# Ames Climate Action Plan: Business Sector Implications

ERIC ABRAMS –DUCK WORTH WEARING, THE LOFT

CHRIS ANDERSON – RENEWABLE ENERGY GROUP

JON BANWART – COOKIES, ETC.

KRISTIN DILLAVOU – RENEWABLE ENERGY GROUP

LATIFAH FAISAL – STORY COUNTY SUPERVISOR

# Outline

- Business participation and request
- Ames sustainability journey
- Climate Action Plan overview and process
- Greenhouse gas emissions baseline and future state (Business-As-Usual)
- Proposed options for target setting
- Upcoming federal reduction support programs
- Impact to businesses
- Questions, comments and requested input

# Business Participation and Request

- City of Ames undergoing Climate Action Plan (CAP) process to set targets and build roadmap for community greenhouse gas (GHG) reduction efforts
- As significant community stakeholders, critical that business sector inform effort
- Webinar is designed to provide synthesized overview of project
- Looking for your input:
  - Consider how CAP may impact your business
  - Share feedback with Supplemental Input Committee members
  - Submit questions or comments to project team at sustainability@cityofames.org

# Ames' Sustainability Journey

- Our community has been working to ensure sustainability for years; some past efforts include:

### Established Leadership and Commitment

- Sustainability is built into the Mayor and City Council annual goals
- >10 years ago, Mayor signed U.S. Mayor's Climate Protection Agreement, which commits community to better metric tracking
- >10 years, Ames and ISU have shared a Director of Sustainability to guide collaborative sustainability efforts

### Sustainable Power Production

- >40 years ago, first city to operate municipal waste-to-energy facility
- 2016 Ames Power Plant converted from coal to cleaner burning natural gas (40% carbon reduction)
- Built community-supported solar farm
- Purchase power generated by Iowa wind farm

### Investment in Sustainable Transportation

- Ongoing support and expansion of CyRide, including hybrid and electric buses
- Use of biofuels, including high blend technology, in city fleet
- Creation of community electric vehicle charging stations

### Improved Resource Recycling and Recovery

- Glass recycling and other efforts to keep harmful or recyclable materials in proper waste stream and out of landfill
- Community composting
- Rummage RAMPage streamlines unwanted material donation and repurposing

### Additional

- Incentivizing community participation through rebates for energy and water conservation
- 2020 Greenhouse Gas (GHG) Inventory completed for community emissions

- In 2019, City Council hired consultant to assist in developing a CAP to assist community with GHG reduction planning as another step towards responsible stewardship and community planning

