



An Integrated Approach to Clean Energy and Climate Change:

The State Sustainability Program and Massachusetts Energy Policy

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Discussion

- **Massachusetts Energy & Environmental Policy Context**
- **Leading by Example Rationale**
- **State Sustainability – an Integrated Approach**
 - **The people**
 - **The Impacts**
 - **Planning**
 - **Tools**
- **State Sustainability Tracking and Measuring**



MA Energy & Environmental Policy – Context

2001 New England Governor's Regional Climate Change Action Plan	<ul style="list-style-type: none">• Set Short, medium & long-term goals• Lead by example• Conservation, electricity & transportation
2001 CO2 Regulations	10% CO2 reduction by 2009 in 6 electric plants
2003 RPS	<ul style="list-style-type: none">• 4% renewable energy by 2009
2004 Climate Protection Plan	<ul style="list-style-type: none">• Set Short, medium & long-term goals• State Sustainability – Lead by Example• Clean energy, green buildings & transp.
2006 Energy Plan <i>Eliminate Load Growth</i>	<ul style="list-style-type: none">• Energy Efficiency<ul style="list-style-type: none">– Energy Efficiency Portfolio Standard– Real-time pricing– 15% agency reduction by 2010– State green bldg standards (MA LEED +)• Expand Use of Renewables & Bio-fuels<ul style="list-style-type: none">– Start with state facilities and vehicles

State Sustainability – The Rationale



- Lead by Example common in broad energy policies
- Consistent with broader energy demands
- State as a significant energy user with associated environmental impacts
 - 1 billion kwh, over 1 million tons of CO₂
- State spends over \$150 million on energy
 - Opportunity for real savings
- Pilot new technologies
- Public face of state government

Massachusetts State Government Scope



**322 parks,
reservations,
wildlife areas,
beaches**

**12,000 highway
lane miles**



**90 hospitals and regional
health care facilities**

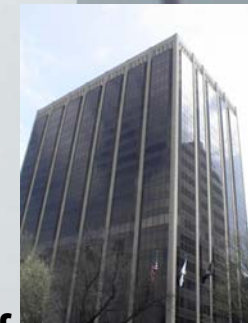


**29 college
campuses with
176,000
students**

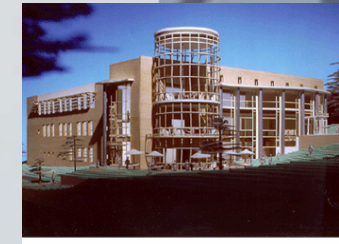
8,000 vehicles



**65 million square feet of
building space**



**18 correctional facilities
w/10,000 inmates**



State Sustainability – getting started

Executive Order No. 438 / July 02

Objective: To minimize the overall environmental impact of state agency operations.

Statewide Goals/Requirements

- Specific goals for GHG, recycling, water, mercury
- Green buildings, environmentally preferable products, toxics
- Interagency Coordinating Council
- Statewide planning/guidance document
- Annual progress reports

Agency Requirements

- Appoint sustainability coordinator
- Conduct annual tracking
- Submit sustainability plans



An Integrated Approach – the people

Coordinating Council

- Include key agencies with impacts and expertise
- Involved early in process
- Ongoing meetings to get feedback and buy-in



Energy Team


- Inter-agency planning & collaboration among energy, environment, and construction departments



DCAM

Division of Capital Asset Management

An Integrated Approach – impacts, solutions & planning

- Statewide guidance  agency sustainability plans
- Facilities + purchasing + fiscal
- Identify operational sources
- Examine impacts of day-to-day
- Incorporate Long-term vision + short-term priorities
- Pursue integrated solutions
- Use EMS “lite” 5 step process



Agency Sustainability Planning and Implementation Guide

Commonwealth of Massachusetts
State Sustainability Program

Prepared by the
State Sustainability Coordinating Council &
State Sustainability Program Staff

Mitt Romney, Governor
Kerry Healey, Lieutenant Governor
Ellen Roy Herzfelder, Secretary of Executive Office of Environmental Affairs
2004



An Integrated Approach – program tools

- Pursue top down *and/or* bottom up
- Allow for flexible implementation
- Technical assistance/funding
- Emissions reduction=cost savings
- Recognition & publicity
- Tracking and measurement



MA State Sustainability

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This newsletter is one of a bi-monthly series published by the Massachusetts State Sustainability Program, which works to minimize the environmental impacts resulting from state government operations.
For more information on the Program, please visit: <http://www.mass.gov/envir/Sustainable>

Green Technology

New Exit Signs Dramatically Reduce Energy

If you have exit signs that use incandescent bulbs, then you're throwing money out the window! Replacing these signs with new LED exit signs will save you money and reduce your greenhouse gas emissions, all with a payback of just over one year.

