Making Costs/ Diversity in Judgments/ Dispersion of Control Rights to be Proactive/ Autonomy
Risk- Taking	Strictly Dominated: Bear all the risk	Dominating when efficiency in risk-bearing is matched with loyal, motivated employees	Weakly Dominated when there is Not Readily Transferrable or Excludable Risk-Bearing to Non-Entrepreneurial Members
BSER	Strictly Dominated	Dominant	Weakly Dominated

The Cooperative Structures Changes to Enhance Collective Entrepreneurship

Traditional Cooperatives Organizations is Not Entrepreneurial

- Lack innovation and new value creation
 - Supply existing, undersupplied good or service
- Risk-Bearing in Probable Environment (Knowledge of WTP)
- Alert to Market Failure from Monopoly/Monopsony, not innovative value creation

New Generation Cooperatives can be Entrepreneurial

- Innovation and Value Creation from New Products or New Organizations that Coordinate Innovative Action
- Risk-Bearing In Uncertainty
- Alert to Opportunities, and Proactive to Capture Value

Cooperative Leadership Changes to Enhance Collective Entrepreneurship



Traditional Cooperatives Leaders are Not Entrepreneurial

- Governance and Management focus on cost savings, equity allocation/redemption, and expansion to provide known, undersupplied goods and services
- Risk Bearing- claims to allocated equity
- Alert to Market Failure from Monopoly/Monopsony

New Cooperative Leaders can be Entrepreneurial

- Governance and Management Focus on Encouraging innovative products, organization, and future value streams
- Risk-Bearing of Firm Value and Future Rent Streams
- Alert to opportunities, and Proactive to Capture Value

Research and Extension Efforts: Can Cooperative Action Sustain a Competitive Advantage for BSER?



1. Enhance Cooperative Entrepreneurship and Leadership To Sustain Competitive Advantage
 1. Changes Structurally
 2. Changes in Leadership (Alertness, Risk-Taking, and Innovation)
 3. Acute Judgment
2. Identify Collective Entrepreneurship Opportunities Because of a Changing Regulatory Environment
3. Provide Feasibility Research to Bring Greater Knowledge and Reduce Uncertainty