

100% RENEWABLE *Madison*

ACHIEVING 100% RENEWABLE ENERGY &
ZERO NET CARBON FOR CITY OPERATIONS
& LEADING THE COMMUNITY



NOVEMBER 2018

Sustainable Madison Committee

2030 Plan Facilities Updates

- December 20, 2021 -

Engineering Division – Facilities Management

Bryan Cooper

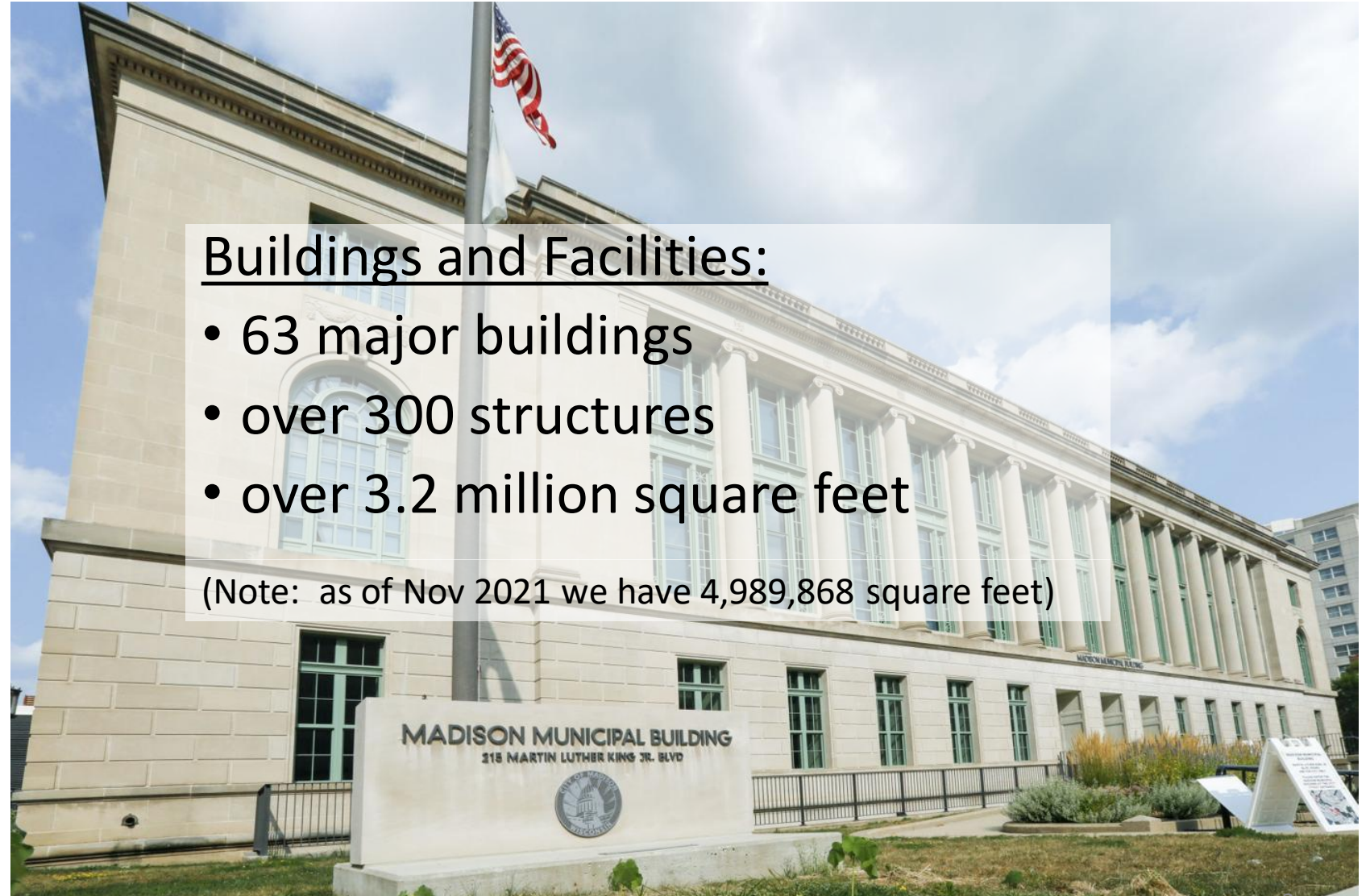
Buildings & Facilities – Baseline (2016)