Recently, the Department of Correction (DOC) and Springfield Technical Community College (STCC), through funding from the State Sustainability Program, purchased around 375 LED exit signs that use only 0.72 watts. These new signs are replacing signs that used between 17 and 100 watts, resulting in considerable savings.

Purchasing almost 300 new Lithonia signs through the Statewide Contract with Grainger at a cost \$30.12 each, the DOC expects to save \$154,000 over the lifetime of the signs. Springfield Tech benefited from the same price, and expects their 74 new signs to save more than \$43,000 over 20 years.

Switching to these energy efficient exit signs is expected to reduce greenhouse gas emissions by 1086 tons.

The Grainger item number for these LED signs is 3BA31.

The Statewide contract is #FAC28.

LED Exit Sign Savings @\$30.12 each			
Agency	Project Cost	Estimated Savings	Estimated Payback
DOC (~300)	\$8,434	\$7,708	14 months
STCC (74)	\$2,229	\$2,091	13 months

Renewable Energy Credits

Buying Renewable Energy Credits (RECs) can be a straightforward and simple way of reducing Greenhouse Gas Emissions that come from electricity consumption, meeting the state's GHG reduction targets, and supporting renewable energy here in New England.

RECs are essentially a small price premium for electricity from renewable energy sources. They can be purchased in two ways:

- ▶ Pay a price premium on top of an existing electricity bill to support renewable energy
- ▶ Purchase RECs separately to offset a specific amount of Kilowatt usage

The Mass Technology Collaborative offers several local and regional wind and solar options with prices currently ranging from 3-5 cents per kWh. Hull's wind turbines are one local source of RECs.

Additionally, the Division of Energy Resources and the Operational Services Division, as a result of a \$17 million commitment, are establishing a renewable energy procurement program for state agencies to support long-term renewable energy contracts and RECs over the next decade.

To learn more, contact State Sustainability staff or go to www.rntcc.org, and search under clean energy.



An Integrated Approach – on the ground results

Energy Efficiency

- Large retrofits (*replacing coal plant=5% of emissions*)
- Traffic lights (*4 month payback and >\$400k savings*)
- CHP (*new co-generation @ prison facilities*)

Renewables

- DG on state facilities (*660 kW turbine on state college*)
- REC Purchases (*Campus 1st agency to buy RECs*)

Demand Response

- Reducing peak consumption (*\$100k in revenue*)

Green Buildings

- 1st LEED Gold project (*LEED + standard for new buildings*)

Vehicles

- Hundreds of AFVs in fleet (*incl. CNG + hybrids*)
- Use of bio-fuels in state vehicles (*target 15% bio-diesel*)



