September 28, 2021

COUNCIL ON CLIMATE SOLUTIONS

Council Discussion:
Recommendations of the Buildings and Housing Workgroup

Agenda

3:00 p.m. – Welcome, Attendance, Business

3:15 p.m. – Overview by Workgroup Co-Chairs

3:25 p.m. – Introduction to Discussion by GPI

3:30 p.m. – Council Discussion of Recommendations

4:55 p.m. – Next Steps

Welcome, Attendance, Business

- Attendance
- Approval of today’s agenda
- Approval of 8/24 minutes
- Approval of special and rescheduled meeting dates
- News
- Timeline

Special or Rescheduled Council on Climate Solutions Meeting Dates

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Tues., Oct. 19, 1-3 p.m.

Mon., Nov. 1, 1-3 p.m.

Tues., Dec. 14, 3-5 p.m.

Council on Climate Solutions

Proposed Timeline Through Year End

- **September 28, 3-5 p.m.** – Review Buildings and Housing workgroup recommendations
- **October 19, 1-3 p.m.** – Review Transportation and Mobility workgroup recommendations
- **October 26, 3-5 p.m.** – Review Energy Production workgroup recommendations
- **November 1, 1-3 p.m.** – Review Energy Intensive Industry workgroup recommendations
- **November 23** – Review Natural Working Lands workgroup recommendations
- **(Proposed) Between Nov. 29 and Dec. 3** – Potential additional meeting for further discussion of recommendations.
- **December 14, 3-5 p.m.** (instead of regularly scheduled meeting on 12/28) – Review outline of draft plan, year-end status report for the Governor

Council on Climate Solutions

Proposed Timeline 2022

- **(Proposed) Early January** – Discuss draft plan to be released for public comment
- **January 14, 2022** – Release draft plan for public comment – 28 days
- **(Proposed) Early March** – Discuss public comment received
- **March 14, 2022** – Final plan delivered to Governor

Workgroups

- Buildings and Housing:
  - 13 meetings held, with an average of 66 attendees
- Energy Intensive Industries:
  - 10 meetings held, with an average of 43 attendees
- Energy Production, Transmission, Distribution and Storage:
  - 13 meetings held, with an average of 87 attendees
- NWL & Forest Products:
  - 10 meetings held, with an average of 44 attendees; one meeting remaining on 10/12
- Transportation and Mobility:
  - 7 meetings held, with an average of 57 attendees

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What needs to happen in the next 9 years – by 2030 – to get us to the 2050 goal?

In seeking to answer this key question, the workgroups were asked to consider the following sub-questions:

1. In what timeframe is each recommendation achievable?

2. What is the relative magnitude of each recommendation, in terms of GHG emissions reductions?

3. Who is bearing the benefits and burdens of the recommendation?

4. What are the relative costs of each recommendation?

5. To whom is the recommendation targeted?

6. Is there consensus among the subgroup for the recommendation, or are there differing perspectives? If differing perspectives, what are they?

7. What are the most important considerations for achievability and feasibility?

General Workgroup Process

Phase 1

Level-setting/Exploratory Meetings

- Develop a baseline understanding for their topical area of current carbon emissions levels, opportunities, barriers and strategies for reducing emissions, and equity and workforce considerations