CITY BUILDINGS

- Fire Stations
- Police Stations
- Libraries
- Monona Terrace
- Housing
- Parking Structures
- Metro Bus Barn
- Recreation
- Offices
- 40% of City-County Building (CCB)

Does not include:

Schools, MMSD (Sewer District),
County Buildings, Truax Airport



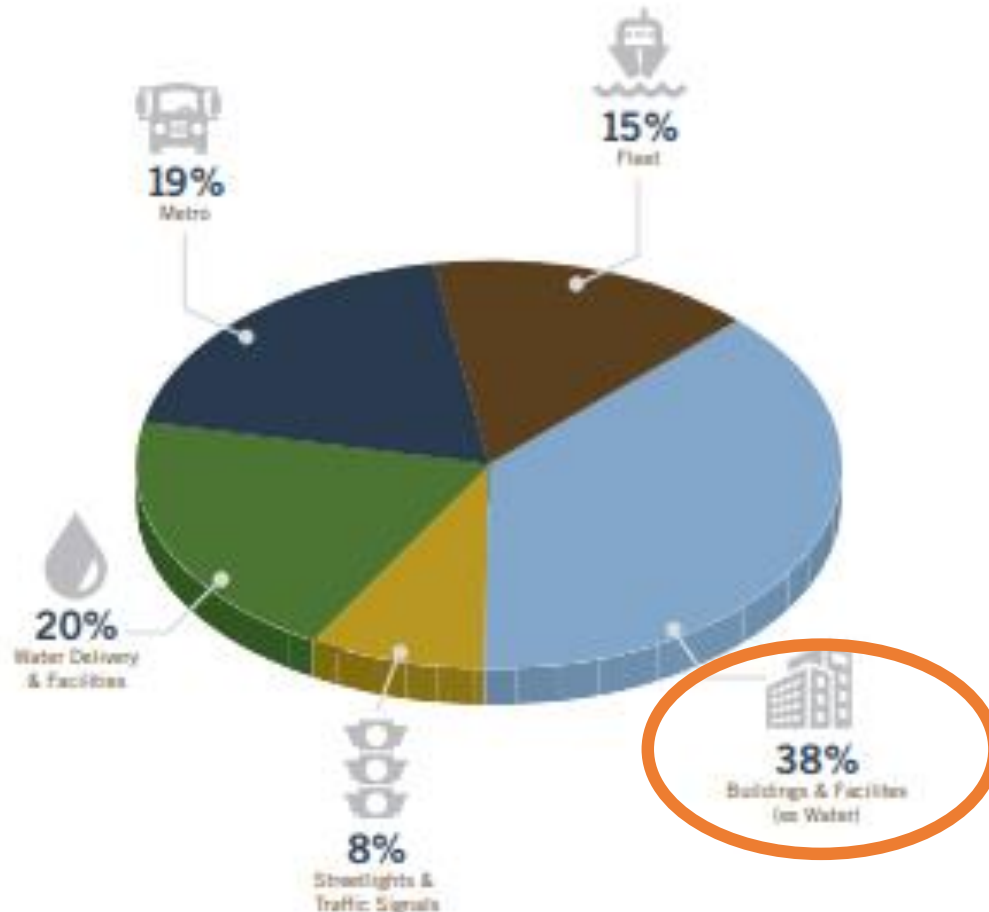
Buildings and Facilities:

- 63 major buildings
- over 300 structures
- over 3.2 million square feet

(Note: as of Nov 2021 we have 4,989,868 square feet)

Buildings & Facilities – Baseline (2016)

FIGURE A-2. BASELINE CARBON EMISSIONS FOR CITY OPERATIONS BY CATEGORY*



▸ Figure A-2 shows baseline city operations emissions was 81,141 tons CO₂e broken out by category.

