Department of the Environment

Maryland's Climate Action Plan
Establishing Goals

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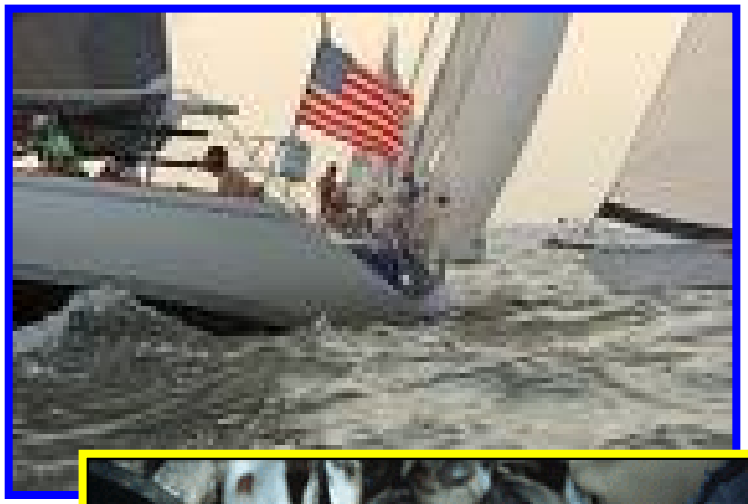
Climate Change Initiatives in MD

- Governor O'Malley's Executive Order on Climate Change
- The Healthy Air Act (2006) and RGGI (the Regional Greenhouse Gas Initiative)
- Clean Cars Act of 2007
- EmPOWER Maryland Initiative



Maryland Executive Order

- Establishes the Maryland Climate Change Commission
  - 15 Cabinet Secretaries and 6 representatives from the Maryland General Assembly
  - Charged with addressing Maryland's climate challenge on all fronts
- Three specific areas of concern:
  - Mitigation
  - Adaptation
  - Science and effects in Maryland
- Workgroups established for each area
  - Considerable stakeholder involvement at the Workgroup level
- Initial report by November 2007
  - Final Action Plan by April 2008

The November Interim Report

- Copies available
- Early Action Items
  - 2008 legislative initiatives
    - Global Warming Solutions
    - Energy Efficiency Bundle
    - Others
- Setting goals is one of the key pieces of state climate action plans
  - The Governors Executive Order asked the Commission to provide recommendations on goals in the November report
  - EO asked Commission to consider
    - 1990 levels by 2020
    - 80% reduction from 2006 by 2050
- MDE asked to discuss Maryland's goal setting process

Recommendation on Goals

- **2012 - 10% below 2006 levels (using a co umption based approach)**
  - **Used to drive early reductions d as a ction target for the State Action Plan**
- **2015 - 15% below 2 el**
  - **Used as a early red**
- **2020 - 25% b**
  - **Used as the " utions legislation**
    - **Progr**
  - **50% als 020 time-frame**
    - **Very agg omme ns from the IPCC**
    - **To be lin de nal effort or national program**
- **2050 - 90% below**
  - **Used as reductio get for the State Action Plan**
  - **Pushes research and innovation towards carbon neutrality**
- **Mid-Course Review every 4 years**

WILL RETURN TO THESE LATER

How We Got There

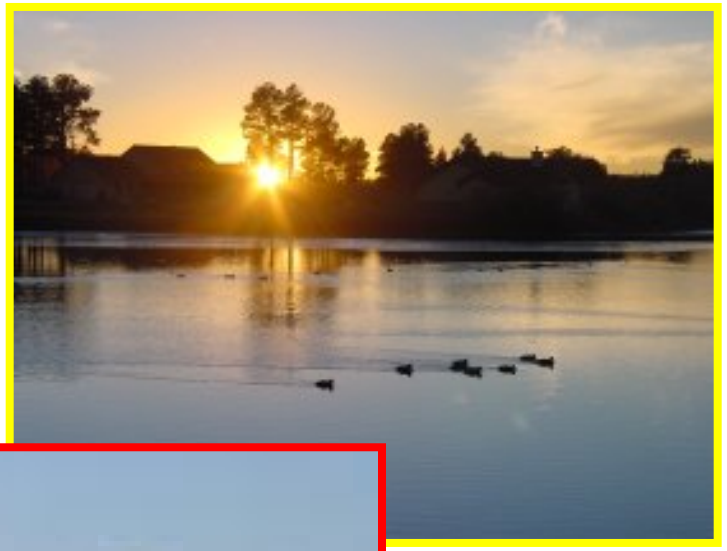
- What are the key questions?
- What are the basic policy choices?
- Maryland's six step process to decide on Goals

Goals or Standards?