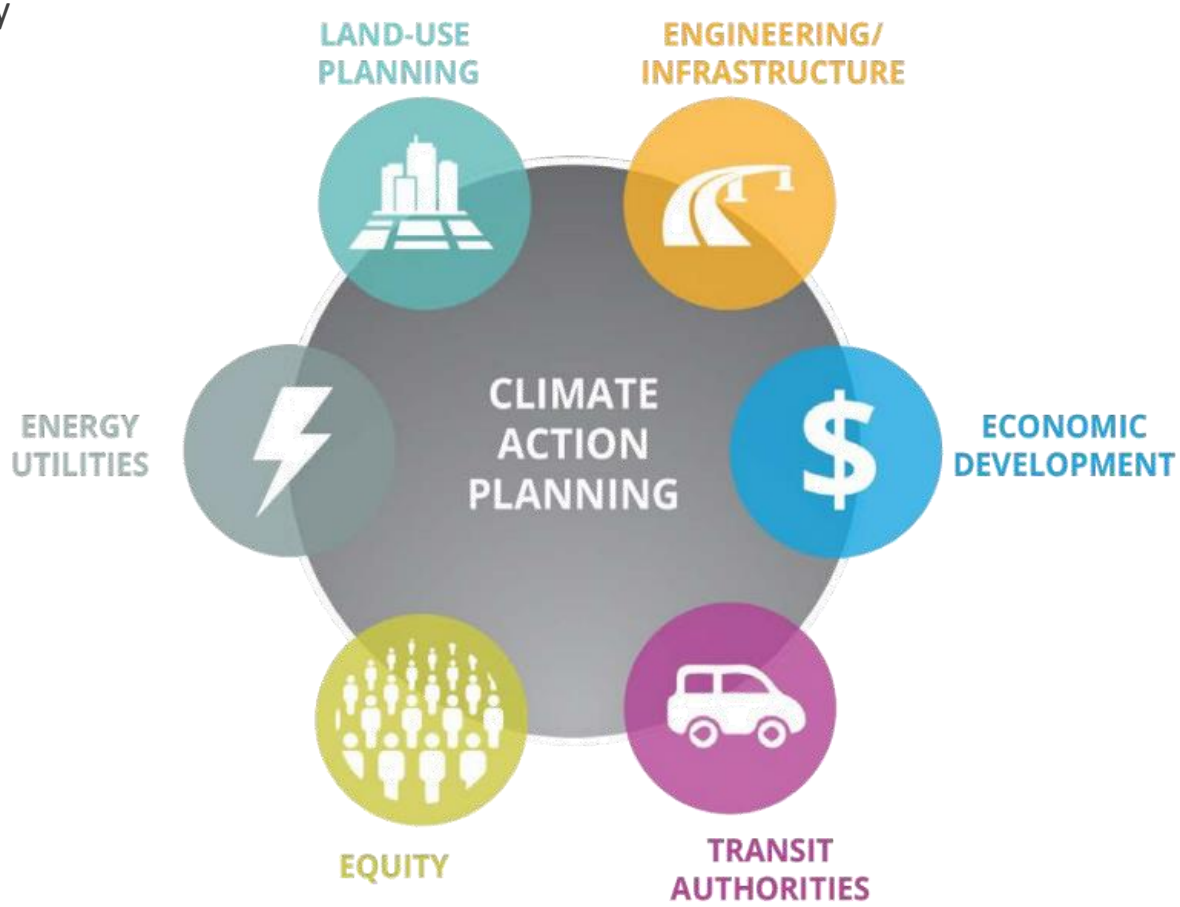
# Climate Action Plan (CAP) Overview

It IS:

- An explicit indication to a variety of stakeholders regarding community values and commitment to GHG reduction
  - May stimulate and attract new clean energy and sustainability-focused business development
- A framework that outlines guiding principles
  - Identification of key considerations and objectives relevant to the community
- An action plan to reduce GHG emissions aligned with principles
  - Supportive of community well-being and economic growth
  - Exploration of renewable solutions compatible with other community considerations
  - Enables alignment of community planning processes and activities with GHG emission reduction targets
- Intended to be relevant for the duration of the plan timeline and should not fluctuate based on political changes

It is NOT:

- Binding - it will not impose:
  - Enforceable regulations
  - Budgetary commitments
  - Zoning changes
  - Fuel use mandates



# Participants

- Process designed to engage stakeholders across community throughout entirety of process
- Formal project roles include:

**Steering Committee**
(City Council)
Decision-making

**Consultant**
(Sustainability Solutions Group)
Technical expertise, facilitation, strategic guidance, recommendations

**Technical Advisory Committee**
(Key City Staff)
Project management, guidance / input, data sharing
sustainability@cityofames.org

**Supplemental Input Committee (SIC)**
(Representatives from key community stakeholder group selected through application process)
Outreach / engagement, solicit feedback

SIC business sector representatives:

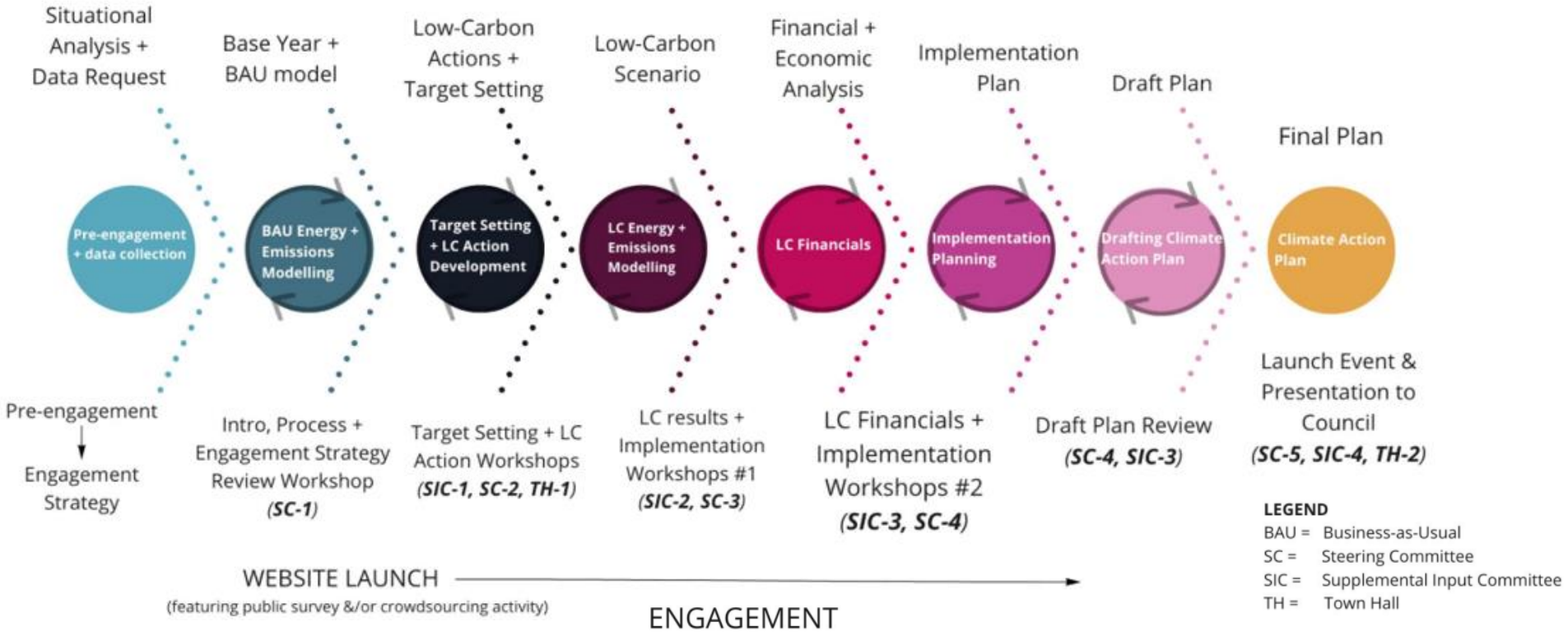
Eric Abrams
Duck Worth Wearing / The Loft
515-450-9738
ericjabrams@gmail.com

Jon Banwart
Cookies, Etc.
515-231-8747
Jon@cookies-etc.com

Kristin Dillavou
Renewable Energy Group
515-460-2348
Kristin.Dillavou@regi.com

# Process and Timeline

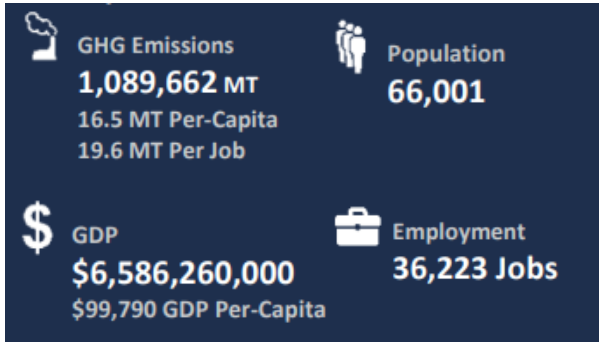
- 18 month process; expected completion in fall 2022
- Specific actions and dates subject to change based on decisions and feedback throughout process
- Typical task progression:



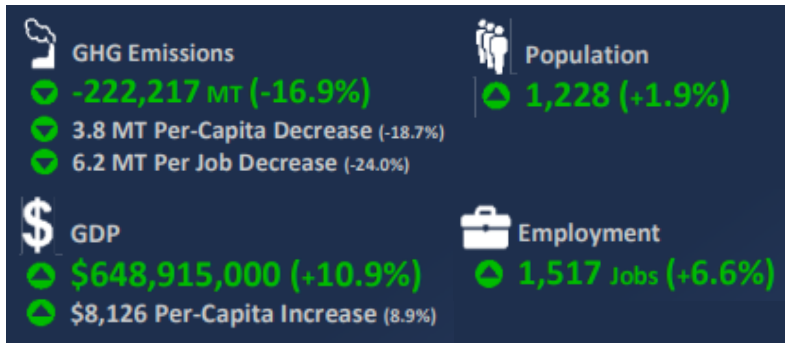
# GHG Emissions Inventory: 2018

- Consultant completed GHG emissions inventory in 2020 using 2018 data; serves as baseline for CAP process[1]
- GHG emissions inventory includes measured and assumed emissions from building energy consumption, transportation, solid waste and waste/waste water
- Emissions reduction trend , despite growing population, largely due to transition from coal use to natural gas
- Per capita emissions allow for cross-community comparison; methodology causes some variation in data
  - Ames is on par or better than many other U.S. communities
  - Global trends show disproportionate per capita emissions from developed countries, while some developing countries dominate emissions growth rate increases

## 2018 Numbers




## Five-Year Trend (2014-2018)




**Community Comparison Data**

*Per-capita (MT)*

**Ames 16.5**

| | |
|---|---|
| Iowa - Average | 24.99 |
| Des Moines | 11.45 |
| Iowa City | 17.68 |
| Dubuque | 14.05 |

| | |
|---|---|
| College Towns - Average | 16.92 |
| Ann Arbor, MI | 19.15 |
| Lawrence, KS | 14.8 |
| Urbana, IL | 11.59 |

| | |
|---|---|
| Regional, similar size – Average | 14.65 |
| Bloomington, IN | 19.29 |
| Burnsville, MN | 12.5 |
| Eau Claire, WI | 13.68 |

| | |
|---|---|
| Countries[2] | |
| United States | 16.56 |
| Germany | 9.12 |
| Indonesia | 2.3 |
| India | 1.96 |

Notes:
1. Full GHG Inventory report accessible on city website
2. Sourced from Union of Concerned Scientists

# Inventory Used to Establish Baseline

- Business-As-Usual scenario models projected future emissions using baseline data and assumptions based on estimated population growth, expected community planning and likely federal electric vehicle (EV) targets[1,2]
- Steering Committee may select alternative baseline year (2005 referenced in two proposed targets)
  - Application of additional assumptions required to arrive at emissions figure since data not available

**Expected Growth 2018-2050**

- 87,800 population (33% growth)
- 52,200 jobs (44% growth)
- 23% growth in households
- 24% growth in vehicles