▸ 38% of 81,141 = 30,833.58 tons CO₂e

**Excludes landfill, city employee commute, and City-owned housing emissions. Source: HGA based on ICLEI

Buildings & Facilities – Engineering Facility Management

DESIGN/BUILD/OPERATE

- Fire Stations
- Police Districts
- Streets Division/Public Works
- Fleet Services
- Engineering Operations
- Madison Municipal Building

- Public Market (future)
- Fire Station 6 Remodel (future)
- Fairchild Maintenance (existing)

(~20% of Total Square Footage)

(~10% of the Total Cost)

DESIGN/BUILD

- Libraries
- Community Development
- Parks Division
- Monona Terrace
- Transportation
- Metro Transit

- Men's Homeless Shelter (future)
- Dairy Drive Campground (existing)
- Imagination Center (future)
- Development Support such as Wilson St Garage, Village on Park

(~60% of Total Square Footage)

(~50% of the Total Cost)

INDEPENDENT

- Water Utility
- CDA/Housing
- City-County Building

(~20% of Total Square Footage)

(~40% of the Total Cost)

100%: Buildings & Facilities – Scenario 3

Efficiency (Demand)

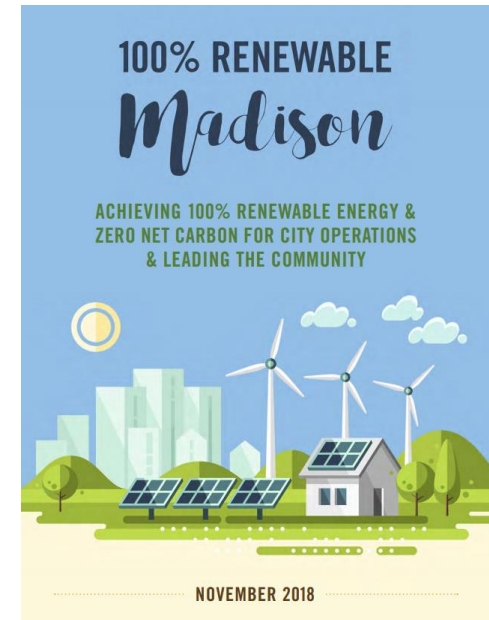
- Develop RCx program
- Lighting Retrofits
- HVAC Controls
- HVAC Retrofits
- Plug Load Management Strategies
- Building Envelope Improvements

Renewable Generation (Supply)

- Behind-the-Meter Solar - Phase 1 (1 MW)
- Behind-the-Meter Solar - Phase 2 (+ 8 MW by 2030)
- Utility Fuel Mix (MGE and Alliant)
- Utility Solar Project - MGE RER