Phase 2

Deliberation and decision-making meetings

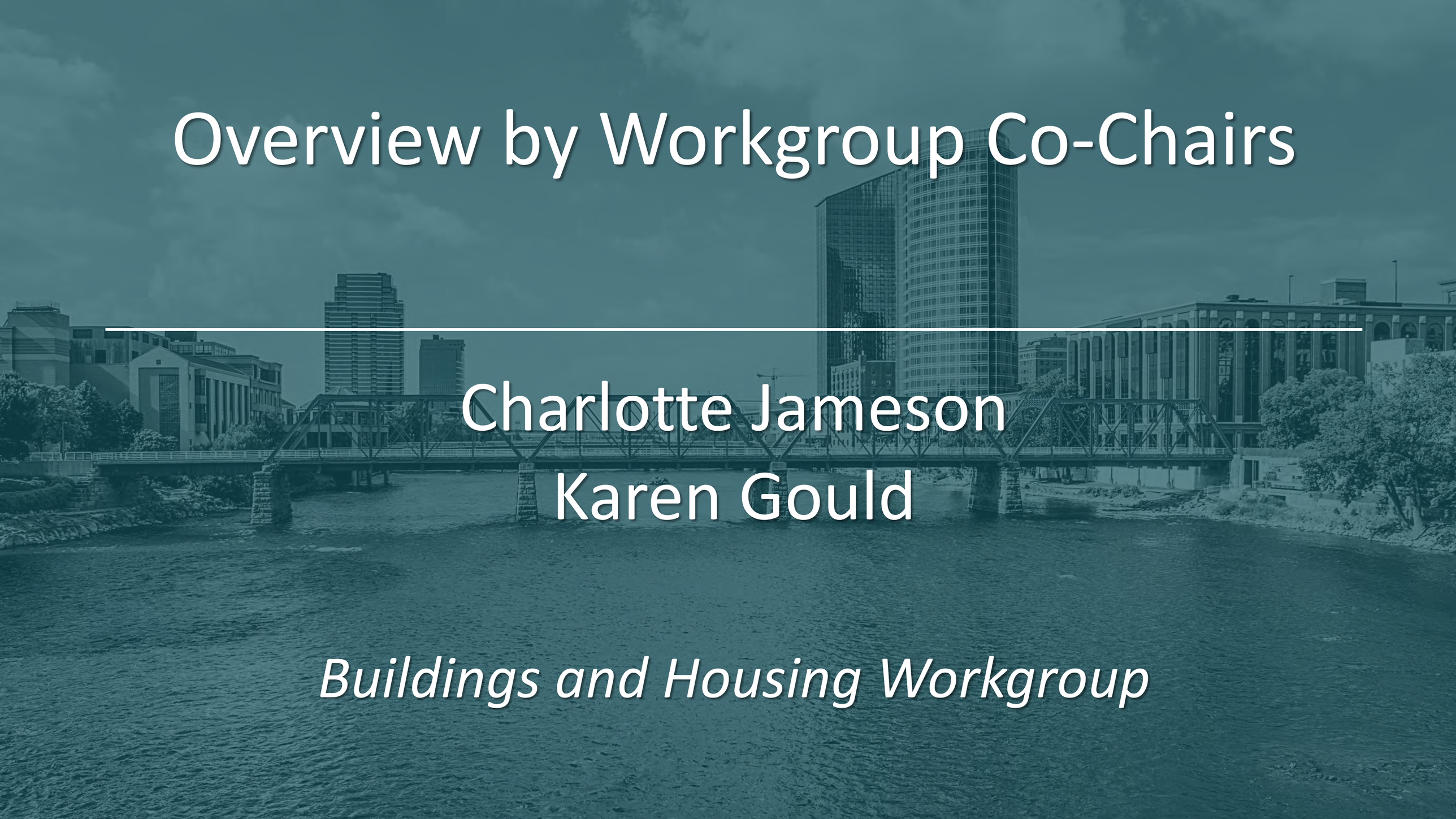
- Grounded in the phase 1 presentations, discuss decarbonization strategies in consideration of the seven sub-questions from previous slide
- Begin drafting recommendations

Phase 3

Review and refine recommendations

- Refine draft recommendations, identify gaps, identify where consensus exists
- Package list of recommendations to present to the Council

Overview by Workgroup Co-Chairs



Charlotte Jameson
Karen Gould

Buildings and Housing Workgroup

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Council on Climate Solutions Buildings and Housing Workgroup

CHARLOTTE JAMESON, MICHIGAN ENVIRONMENTAL COUNCIL
KAREN GOULD, MICHIGAN PUBLIC SERVICE COMMISSION

SEPTEMBER 28, 2021

Stakeholder Process

- Held 13 stakeholder meetings
- Presentations from Regional and National Experts
- Solicited comments, recommendations and input
- Created outline of recommendations
  - Reviewed outline during final stakeholder meetings
- Requested final input from stakeholder group on all recommendations, areas of concerns and draft templates