**Total Annual Emissions**

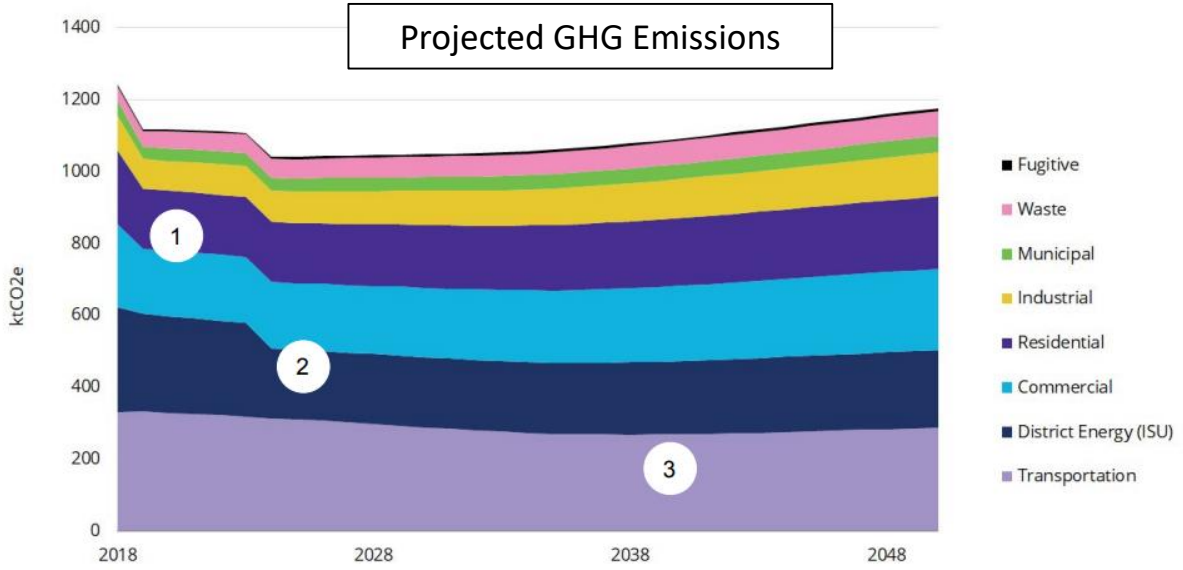
~1,240,000 MT CO2e in 2018[1]

reduces to

~1,180,000 MT CO2e in 2050

- ISU conversion from coal
- Transition to EVs

**Projected GHG Emissions**




Notes:
1. Additional information available on project website
2. Some adjustments made to baseline to allow for consistent modeling

# Proposed Scenarios

*Least Ambitious* ⟷ *Most Ambitious*

*Alternative Approach*

## Science – Based Target

Overview:
- 45% reduction [over 2005 levels[1]] by 2030 and net-zero by 2050
- Actions and costs to be determined after selection or target

Benefits:
- Alignment with international standards
- Similar to other jurisdictions
- Some realization of energy savings and reduced retrofitting costs

Challenges:
- Does not address global equity concerns
- Does not align with most recent science on necessary reductions
- Some costs associated with early adopter infrastructure investment will occur

## U.S. Federal Target Alignment

Overview:
- 50-52% reduction [over 2005 levels[1]] by 2030 and net-zero by 2050
- Actions and costs to be determined after selection or target

Benefits:
- Aligned with international standards
- Similar target to other jurisdictions
- Faster realization of energy savings and reduced retrofitting costs

Challenges:
- Does not address global equity concerns
- Does not align with most recent science on necessary reductions
- Some costs associated with early adopter infrastructure investment will occur

## Science – Based Target

Carbon Budget + Fair-Share Approach

Overview:
- 83% reduction over 2018 levels by 2030 and net-zero by 2050
- Reduction determined by global reduction need and community contribution
- Actions and costs to be determined after selection or target

Benefits:
- Alignment with international standards
- Aligns with most recent science
- Fastest realization of energy savings and reduced retrofitting costs
- Fastest achievement of GHG reductions and other local co-benefits (clean air, connected community)

Challenges:
- Potential resistance due to speed and extent of change

## Evidence-Based Approach

Overview:
- Start with exploration of various actions and costs to work towards reduction target

Benefits:
- Allows local government to focus on areas within control
- May be met with less resistance due to local customization

