



Charlotte City Council
Environment Committee
Summary
October 22, 2018

COMMITTEE AGENDA TOPICS

Strategic Energy Action Plan (SEAP)

COMMITTEE INFORMATION

Committee Members Present: Dimple Ajmera (Chair), Larken Egleston (Vice Chair), Matt Newton, Greg Phipps, Braxton Winston

Other Council Present: Tariq Bokhari

Staff Resources: Dr. Kim Eagle, Assistant City Manager
Rob Phocas, Sustainability Office
Gina Shell, Engineering & Property Management

Meeting Duration: 2:03 pm – 3:17 pm

ATTACHMENTS

1. Agenda – October 22, 2018
2. Presentation – Strategic Energy Action Plan Discussion and Path Forward

DISCUSSION HIGHLIGHTS

Chairperson Dimple Ajmera called the meeting to order and asked everyone to introduce themselves. Chairperson Ajmera thanked former elected officials and stakeholders for attending the meeting and their work on the SEAP. She also thanked staff for their efforts and informed attendees that a draft copy of the Strategic Energy Action Plan (SEAP) will be sent out October 23 via email for public comment.

Assistant City Manager Kim Eagle reviewed the agenda and the plan to have a strategy session regarding the Strategic Energy Action Plan and a Council vote in December.

Strategic Energy Action Plan Discussion and Path Forward

Rob Phocas and Gina Shell presented an update on the development of the Strategic Energy Action Plan (SEAP). The contents of the plan and the delivery structure were discussed. Staff reviewed the five-stage approach to Zero Carbon: 1. Shift energy demand, 2. Reduce energy consumption, 3. Change the energy we consume, 4. Generate energy on-site, and 5. Procure the rest (as a last resort). Staff also shared the eleven action areas of the draft plan which include:

- Structural change

- Initiate city-wide communication campaign
- Establish public-private partnerships
- Develop and implement resilient innovation districts
- Strive toward 100% zero carbon for municipal buildings by 2030
- Strive toward 100% zero carbon municipal fleet by 2030
- Near zero carbon non-municipal buildings by 2050
- Facilitate rapid adoption of sustainable modes of transportation
- Develop and implement strategy for deploying low-carbon infrastructure generation
- Develop a green workforce pipeline in support of energy transition
- Develop smart data approached

Each of the SEAP's action areas outlined in the presentation has specific tasks and timelines.

A two-step approach for the 2030 internal goals for municipal buildings and the municipal fleet was reviewed. The internal plan for the 2030 goals is an appendix to the community focused SEAP. The Committee and staff discussed total cost of ownership approaches, the social cost of carbon, our current record of progress for buildings and fleet, and key pre-requisites (zero cost and cost bearing) for achieving the internal goals. Specific costs for the next two-year period will be shared at the next Committee meeting. Staff also shared research findings from peer cities doing similar work on plan and cost development.

Chairperson Ajmera encouraged staff to reach out to related non-profit organizations to broaden our public-private partnerships and support the communication campaign. She stated the city should employ sustainable techniques and materials when making repairs through the city's housing repair program due to the direct impact on utility bills.

Vice Chair Egleston asked about information sharing with other cities regarding data on costs and impacts and staff responded that information has not been published by peer cities, but that they can reach out and request it. Chairperson Ajmera stated that we should have a short-term budget estimate for the next five years.

Council member Winston asked what sustainable functions Charlotte is positioned to do well. Mr. Phocas responded that Charlotte has opportunities in solar and transportation and we can also build on Charlotte Water's work using methane gas to create energy and/or fuel for vehicles.

Council member Winston asked about funding from the federal government and if we could put our legislative agenda together so that we connect items like SEAP and affordable housing. Chairperson Ajmera asked staff to come up with items for the legislative agenda and send them to the Intergovernmental Relations Committee.

Council Member Phipps asked about reporting on progress on existing sustainability goals. Mrs. Eagle responded that staff will provide a written update that includes this information. Staff will also share a report on diesel buses previously requested by Councilmember Bokhari and place that discussion on a future agenda.

Mrs. Eagle stated that staff will meet one-on-one with Committee members to review the task level detail in the action areas.

The next Environment Committee Meeting is scheduled for November 13, 2018.

Meeting adjourned 3:17 p.m.



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Strategic Energy Action Plan Discussion and Path Forward

Environment Committee

October 22, 2018

Agenda

- History and Context
- SEAP Overview, Contents, Delivery Structure
- Budget and Finance
- Peer Cities
- City Facilities & Fleet
- Path Forward

History – Global Covenant of Mayors

- Mayors Clodfelter, Roberts, Lyles signed Global Covenant of Mayors for Climate & Energy commitment (GCoM).