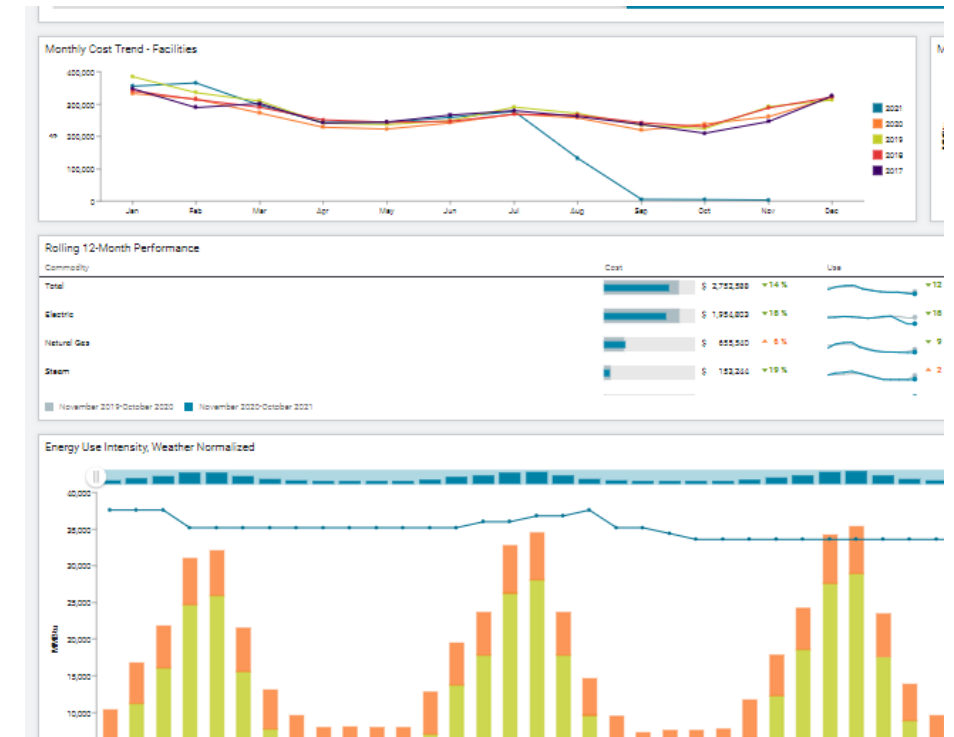
Policy

- RECs and Carbon Offsets



Buildings & Facilities – Past Actions

- LEED Resolution
- Facility Management Leadership Academy
- Building automation systems – 51 buildings and growing
- Boiler and HVAC upgrades
- Energy efficiency APM's (refrigerators, etc)
- Utility bill tracking and benchmarking (gas and electric)
- Audit of utility meters – zero/low usage meters
- Resiliency planning (generators)



[Energy Dashboard](#)

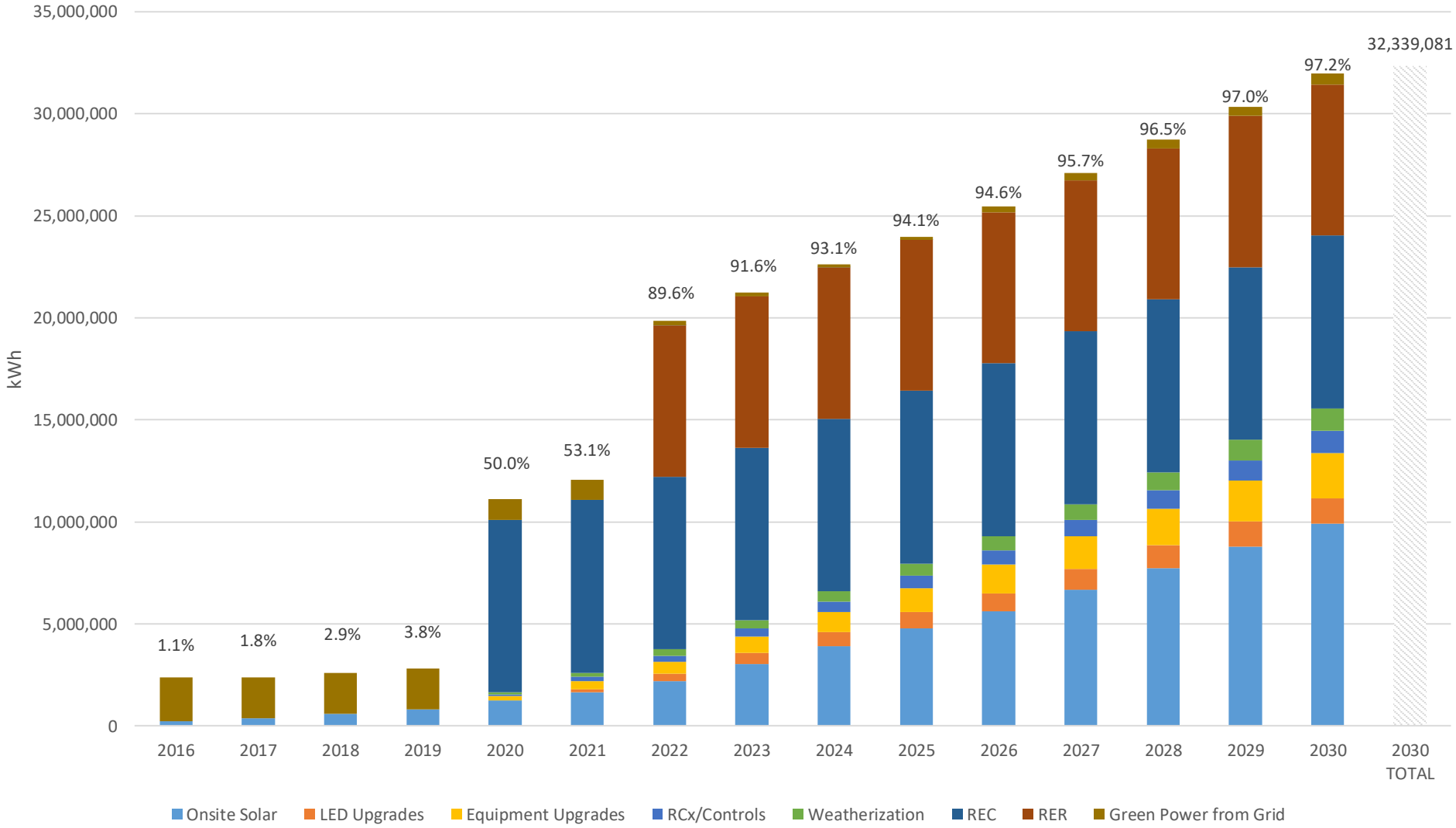
Buildings & Facilities – Current Actions