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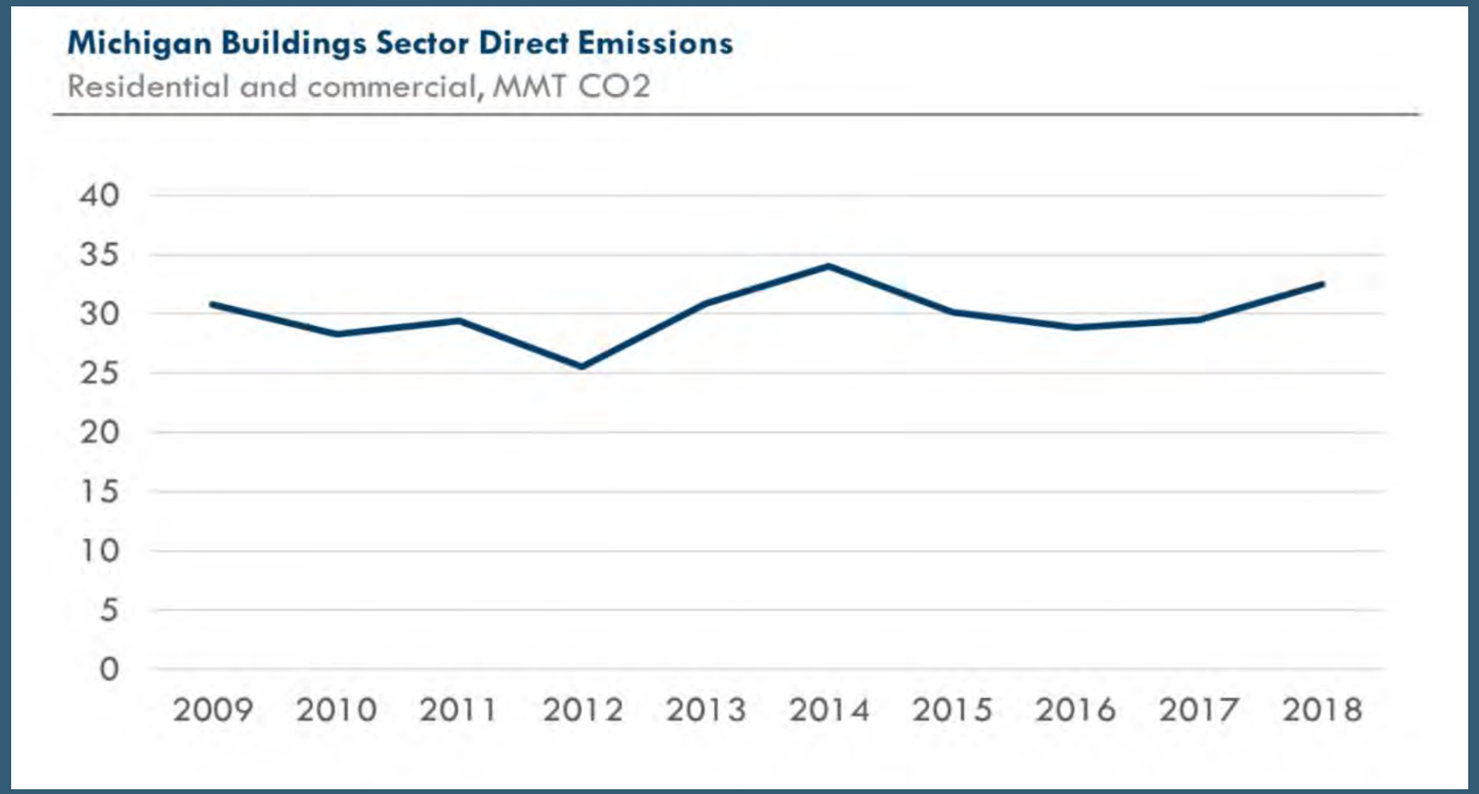
Building GHG Emissions- Michigan



Michigan building sector emissions have been flat to increasing for a decade.

Source: EIA data; graph compiled by RMI

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RMI Michigan Building Decarbonization Analysis