- Envisions a world where committed mayors and local governments – in alliance with partners – accelerate ambitious, measurable climate and energy initiatives that lead to an inclusive, just, low-emission and climate resilient future, helping to meet and exceed the Paris Agreement objectives.

History – Global Covenant of Mayors

GCoM Actions:

- Register commitment;
- Complete greenhouse gas emissions inventory and report to CDP;
- Create targets and establish a system of measurement; and
- Establish a Strategic Energy Action Plan (SEAP).



History - Resolution

- In November 2017, Mayor Roberts presented to City Council a resolution that would, among other items, commit the City to 100% clean energy by 2050.
- City Council voted to send the resolution to the Environment Committee for further discussion.
- Sustainable & Resilient Charlotte by 2050 Resolution.
- June 4th Environment approved Resolution and recommended adoption to full City Council.
- June 20th, full City Council adopted Resolution.



History - Sustainable and Resilient Resolution Summary

- Encompasses City's commitment to the GCoM.
- Broadens approach beyond energy generation:
 - 100% clean energy falls under this broader approach
- Includes municipal (2030) and community goal (2050).
- Specifies SEAP will be completed to provide an action plan.
- Aligned with international protocols and terminology



History: The 2030 Goal

“Now, Therefore, Be It Further Resolved that the City of Charlotte will strive to source 100% of its energy use in its buildings and fleet from zero carbon sources by 2030.”

History: 2050 Goal

“Now, Therefore, Be It Resolved that the City of Charlotte will strive to become a low carbon city by 2050 and will develop a Strategic Energy Action Plan to be presented to City Council.”

- “low carbon city by 2050, spanning all sectors, to bring city-wide greenhouse gas emissions to below 2 tons CO₂e per person annually”

Context of Undertaking

- Joined international commitment & conversation of global city leaders:
 - A target must be achieved by 2050
 - Made similar commitments
 - Aggressive, daunting, inspirational
- No city has figured out the exact recipe for success:
 - First time this has ever been attempted
 - New solutions to be developed

Context of Undertaking

- Cities, Nonprofits, Companies, Academia working together:
 - Global Covenant of Mayors
 - C40 Cities
 - 100 Resilient Cities (100RC)
 - Urban Sustainability Directors Network (USDN)
 - Carbon Neutral Cities Alliance (CNCA)
 - American Cities Climate Challenge

Strategic Energy Action Plan

- Purpose: to provide a strategy for the City and community to follow as it strives toward “a low carbon, resilient future.”
- A successful SEAP will focus on “how do we get there” rather than “can we actually get there?”
- The key focus of a SEAP is GHG emissions reduction, but also explores the opportunity to align economic development policy, such as the creation of green jobs with the actions necessary to transition to a low carbon energy future.