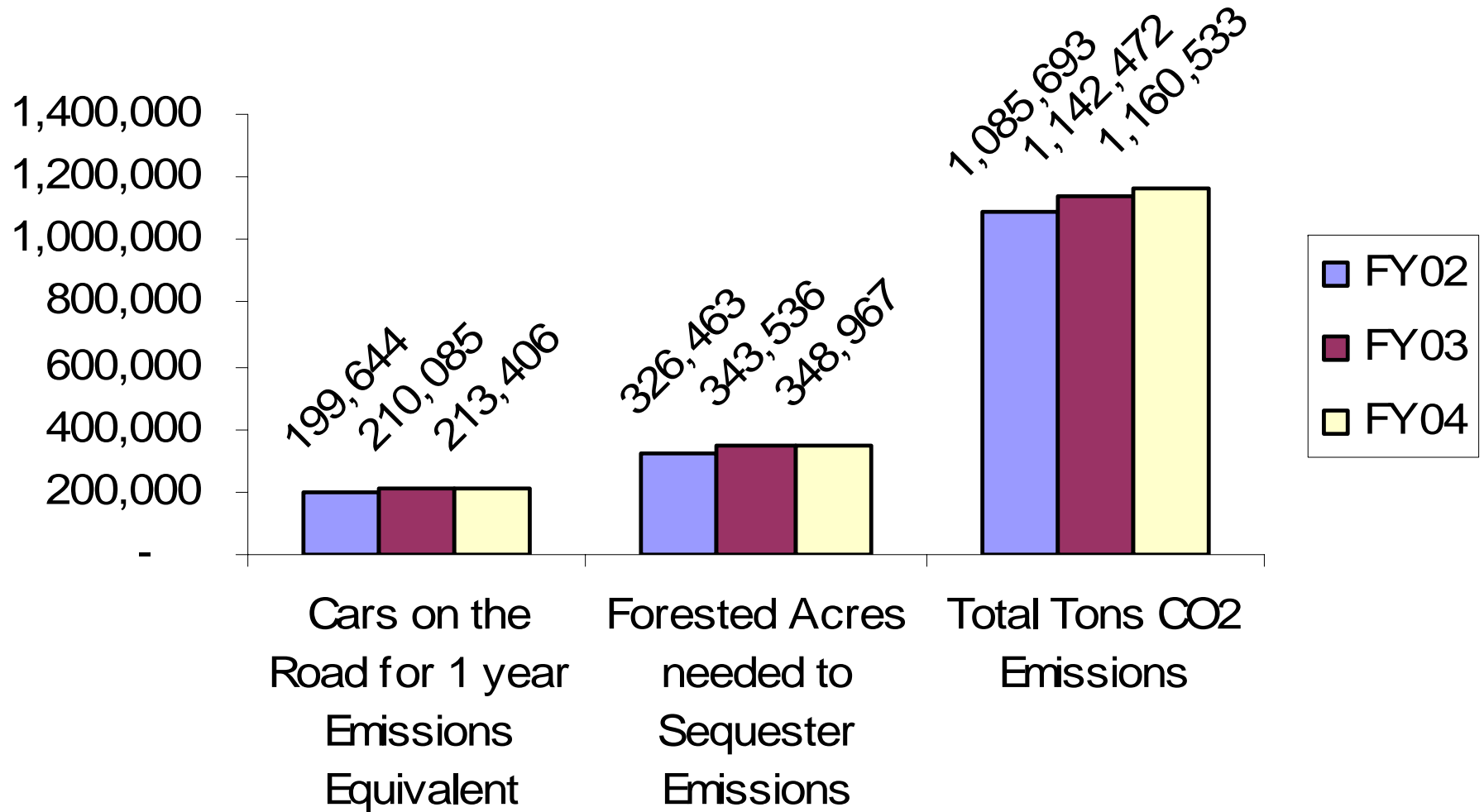
An Integrated Approach - tracking

- Tracking and measuring is key – just words without it
- Demonstrates effectiveness
- Helps prioritize
- Basis for rewarding and motivating
- Incredibly time consuming and resource intensive