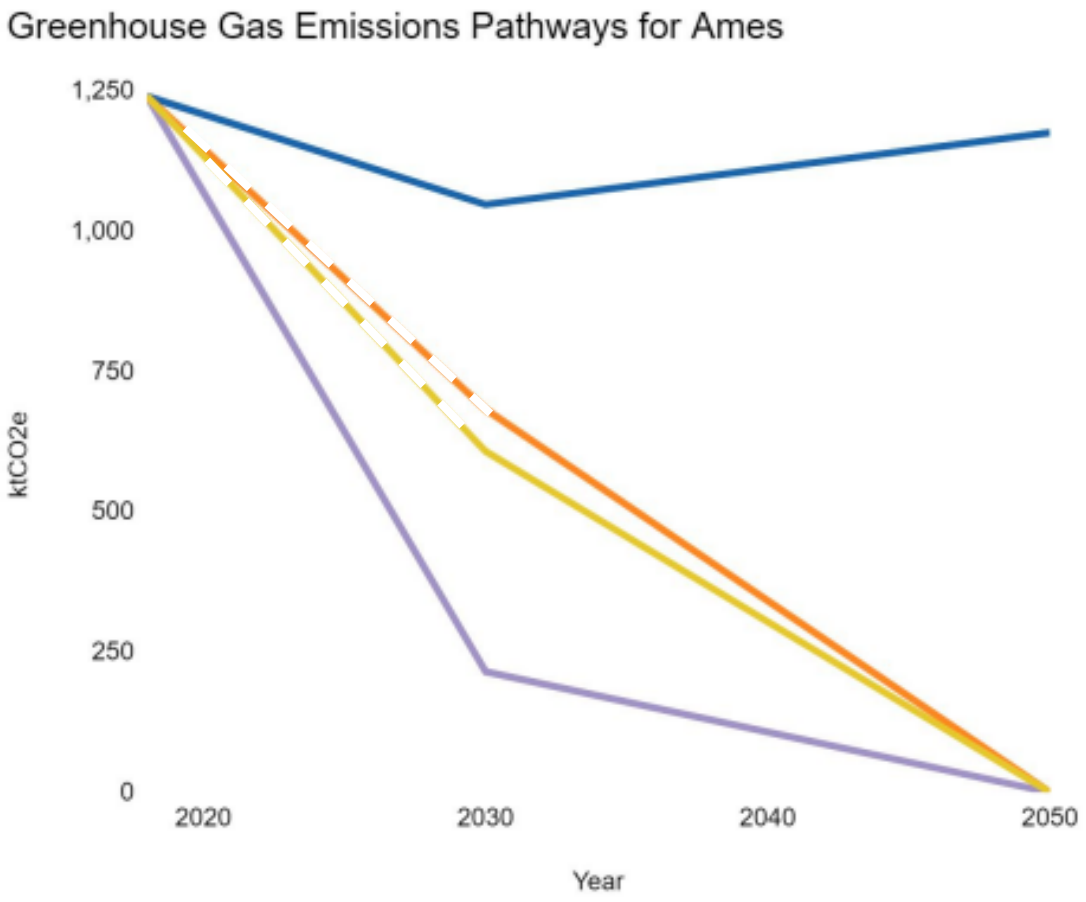
Challenges:
- Final reduction target unclear and risks not aligning with international standards, scientific evidence, or global equity concerns

All scenarios likely include:
- Significant up-front capital costs
- Challenging systems-level changes
- Extensive behavior change
- Ongoing political will

*Steering Committee could also select a variation of these proposals (e.g. Science-based target reduction percentage but alternative baseline year)*

Notes:
1. 2005 baseline yet to be established

# Scenario Overview




- Three proposed scenarios result in net-zero emissions by 2050; intermediate reductions vary
- All four scenarios include:
  - GHG reductions to address climate change
  - Significant up-front capital costs
  - Some costly infrastructure lock-in
  - Challenging systems-level changes
  - Extensive behavior change
  - Ongoing political will

***Evidence-based not shown because it needs to be modeled first**

- Business as Usual
- Science-based target - general
- Science-based - fair share approach
- Federal target aligned

# Government Programs to Drive Reduction

*With technology advancements and future policy implementation, ability to access and implement low carbon solutions is rapidly evolving.*