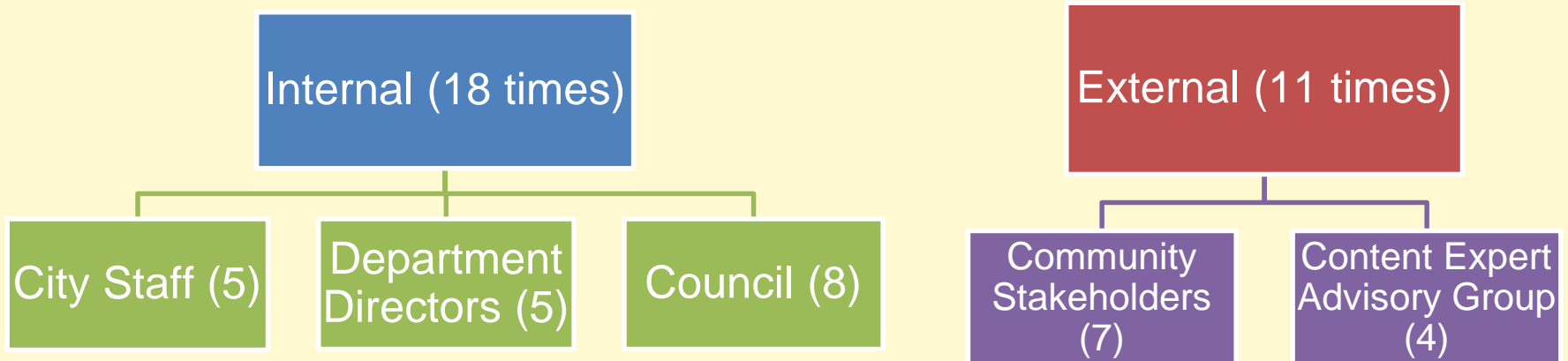
Strategic Energy Action Plan

- Three core components: (1) a baseline assessment; (2) a vision; and (3) a framework for how to achieve targets.
- SEAP is a living document.
 - Every two years, progress will be benchmarked by City staff that are tracking key data points.
 - If necessary, the SEAP will undergo a formal update process that will realign it to ensure the City is continuing to move towards its 2030 and 2050 goals.
 - Formal reviews and updates are required due to policy change, technology innovation and shifting of resources.

Strategic Energy Action Plan

- The City of Charlotte and Envision Charlotte (Envision) partnered to achieve the City's commitments to the GCoM.
- Envision Charlotte contracted with Carbon Captured, Ltd. to bring Dr. Sebastian Carney as a consultant with the necessary technical expertise.

Engagement



- Focused on Buildings, Transportation and Energy Generation
- Foundation of innovation and workforce development.
- Equitable participation and results

5 Stage Approach to Zero Carbon

- **Shift Energy Demand**
 - Reduce Peak Electric Demand by Shifting Time of Use
- **Reduce Energy Consumption**
 - Use Less Energy
- **Change the Energy We Consume**
 - Use a Different Type of Energy
- **Generate Energy On-Site**
- **Procure the Rest**
 - Contract to Purchase only Zero-Carbon-Sourced Electricity

SEAP Contents: Action Areas

- 11 Linked Action Areas.
- Purpose: create an environment that allows for new ways of operating so Resolution's targets can be delivered.
- The Action Areas have been developed to be adaptable given 32-year timeline of SEAP.
- Designed to create new workforce development opportunities and to support City's efforts to increase equity and economic opportunity.

SEAP Contents: Action Areas

- Action Area 1: Structural Change
- Action Area 2: Initiate City-Wide Communication Campaign
- Action Area 3: Establish Public-Private-Plus Partnerships
- Action Area 4: Develop and Implement Resilient Innovation Districts

SEAP Contents: Action Areas

- Action Area 5: Strive Toward 100% Zero Carbon for Municipal Buildings by 2030
- Action Area 6: Strive Toward 100% Zero Carbon Municipal Fleet by 2030
- Action Area 7: Near Zero Carbon Non- Municipal Buildings by 2050

SEAP Contents: Action Areas

- Action Area 8: Facilitate Rapid Adoption of Sustainable Modes of Transportation
- Action Area 9: Develop & Implement Strategy for Deploying Low-Carbon Infrastructure Generation

SEAP Contents: Action Areas

- Action Area 10: Develop a Green Workforce Pipeline in Support of Energy Transition
- Action Area 11: Develop Smart Data Approaches.

SEAP Delivery Structure

- Workgroups:
 - 2 Internal: Buildings and Fleet
 - 4 External:
 - Buildings
 - Transportation
 - Energy Generation
 - Workforce Development
 - Budget and Finance Group
- Stakeholder Engagement
- Content Expert Advisory Group

SEAP: Two-Phase Approach

- Charlotte is approaching release of the SEAP, and the associated accomplishment of the aspirational 2030 internal goal outlined in the resolution, using a two phase approach.
- The SEAP released this week will be primarily focused on community based efforts, though it includes high-level recommendations about how Charlotte will strive toward zero-carbon facilities and fleet.

SEAP: Two-Phase Approach

- Internal operational efforts for the transition of Charlotte's fleet and facilities will be presented in more detail as an appendix to the SEAP, to be updated regularly. These details will be released after November 12.
- The overall goals and plan are being presented today. At next Environment Committee meeting, Council members will receive implementation and cost information and data to support early actions recommended to move toward aspirational goals.
- Staff will marry the SEAP with the implementation approach and cost for a complete package to be considered for Council approval in early December, 2018.

Internal SEAP: Striving Toward 2030

- Approach: Use SEAP Lens for all building/fleet decisions.
- Policy
 - Decisions will follow City Council budget process = no surprises
 - Develop a Total Cost of Ownership Model
 - Develop an Internal Revolving Fund
 - Deploy New Models:
 - Performance Contracting, *e.g.*, deep energy retrofits
 - P³s: no upfront capital, *e.g.*, fleet conversions.
- Structure
 - Cross Department, Buildings & Fleet and Budget Workgroups
 - Shared Staff Resources Across Departments, *e.g.*, energy manager, utility data analyst.