- State climate action plans use goals as the basis for developing a plan
  - This is similar to the State Implementation Plan (SIP) concept used for ozone and fine particle nonattainment
  - A plan may contain 50 to 100 individual regulations or programs
- The individual elements of the plan often contain enforceable standards
  - Maryland Clean Cars, RGGI, etc.
  - These rulemakings involve stakeholders and follow State public participation procedures
  - This is where the “Plan” gets most of its teeth

Goals for a Trading Program?

- Some states, like California and New Jersey, have also set goals to drive an economy-wide trading program
  - Global Warming Solutions
- The details of how the trading program will work are to be determined as part of regulations to be adopted by the state
- Cap-and-trade concepts and other market-based, trading mechanisms are being considered

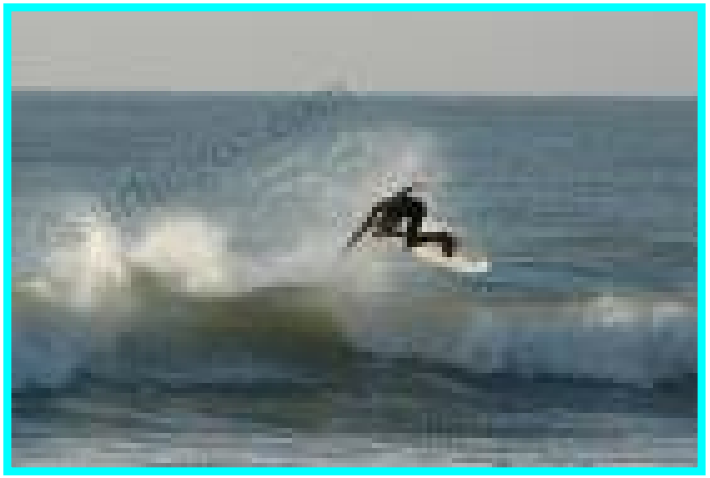


Short or Long Term Goals?

- Most states have set both short and long-term goals
  - Short term
    - 2010/2015
  - Mid term goals
    - 2020/2025
  - Long term goals
    - 2050 and beyond
- Early goals are generally more “concrete”
- Later goals are often more “aspirational”

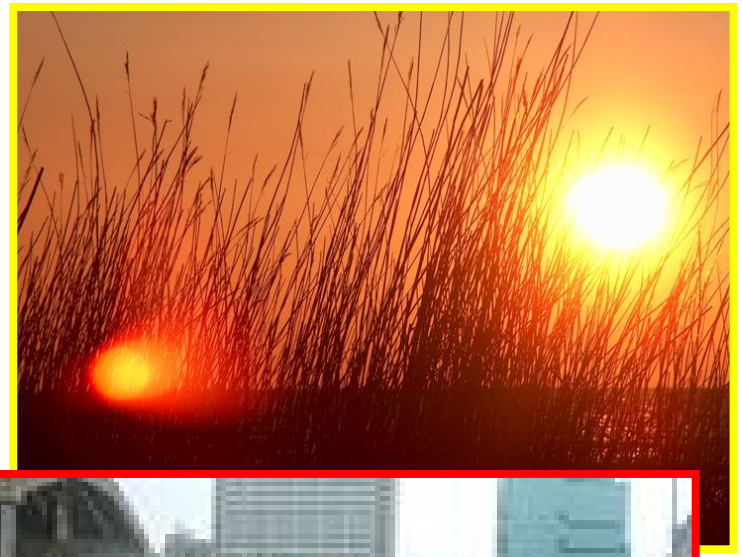
Updating the Goals?