- Facilities - Energy + Sustainability Improvements - Monthly Meetings
- MGE RER – online by April 2022
- **Green Power Installations:** Continue & Significant Budget Commitment
- **Lighting upgrades**
 - Police/Fire 2020
 - Library 2021
- **Retro-commissioning**
 - Parks 2017
 - Library 2018
 - Water Utility 2019
 - Police 2022/2023
 - Fire 2023/2024
- **Building condition assessments**
 - Fire 2020
 - Streets 2022
- **Water bill tracking/benchmarking**



2030 Plan – All Building Electric Accounts

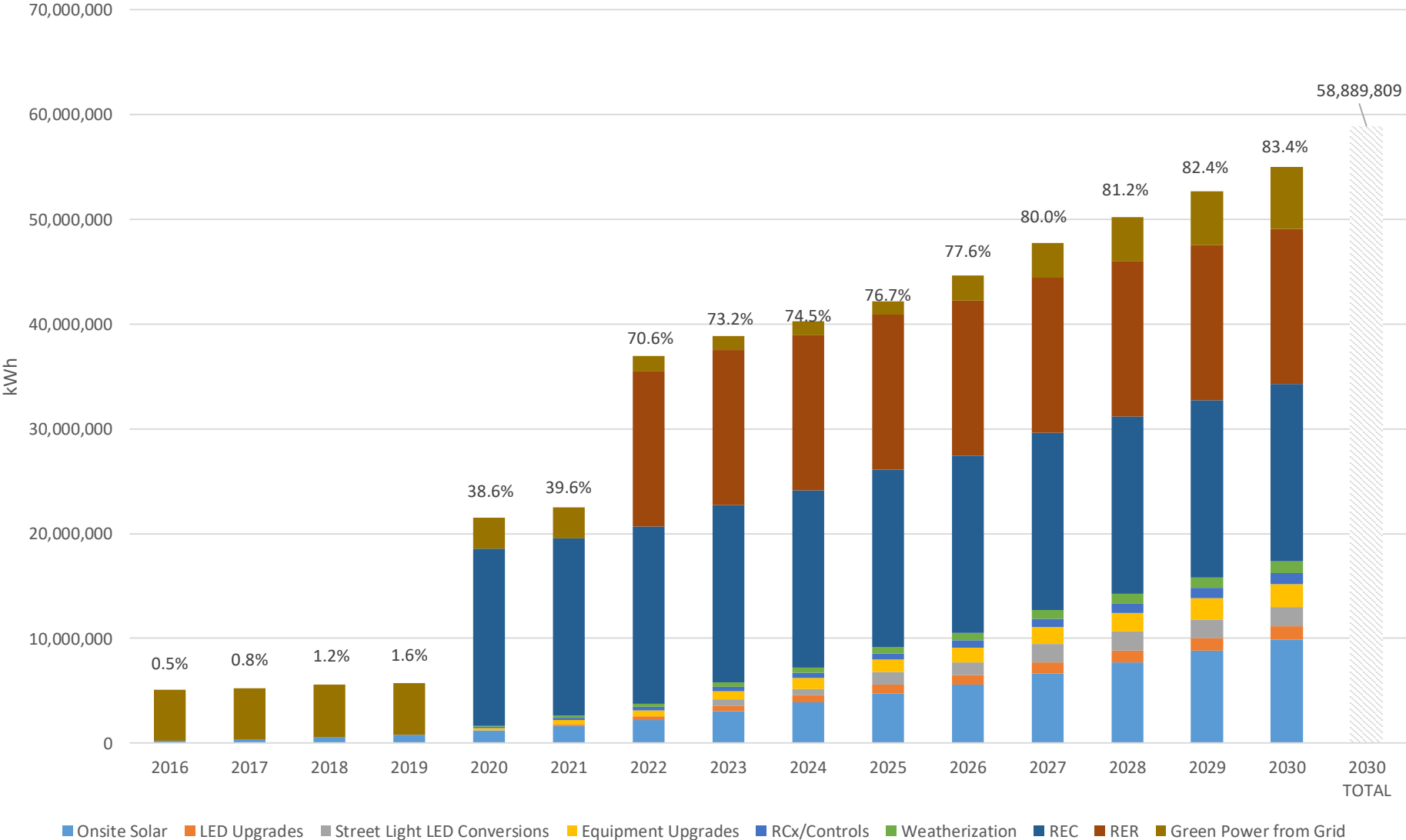
CITY BUILDING ELECTRIC ACCOUNTS
 ~20,000,000 kWh/yr (5% growth, 50% REC, 50% RER, 60% green grid)