Tracking as Communication Tool

Environmental Impacts of Massachusetts State Government, FY02-FY04



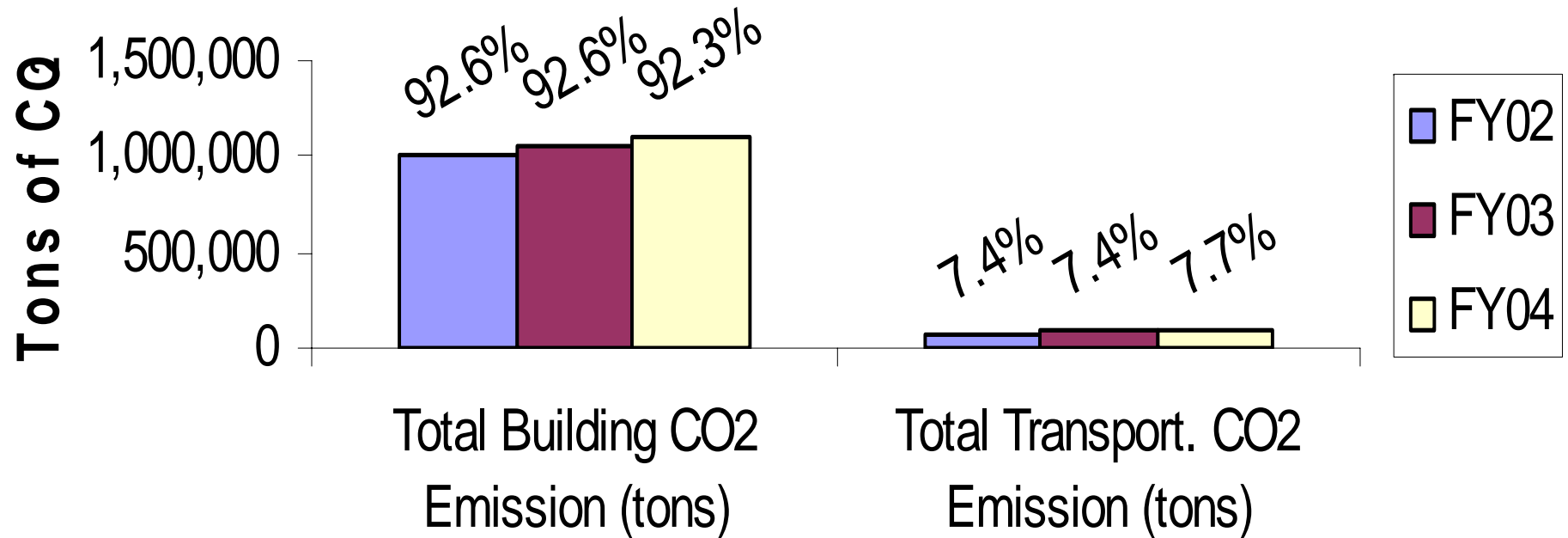
Tracking Tricks



- **Establish baseline, even if imperfect**
- **Get data where you can**
 - work with agencies, purchasing office, vendors
- **Track what you can get**
 - CO₂ from fossil fuel use
 - No waste or commuting
 - few leased facilities

What the data tells you

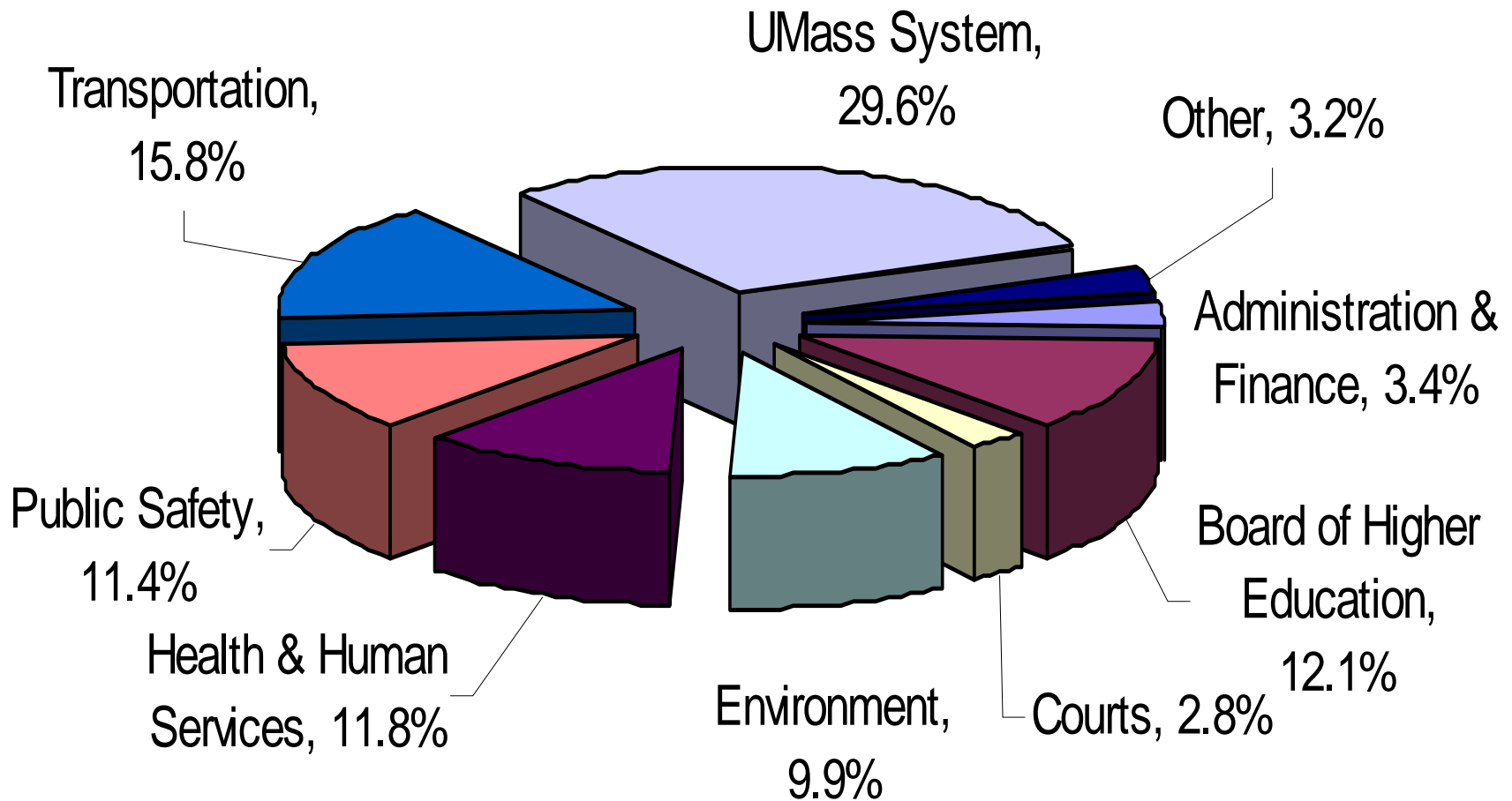
Building vs. Transportation¹ CO₂ Emissions, FY02-FY04