- Most state action plans recognize the need to update action plans and goals if necessary
- Again …
  - Earlier goals are often more certain and "regulatory"
  - Later goals are intended to be "tweaked" as programs are actually implemented and science and data improves



Purpose?

- What is the primary purpose of the goals?
  - One extreme
    - To set minimum targets consistent with what we know we can do
      - Builds from currently available programs and technologies
  - The other
    - To push the envelope on current, evolving and new pollution control programs
      - Often driven by where the science seems to tell us to go
      - Approach of current leadership states



Understanding "The Science"

- What message is the science sending us?
  - Reductions as high as 80% to 90% may be called for by around 2050 (2006 base)
  - Earlier reductions in the 25% to 50% range by 2020 (2006 base) may be needed to avoid the IPCC's most catastrophic forecasts.
  - Reductions that are earlier are better
    - 1 ton reduction in 2010 is much better than a 1 ton reduction in 2050
  - Reductions greater than 2020/2050 targets would provide significant additional benefits
  - Three simple themes
    - Earlier is better
    - Deeper is always better
    - Try hard

A Sampling of State Targets

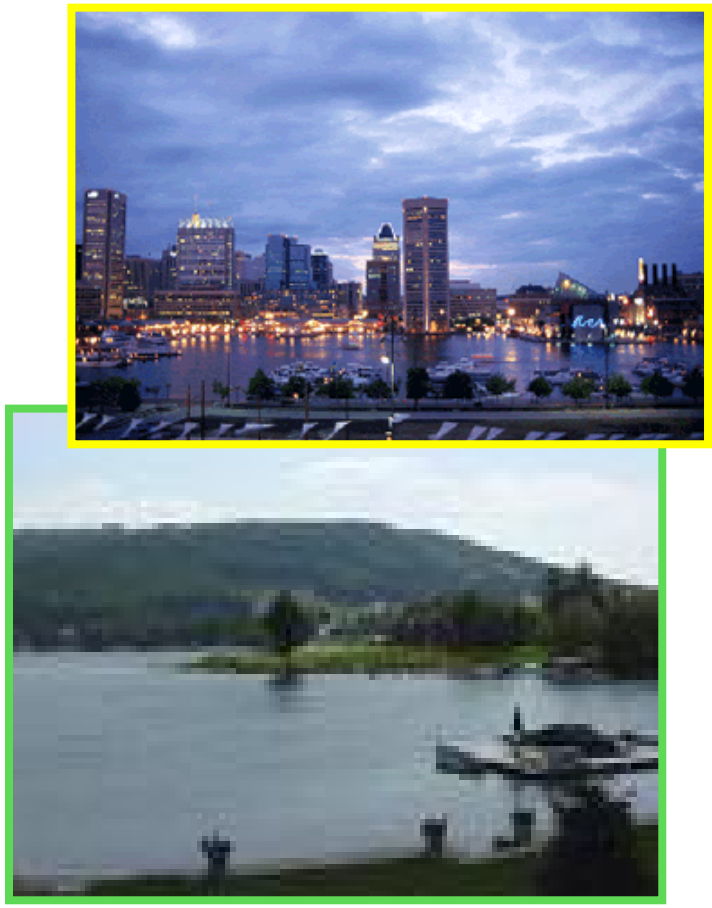
State	1990-2020 GHG Forecast	State Goals	Climate Plan Coverage
Arizona	144%	2000 levels by 2020; 50% below by 2040	106%
California	40%	E.O.: 2000 level by 2010; 1990 by 2020; 80% by 2050 AB-32: 1990 levels by 2020	100%
Colorado	81%	?	TBD
Connecticut	32%	1990 level by 2010; 10% below by 2020; 75% by 2050	100%
Florida	?	2000 level by 2017; 1990 level by 2025; 80% below 1990 by 2050	?
Massachusetts	?	1990 level by 2010; 10% below by 2020; 75% by 2050	?
Maine	34%	1990 level by 2010; 10% below by 2020; 75% by 2050	100%
Maryland	52%	From 2006 levels: 10% below in 2010, 15% below in 2015, 25% below in 2020 and 90% below in 2050.	TBD
Minnesota	48%	Next Generation Energy Act: 15% below 2005 levels by 2015; 30% by 2025; 80% by 2050	TBD
Montana	31%	1990 level by 2020; 80% below by 2050 (consumption & production)	89%-105%
North Carolina	113%	?	TBD
NEG/ECP	?	1990 level by 2010; 10% below by 2020; 75-85% ultimately	TBD
New Jersey	?	E.O. 54: 1990 level by 2020; 80% below 2006 levels by 2050	TBD
New Mexico	65%	2000 level by 2012; 10% below by 2020; 75% below by 2050	133%
New York	24%	5% below 1990 by 2010	?
Oregon	52%	1990 level by 2010; 10% below by 2020; 75% by 2100	85%
Puget Sound	37%	1990 level by 2010; 10% below by 2020; 75% by 2100	100%
Rhode Island	35%	1990 level by 2010; 10% below by 2020; 75% by 2050	100%
Vermont	26-59%	25% below 1990 levels by 2012; 50% below 1990 by 2028; 75% by 2050	TBD
Washington	40%	E.O.: 1990 levels by 2020; 25% below 1990 by 2035; 50% below 1990 by 2050	TBD
WCI	54%	- TBD	TBD