- Other Resources:
 - Grants & Challenges
 - Utility Incentives
 - New Financial Opportunities:
 - Green Bonds and 0% interest Loans
 - Bank of America and Wells Fargo “green funds”
- EPA’s Social Cost of Carbon Analysis

Budget & Finance Context

- Setting a goal allows us to collaborate with other cities on best practices, group procurements.
- Internal workgroups will develop implementation plans...look at total costs of ownership of options, supported by AECOM.
- Being realistic: for some Departments (Aviation) and vehicles (fire trucks), technology does not exist now...12 years to develop.
- Costs will be refined continuously

Peer City Review

- Generally, action plans do not contain cost estimates
- Difficult to determine due to time frame, technology and financing innovations
- Plans passed, implementation plans developed and costs addressed at time of action.

- **Austin, TX: 2015**; implementation plan.
- **Fort Collins, CO: 2008**; use normal budget process.
- **Fayetteville, Ark. – 2018**; use normal budget process.
- **Columbia, MO**: implementation plan and use normal budget process.
- **Philadelphia, PA; 2016**; no costs included
- **Atlanta, GA: 2015**; no costs included
- **Orlando, FL: 2017**; no costs included

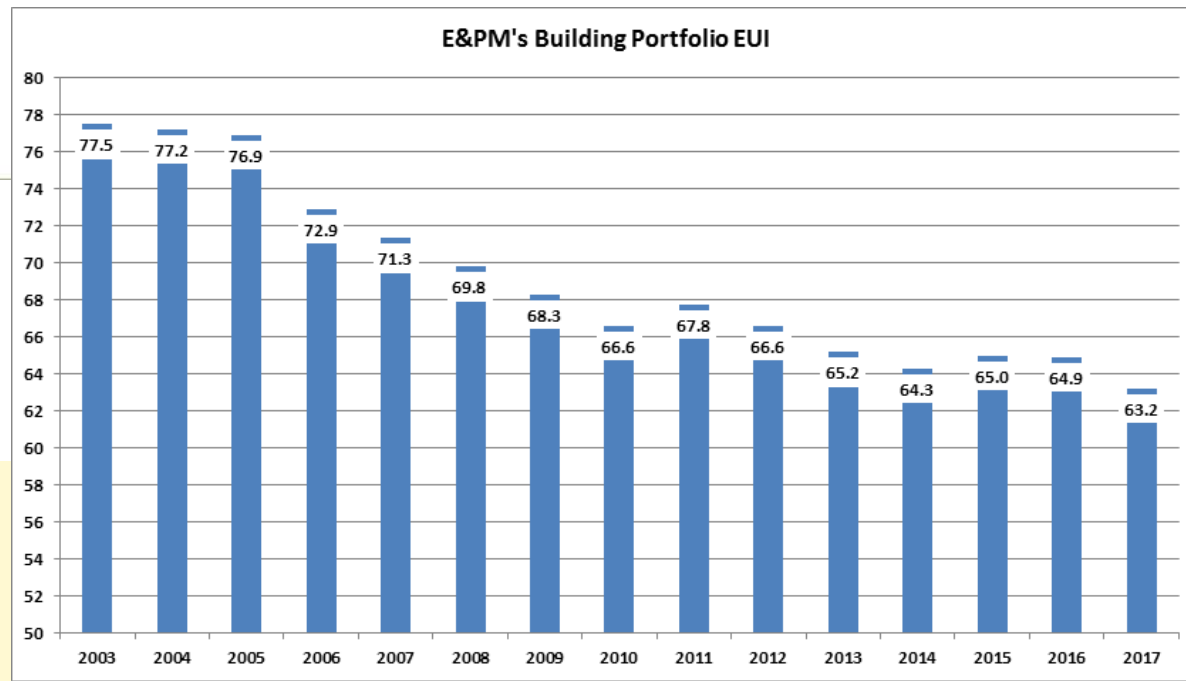


Urban Sustainability Directors Network Conference

- Last week: 225 sustainability directors from US & Canada.
- Budget and Finance for action plans is primary focus of cities, especially those updating plans.
- Workgroup formed, lead by Oakland, to factor budget and financing into revisions of action plan.
 - Charlotte joined.
 - Working with consultants to determine total costs of ownership and financing options.
 - 12 to 18 months.