¹ Transportation fuel consumption does not include employee commuting or business travel in personal vehicles.

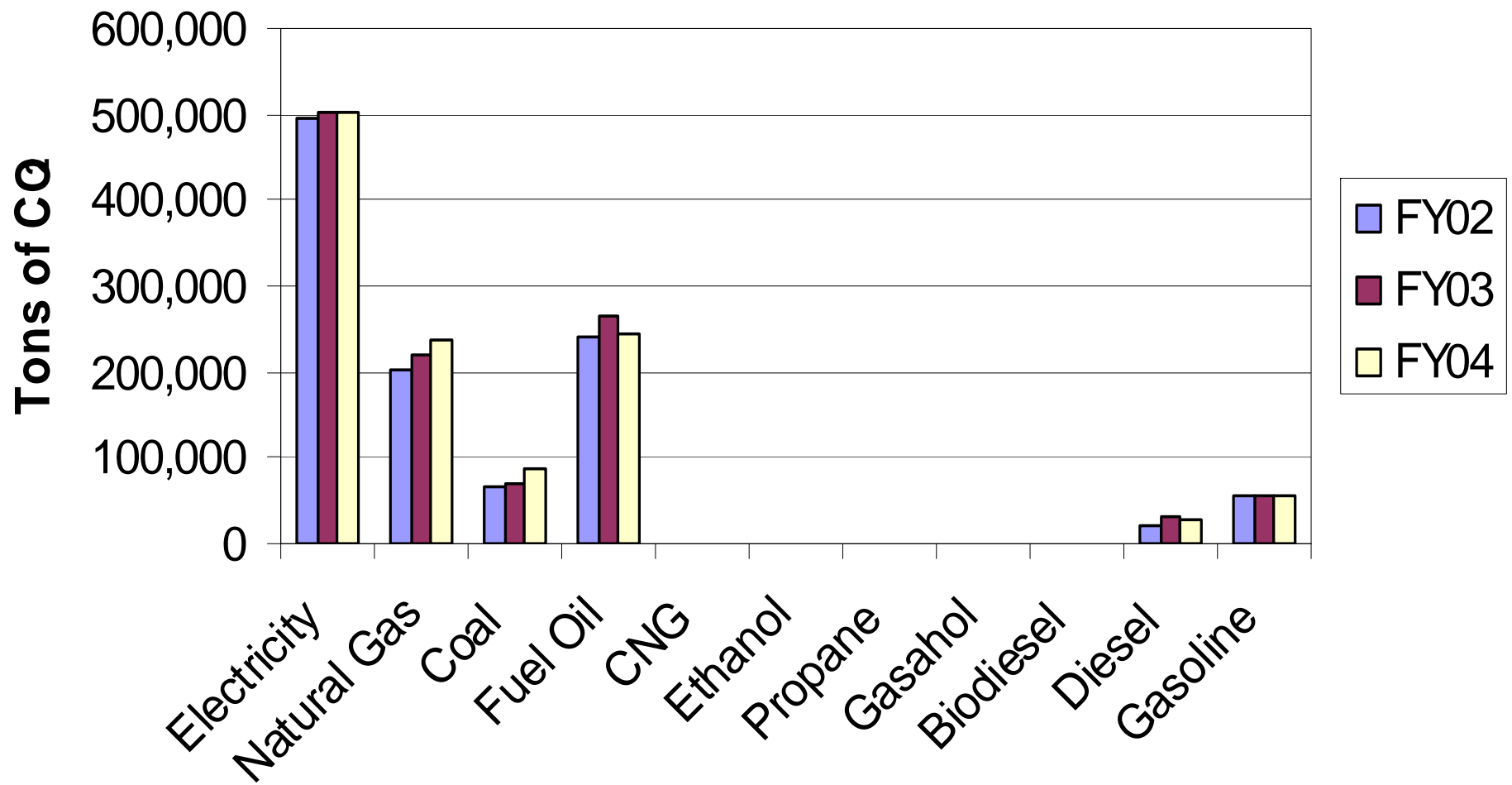
What the data tells you

FY04 CO₂ Emissions by Executive Office



What the data tells you

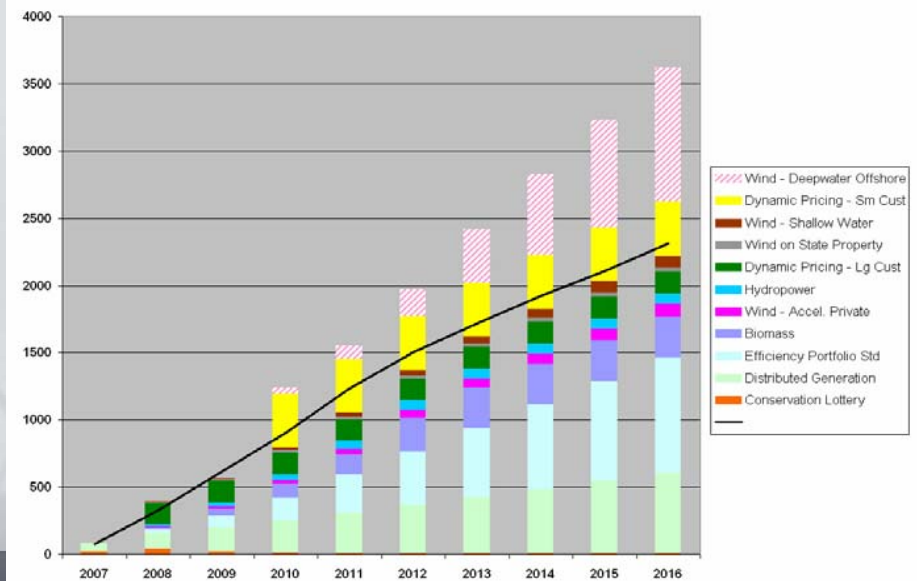
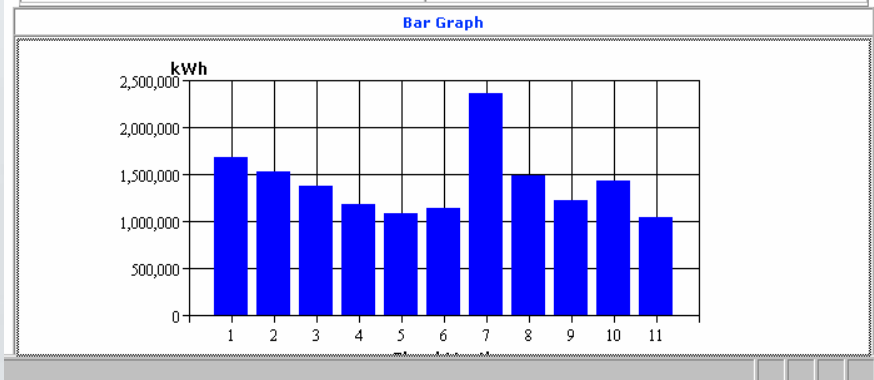
CO₂ Emissions by Fuel Type, FY02-FY04



Tracking Next Steps

- **Reduce effort**
 - Centralize data collection through on-line *Energy Information System*
- **Improve Data analysis**
 - Use EIS to identify priorities
- **Develop models to identify impacts of actions**

FISCAL MONTH †	ELEC-kWh (kWh)
1	1,687,557
2	1,529,656
3	1,380,418
4	1,187,033
5	1,097,101
6	1,143,135
7	2,367,077
8	1,489,662
9	1,232,249
10	1,437,474
11	1,047,955
2006 Sub-Total	15,599,317
Total	15,599,317



Summary

- **Leading by example/state sustainability as an integral part of broader energy & environmental policy**
- **Integrated approach key to success**
- **Important future collaboration with EPA and other states**

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www.mass.gov/envir/sustainable