Key Policy Choices

- Aspirational or bottom-up goals?
  - Where we'd like to go or…what we know we can currently do
- Science based?
- State specific plan or to lead by example?
- Short-term goals or long-term goals?
- To push control programs
  - Or to capture known programs?
- To guide plan development or to set enforceable targets?

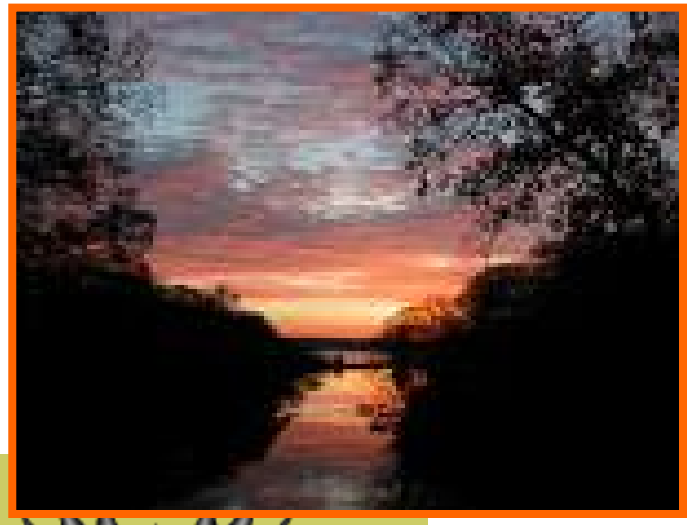
Aspirational or Bottom-Up?

- Clearly want to strive to meet or exceed reductions that the sciences tells us may be needed
- Maryland has much at risk
  - "Clean Hands" and "Leadership"
    - Both important
- Also need to balance these goals with current understanding of how implementation will work and costs
  - Especially for earlier deadlines that are regulatory in nature
- Is there a way to build both the aspirational goals and the realities of implementation into the goal setting process?



Short-Term or Long-Term?

- Most state plans seem to have both short- and long-term goals
- Short-term strategies may be different than long-term strategies
  - Short-term goals are often more “regulatory”
- Key dates from other state plans include
  - Early (2010 to 2015)
  - 2020
  - 2050
  - 2100



Permanent or To Be Updated?

- Climate science will continue to improve rapidly for the next 10 years
- Many policy innovations are currently being discussed and in some cases tested
- A routine update of the plan – including the goals – seems like a given
- Updates could be used to move the plan in several different directions

Regulatory or “Plan” Targets

- Most state action plans use goals as targets in developing state action plans
  - Individual “Plan” elements are enforceable
- Some states have used goals as regulatory drivers
  - California’s AB 32/Global Warming Solutions
    - 1990 levels by 2020 through a trading program requirement
- Why can’t we blend the two?

Maryland's Six Step Process

Step 1 – Consumption or Generation Based Goals?