Our Track Record: Facilities



- \$29M Savings from 2003 to 2017
 - Efficient Replacement Equipment
 - Deep Energy Retrofits
 - Electric rate analysis and adjustments
 - Good use of Duke's Incentive Program
- Energy Star Certifications
 - 2016: 6 facilities
 - 2018: 4 facilities
- LEED: 3 Gold, 2 Silver, 1 Certified
- Green Globes: 1 3-Globe

Facility Portfolio Low Carbon Potential



Cultural Facilities
Fire/Police Stations
Office Buildings/Labs/Shops

Approximately 6M square feet

Green-highlighted facilities are good candidates** for transitioning to lower/zero carbon for many operational uses.

**Energy retrofits may carry significant cost.

Water/Wastewater Treatment Plants
CATS Facilities
Airport Facilities

Yellow-highlighted facilities could be more difficult to transition to lower/zero carbon due to concerns about operational risks, costs of alternatives, or technological readiness.



Our Track Record: Fleet



- 5000 vehicles/equipment
 - 10 Electric, 27 Hybrid, 29 CNG
 - 40 Hybrid Buses
 - Buses will transition to CNG/biofuel
 - CMPD piloting hybrid pursuit vehicles
 - Anti-idling policies & practices
 - Generators
 - Charging capacity at all new facilities
 - NAFA "Top 100 Fleets" 2014 – 2018
 - Government Fleet Magazine "Leading Fleets 2015 – 2018"
 - NAFA "100 Green Fleets" 2018



Fleet Portfolio Low Carbon Potential



	Green-highlighted vehicles are good** candidates for transitioning to
Non-Public Safety Sedans	lower/zero carbon for many operational uses.
<i>**upfront costs are higher</i>	
<i>**fueling/charging infrastructure will be required</i>	
Passenger Buses (Airport/CATS)	
Vans	Yellow-highlighted vehicles could be
Sport Utility	more difficult to transition to lower/zero carbon
Light Duty	due to concerns about operational risks,
CMPD Patrol	costs of alternatives, or technological readiness.
Medium Duty	
Heavy Duty	
	Red-highlighting indicates that there are currently no options or extremely limited options
Fire Trucks	for transitioning to lower/zero carbon due to concerns about operational risks, costs of alternatives, or technological readiness.

Pre-Requisites FY20 – No cost

- Re-invigorate Internal Teams:
 - Sustainable Facilities Oversight Team
 - Fleet Management Advisory Team
- Revise Policies
 - Sustainable Facilities Policy
 - Fleet Policy
 - Create standards for employee workspace requirements and “right-sized” fleet vehicles
 - Consider Facility Set Point and Plug Load Policy
- Adopt Standard Models of Analysis & Decision-Making for Budgeting & Procurement
 - Total Cost of Ownership/Life Cycle Analysis
 - Account for Social Cost of Carbon
- Consider Energy Efficiency Revolving Funds or other Innovative Budgeting/Financing for Facilities and Fleet

Pre-Requisites FY20 – Some cost

- Increase capacity for data collection, management, tracking, and analysis across the facility and fleet portfolios
 - Perform facility energy audits
 - Expand fleet telematics
- Increase capacity for grantwriting
- Build Awareness and Adoption
 - Awareness campaigns
 - Energy-efficiency at the office
 - Eco-driving
 - Building confidence in EV's
 - Increase teleconferencing and videoconferencing

Facilities – FY20 - FY22

- Partner with CPCC for students to conduct Level 1 audits at fire stations (workforce development primarily)
- Energy-efficient equipment replacement and deep energy retrofits based on audit findings
- Facility Renovations based on workspace standards
- Evaluate lighting control technologies
- Portfolio-wide solar installation assessment
- Investigate and develop strategy for transitioning from gas to electric sources for heating across portfolio
- Design and build lower carbon facilities

- Develop and pursue right-sizing methodology
- Train technicians to maintain alternative fuel vehicles
- Expand EV charging capacity at or near all city
- Ramp up purchase of EV's and installation of charging locations as practical for operations and supportive of community goals
- Explore biofuel options for CNG vehicles
- Decentralize motor pool across city facility locations
- Study cost/benefit and develop implementation plan for heavy equipment rental pool

Path forward

- October 22nd:
 - Environment Committee feedback
 - By midweek draft SEAP available to public on website with comment submission form.
- November 5th:
 - Public Comments due
 - 4th Stakeholder meeting
- November 12th: Environment Committee
 - “Cost” presentation and committee vote.
- November 13th–December 3rd: Council Member small group meetings
- December 3rd: City Council Action Briefing
- December 10th: City Council consideration and vote