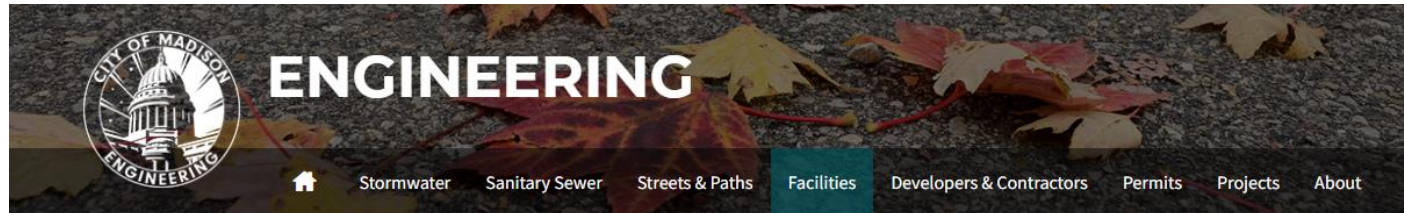
2030 Plan – All City Electric Accounts

ALL CITY ELECTRIC ACCOUNTS

~50,000,000 kWh/yr (2% growth in consumption, 60% green grid)



Thank You – Q&A



[City of Madison](#) / [Engineering](#) / [Facilities](#)

Facilities

The Engineering Division Facilities Section focuses on City Buildings.

The mission of the Facilities Section of the Engineering Division provides high quality design, project management, and building operation services to all agencies that are implementing a preventative maintenance, remodeling, or new construction project while utilizing a sustainable focus.

The Facilities Section of the Engineering Division consists of a multi-disciplinary team of professionals who strive to deliver high quality, sustainable, creative, and cost effective design, management, maintenance, and building operations solutions for city residents and city agencies to maintain an inclusive, innovative, and thriving City of Madison.

Our team consists of architects, construction managers, custodians, electricians, engineers, historic preservation professionals, HVAC technicians, interior designers, maintenance technicians and trainees, plumbers, project managers, and sustainability professionals.

The services provided by Facilities include:

- Design and construction oversight of large technically complicated City facilities including projects like Fire Station 14, Pinney Library, Madison Municipal Building, Midtown Police Station, and Fleet Services Maintenance Building.
- In-house expertise in Architecture, Engineering, Historic Preservation, Construction Management, Office Environments, Interior Design, and similar facility-related disciplines.

Facilities

Education	+
Energy	+
Environmental	+
Programs & Initiatives	+
Work With Us: Partners	+

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