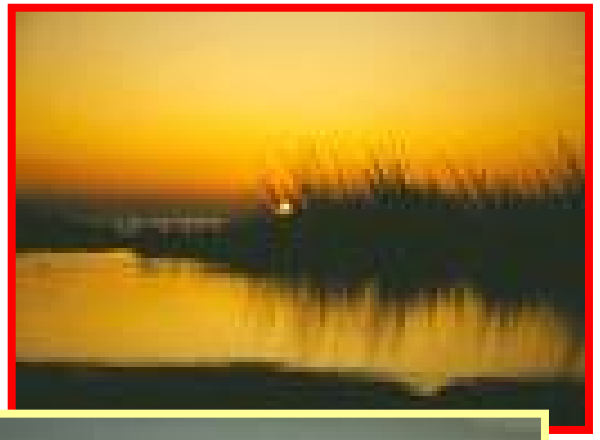
- Most other state programs based on reducing emissions resulting from state consumption
  - MD imports about 30% of our electricity
- Generation based (emissions from within the state borders) approach is actually easier to implement (i.e. CAIR, RGGI)
- Consumption based inventories are also more difficult to develop
- Recommendation - Go with a consumption based approach for setting goals

Step 2 – Base Year?

- Base years for other states bounce all over the place
  - 1990, 2000, 2005, 2006
- For Maryland, 1990 levels by 2020 is about the same as a 25% reduction from 2006 levels
- Recommendation – Use 2006 as the base year
  - Most recent data
  - Easiest to communicate the magnitude of the challenge
- Whenever possible:
  - Include comparisons to 1990

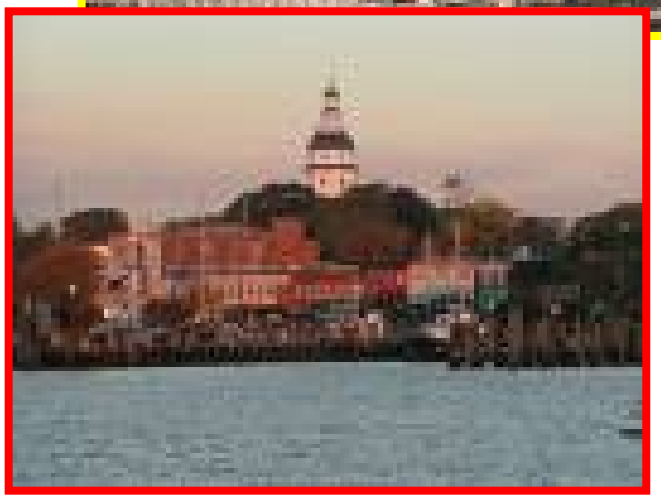
Step 3 – Aggressive or Bottom-Up?

- Maryland has much at risk
  - Goals must be aggressive and demonstrate leadership
  - Realities of implementation must be considered
- Use “Stretch” goals for Plan development
  - Goals not directly enforceable
  - Regulatory elements of the “Plan” would be enforceable
  - “Strive” to achieve type goals
- Use moderately cautious or moderately aggressive goal for 2020 trading programs
  - Enforceable
- Revisit and if necessary revise goals every 4 years



Step 4 – Target Years?

- Goals for different years often drive different policies
  - Early goals often drive short term – “currently available” strategies
  - Longer term goals often drive more slowly evolving strategies like smart growth and also push R & D.
- Most states include 2020 and 2050 goals
  - Some push for earlier reductions
- Recommendation – 4 target years
  - 2012 and 2015 to push for early reductions
  - 2020 to implement trading program
  - 2050 to drive longer term strategies and research and development