| Federal Incentives | Ames Climate Action Plan Implication | How It Could Help |
|---|---|---|
| *$18.5B EV network, electric buses, diesel bus retrofit;* $960m biofuel blending | Transportation emissions reduction | Increase charging locations in Ames, reduce CyRide and ACSD bus emissions |
| *$3B Battery manufacturing and processing* | Transportation emissions reduction | More batteries for EV vehicles; Ames jobs? |
| EV, PHEV purchase credit, new and used | Transportation emissions reduction | Increase number of EV cars, trucks |
| Biodiesel, EV, and sustainable aviation fuel production tax credit | Transportation emissions reduction | Increase low carbon fuel available |
| Renewable Energy Production and Investment tax credit; Clean hydrogen production 10-yr credit; Clean energy credit 2027 – 2036 | Electricity generation emissions reduction | Increase installed capacity of wind, solar, biogas electricity generation and storage |
| *$0.75B Adv. Energy Manufacturing grant;* Adv. Energy Manufacturing Credit | Electricity generation components | Reduce manufacturing cost; Ames jobs? |
| *$0.5B Low income;* $5.9B home energy savings; $2.2B hi efficiency electric home; energy efficient building tax deduction; energy efficient new home credit | Home electricity and energy efficiency | Reduce cost of efficiency and electricity for homes |

*Italics* indicate programs already signed into law. Regular font indicates program within Build Back Better Act.

# Implications to Business Sector

- Climate change poses risks and opportunities for businesses
  - Doing nothing results in physical and transitional challenges and costs
  - Doing something requires behavior and operational changes and commitment of resources
- Important to consider impacts across value chain (e.g. energy use, water use, waste, delivery vehicles, employee transit)
- Variety of levers that community can use to achieve results
- Examples of potential climate change actions:
  - Renewable energy production
  - Building energy efficiency
  - Energy efficient appliances / assets
  - Different transportation modes: EVs, biofuels, mass transit, walking, traffic patterns
  - Waste reduction and proper waste disposal: ban single-use plastics, recycling and composting programs
  - Water conservation: water efficient fixtures, rainwater harvesting, water-wise landscaping (xeriscape)

# Other Community Climate Action Plans

- Many other communities have adopted CAPs, which provide helpful examples
  - Iowa City
  - Des Moines
  - Lawrence, KS
  - Bloomington, IN
  - Sioux Falls, SD
  - Houston, TX
- Excerpts:

## Bloomington, IN

**Strategy CE 2-B:**

**Support Climate Economy economic development and new business creation.**

| | |
|---|---|
| CE2-B-1 | Establish a Clean Energy business incubator to support the establishment of innovative energy efficiency and renewable energy business models within the community. Explore incorporation with the Ivy Tech Community College. |
| CE2-B-5 | Focus business development efforts on businesses that have lower impacts on natural resources. Example: Trades District Technology Center. |
| CE2-B-7 | Establish a policy to prioritize use of local businesses for City financed energy efficiency and renewable energy projects, with special consideration given to businesses owned by women and minorities. |
| CE2-B-9 | Work with community businesses to explore the creation of an incentivized "buy local" campaign to enhance resilience of small local businesses. |

## Iowa City, IA

TAKING ACTION: BUILDINGS

Targets:

- Existing buildings: Retrofit 10% of all buildings by 2025 and 90% by 2050
- New Buildings: Achieve 45%-48% energy savings in new buildings due to code enforcement by 2025 and 80% energy savings by 2050 due to code enforcement and phased-in approach to net zero energy policies
- Renewable energy: Transition 3% of buildings with natural gas to high efficiency electrical heat, powered through low-carbon electricity sources by 2025 and 35% by 2050

**1.2 Increase Energy Efficiency in Businesses**

**1.3 Increase Energy Efficiency in New Buildings**

**1.4 Increase On-Site Renewable Energy Systems and Electrification**

# Requested Input

- Supplemental Input Committee representatives tasked with soliciting feedback on two questions:
  - What is important to consider when setting a greenhouse gas emissions reduction target for the community?
  - What are your desired outcomes from the CAP plan and what does Ames look like when the plan is implemented?
- Other questions or comments

SIC business sector representatives:


Eric Abrams
Duck Worth Wearing / The Loft
515-450-9738
ericjabrams@gmail.com

Jon Banwart
Cookies, Etc.
515-231-8747
Jon@cookies-etc.com

Kristin Dillavou
Renewable Energy Group
515-460-2348
Kristin.Dillavou@regi.com