Buildings Overview

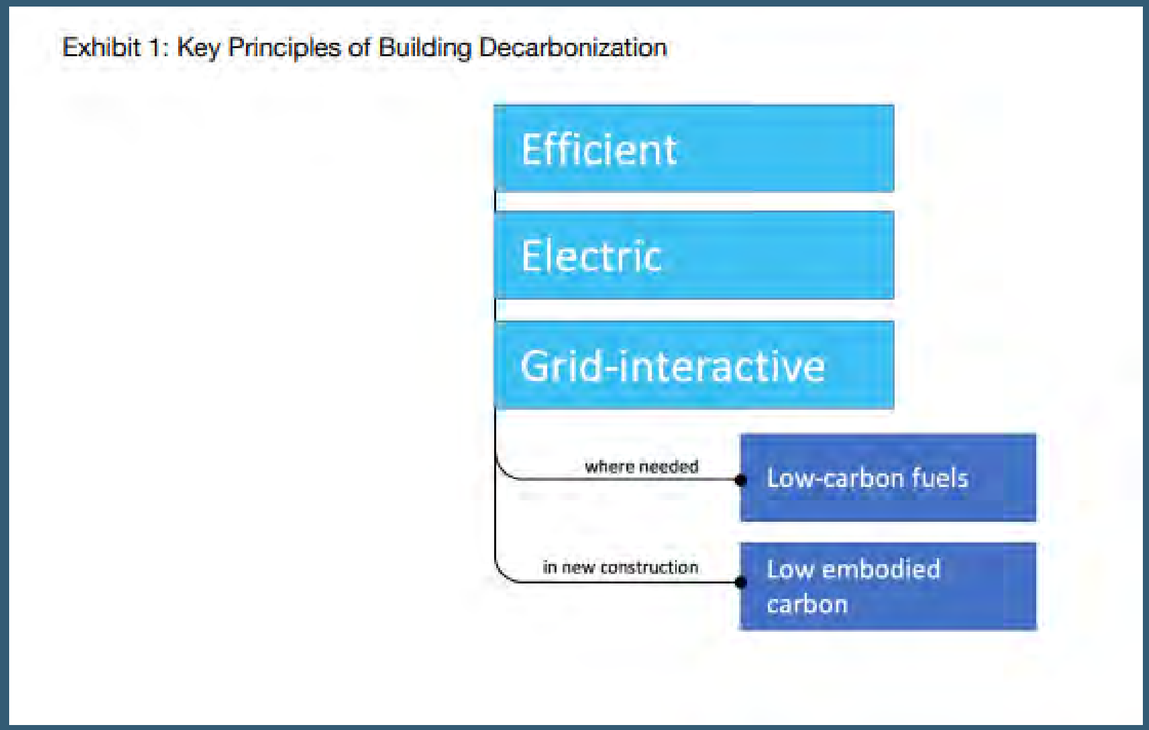
To achieve emissions goals in line with 1.5C targets, by 2030:

1. 0 new gas customers or distribution lines
2. 100% of new homes should be heated by electricity
3. At least 50% of existing fossil buildings retrofitted to be heated by electricity
4. At least 80% of appliance sales are all-electric by 2030

By 2030, Michigan must reduce emissions from direct fuel use in buildings by 50% relative to 2005 levels

Data sources: Historical and BAU emissions data from 2017 EPA Inventory. This includes direct fuel use in buildings, eg gas, propane, and heating oil. Electricity use in buildings is included under the electricity sector goals. Target emissions are based on a wide literature review conducted by RMI on national deep decarbonization goals. Non-emissions targets (on the left) are based on a literature review of existing targets.

US Climate Alliance's Building Decarbonization Roadmap



Hitting GHG Goals

Equity in Building Decarbonization

ENHANCING EQUITY

Increasing energy affordability. Efficiency and electrification programs can provide targeted support specifically for LMI households. LMI households face higher energy burdens and higher rates of energy insecurity than higher-income households.

Investing in underserved housing. Building sector transformations offer an opportunity to correct for historic institutional disinvestment in specific communities.

Equitable workforce development. States can provide accessible training and certifications to support a transition of the building sector. States can also create specific job opportunities for marginalized communities.

Neighborhood stabilization. By reducing energy burdens and health threats, building transformations can help stabilize existing neighborhoods and decrease mortgage foreclosures.

Addressing additional building issues. Other building issues and remediation needs can be addressed alongside decarbonization efforts, including lead, mold, and structural or electrical issues. Some buildings may require these upgrades before other decarbonization solutions can be implemented

Source: US Climate Alliance Building Decarbonization Roadmap; https://static1.squarespace.com/static/5a4cfbfe18b27d4da21c9361/t/60c9295c0d6f5b30e2a66948/1623796080027/Alliance+Building+Decarbonization+Roadmap.pdf

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Energy Efficiency

Energy Efficiency

Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050[1]

Utility Energy Waste Reduction Programs

Federal Weatherization Programs

New Technology

1 halfway-there-0919.pdf (aceee.org)

The following categories were all mentioned in our first discussion as ways to decarbonize Michigan. Please rate them in order of importance to you in decarbonizing our buildings and reaching Michigan's carbon reduction goals.