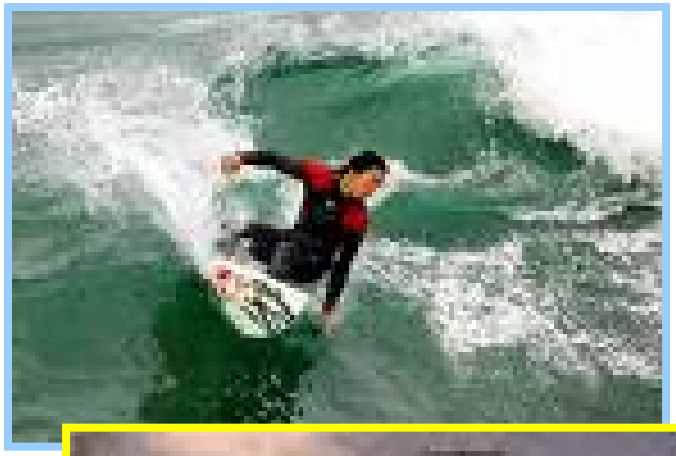


Step 5 – Regulatory or Targets

- Use both
- State action plan driven by “stretch” goals that are more like targets
  - Consistent with the science
  - Allows us to be bold and push the envelope
- Also include a regulatory goal for a Global Warming Solutions trading program
  - Moderately aggressive or moderately cautious to start
- All goals to be revisited every 4 years
  - Provides three mid-course review opportunities before 2020

Step 6 – Science Based?

- Use best, currently available science
  - IPCC and Maryland Scientific and Technical Workgroup
- Build from “what does the science tell us” themes
  - Push for early reductions
  - Deeper is better
  - Try hard
- Balance science-based targets and potential implementation concerns
  - For example, recent IPPC estimates of reductions needed by 2020 present a challenge
    - 25% to 40% below 1990 by 2020



Recommendation on Goals

- **2012 - 10% below 2006 levels (using a consumption based approach)**
  - **Used to drive early reductions and as a reduction target for the State Action Plan**
- **2015 - 15% below 2006 levels**
  - **Used as a early reduction target for the State Action Plan**
- **2020 - 25% below 2006 levels by 2020**
  - **Used as the "minimum" driver for Global Warming Solutions legislation**
    - **Programs to implement GWS will reward over-control**
  - **50% also included as a science-based target for the 2020 time-frame**
    - **Very aggressive target, but consistent with recommendations from the IPCC**
    - **To be linked to implementation of broader regional effort or national program**
- **2050 - 90% below 2006 levels**
  - **Used as reduction target for the State Action Plan and GWS**
  - **Pushes research and innovation towards carbon neutrality**
- **Mid-Course Review every 4 years**

Other Leadership States

- California
  - 2000 levels by 2010
  - 1990 levels by 2020
  - 80% reduction by 2050
- New Jersey
  - 1990 levels by 2020
  - 80% below 2006 by 2050
- Florida
  - 2000 levels by 2017
  - 1990 levels by 2025
  - 80% below 1990 by 2050
- IPCC
  - 25% to 40% below 1990 by 2020
  - 80% to 95% below 1990 by 2050

MARYLAND'S GOALS

2010 – 10% below 2006 levels

= 15% above 1990 levels

2012 – 15% below 2006 levels

= 9% above 1990 levels

(about equal to 2000 levels)

2020 – 25% below 2006 levels

= 4% below 1990 levels

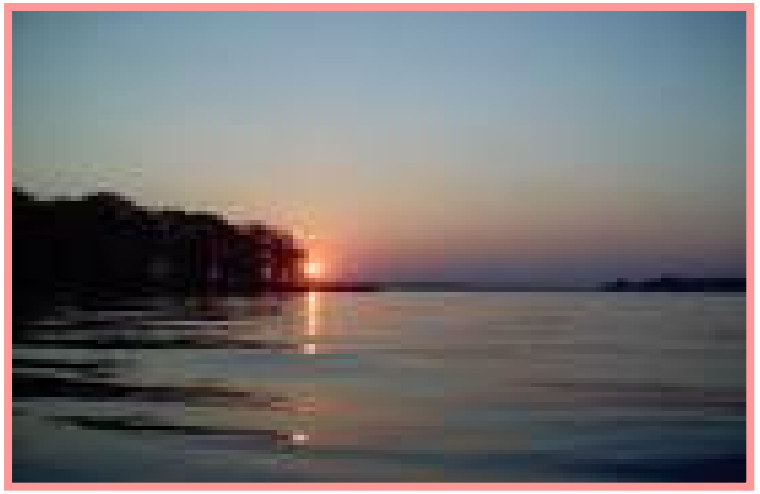
2020 – 50% below 2006 levels

= 36% below 1990 levels

2050 – 90% below 2006 levels

= 87% below 1990 levels

QUESTIONS?



Fear The Turtle

- January 19 – Tar Heels
- January 27 – Blue Devils