- Inexpensive
- Immediate Results
- Ramp Up Easily
- EWR is always on

- DTE 2020 EWR Program Year Resulted in CO2 Reductions of 4,728,998 Metric Tons[2]

2 DTE U-20866

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Electrification

FULL ELECTRIFICATION BY 2050 WOULD ELIMINATE DIRECT EMISSIONS FROM THE BUILDING SECTOR

Electrification: switching from combustion equipment to efficient, electric alternatives. For heating electric heat pumps are an efficient modern technology capable of heating and cooling buildings even in cold climates.

ELECTRIFICATION: FOCUS ON TURNOVER OF APPLIANCES

Reducing emissions from energy end uses will require electrification, which is fundamentally a problem of scale requiring the replacement of millions of pieces of equipment.

The timing of these replacements, is essential if costs and burdens are to be minimized and economic benefits maximized.

- Furnaces, water heaters, dryers, and stoves account for most residential building direct emissions but are replaced just once every 10-25 years.

  If we take the average HVAC and water heating equipment life of about 15 years, *we will need to ensure 100% HVAC and appliance sales are electric equipment by circa 2035 to hit 2050 net zero.*

Electrification: Focus on Low-income and BIPOC Residents

The more customers that shift off gas the more expensive the gas system will be. Additionally, low-income and BIPOC communities are more heavily burdened by the negative health impacts of poor indoor and outdoor air quality. For both reasons and more, equity requires prioritizing low-income and BIPOC communities for electrification. To do that we need:

- Programs and funding that help low-income and BIPOC residents to purchase and install heat-pumps.

-Need funding and programs that weatherize and remediate health and safety issues in low-income and BIPOC housing while we electrify.

-Need rate reforms to ensure electric rates are affordable (e.g. percentage of income rates, electric heat rates, etc.)

NEAR TERM ELECTRIFICAITON STRATEGIES

EXISTING BUILDINGS

Switch propane, electric resistance heat, and oil heat customers to efficient, cold-climate heat-pumps; explore other opportunities for beneficial electrification

Health benefits and equity concerns dictate the need to create programs and funding that prioritizing switching low-income and BIPOC communities to heat-pumps (while also doing weatherization and remediation of health and safety).

Other cost effective electrification relies on infrequent opportunities to change out heating, ventilation, and air conditioning (HVAC) equipment, including equipment end-of-life or major renovation. Policies and programs that take advantage of these opportunities are essential for keeping costs low and hitting our 2050 GHG targets.

NEW CONSTRUCTION

Buildings erected after 2025 are less likely to be remodeled or have equipment reach end of life, which underscores the importance of enacting a high-performance code for new construction.

Across different climate zones all-electric new construction is more economical to build than a home with gas appliances, regardless of location. These cost savings largely come from reductions in upfront costs of the device, installation, and gas interconnection.

Final bullet source: RMI analysis https://rmi.org/insight/the-new-economics-of-electrifying-buildings

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Funding/Financing and Workforce Development

FUNDING AND FINANCING

Utility On-Bill Financing Programs

Michigan Saves Financing Program

Governor and Legislative Appropriations

Education for residents and business owners on the positive impacts from increased efficiency in homes and buildings including, but not limited to, reduced energy bills, greater comfort, increased health benefits.

All State Departments and Agencies should work together to leverage available funding for low-income and disadvantaged communities.

WORKFORCE DEVELOPMENT

Create and fund training programs to prepare contracting network; outreach and marketing efforts geared toward further diversifying contractor network.

Education programs for developers, local housing authorities, landlords and tenant groups to increase awareness of GHG reduction efforts in buildings and housing.

State Departments and Agencies, along with industry stakeholders should develop "green building career pathways" narrative.

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Building Energy Codes

ADOPTED BY THE STATE AND ARE PART OF A PACKAGE OF CODES THAT ADDRESS THE BUILT ENVIRONMENT

Michigan's building energy codes has not been updated in 6 years

LARA has started rulemaking to update it

Huge opportunity to ensure new construction is highly efficient, electric-ready (or all electric), and grid interactive.

Additional Recommendation

-Energy Benchmarking and Building Performance Standards

-Demand Response Programs

-Public Health

MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

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Introduction to Discussion of Recommendations from the Buildings and Housing Workgroup

Doug Scott
Trevor Drake

Great Plains Institute

Council Member Discussion of Recommendations from the Buildings and Housing Workgroup

NEXT STEPS

October Meetings

Special Meeting of the Council scheduled for October 19 from 1-3 p.m.

Regular meeting scheduled for October 26 from 3-5 p.m.

Reach Us Online

WEBSITE

Michigan.gov/Climate

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EGLE-ClimateSolutions@Michigan.gov