Projection of Future Year Emissions from a Base-Year Toxics Emission Inventory

Presentation for
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Emission Inventories – Partnering for the Future

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Why Project Toxics?

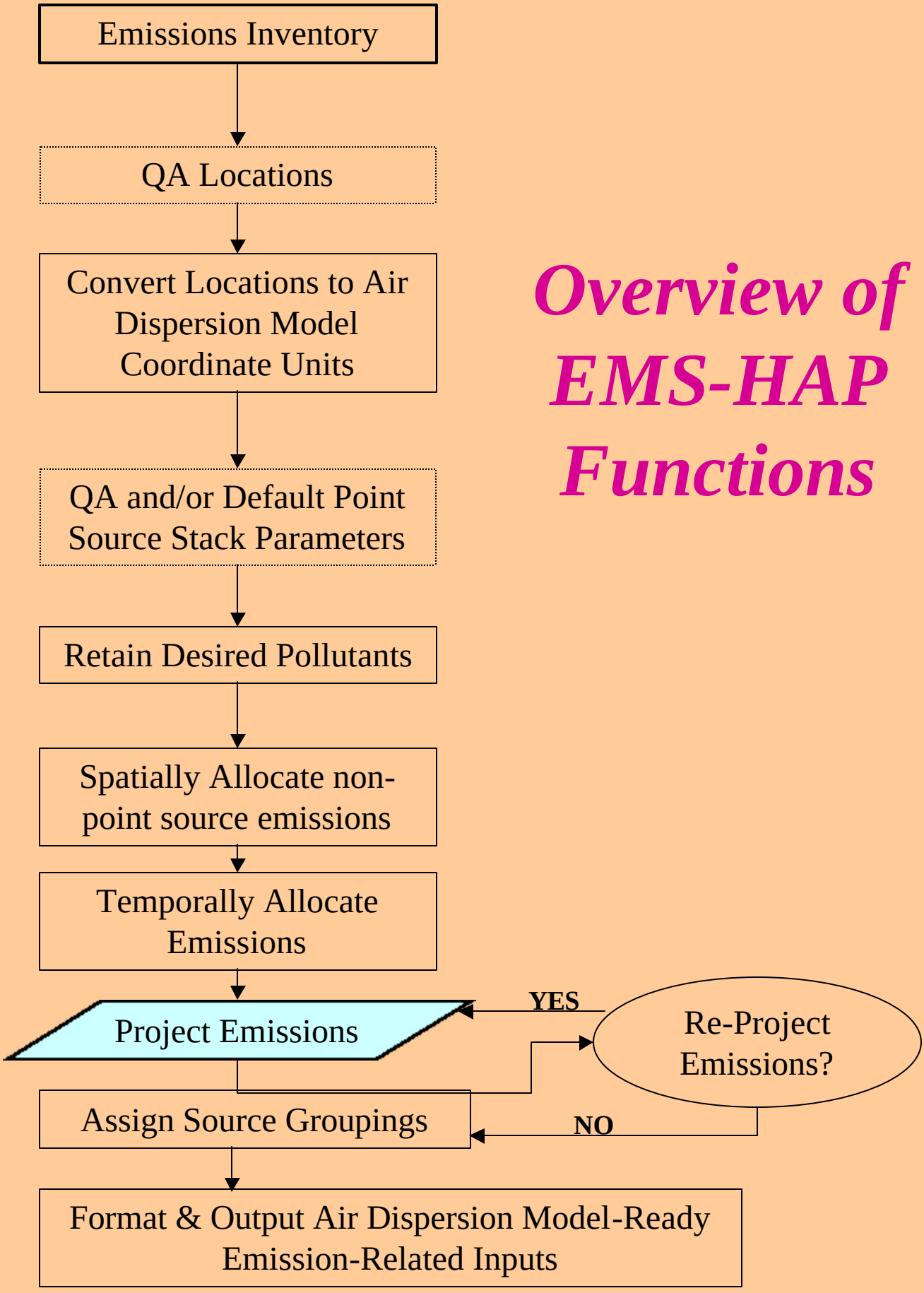
- Show progress of programs – the big picture
- Help set priorities for future programs, along with other analyses
- Determine impacts of potential emission reduction strategies – “what if” scenarios

Current Projection Methodology For Toxics

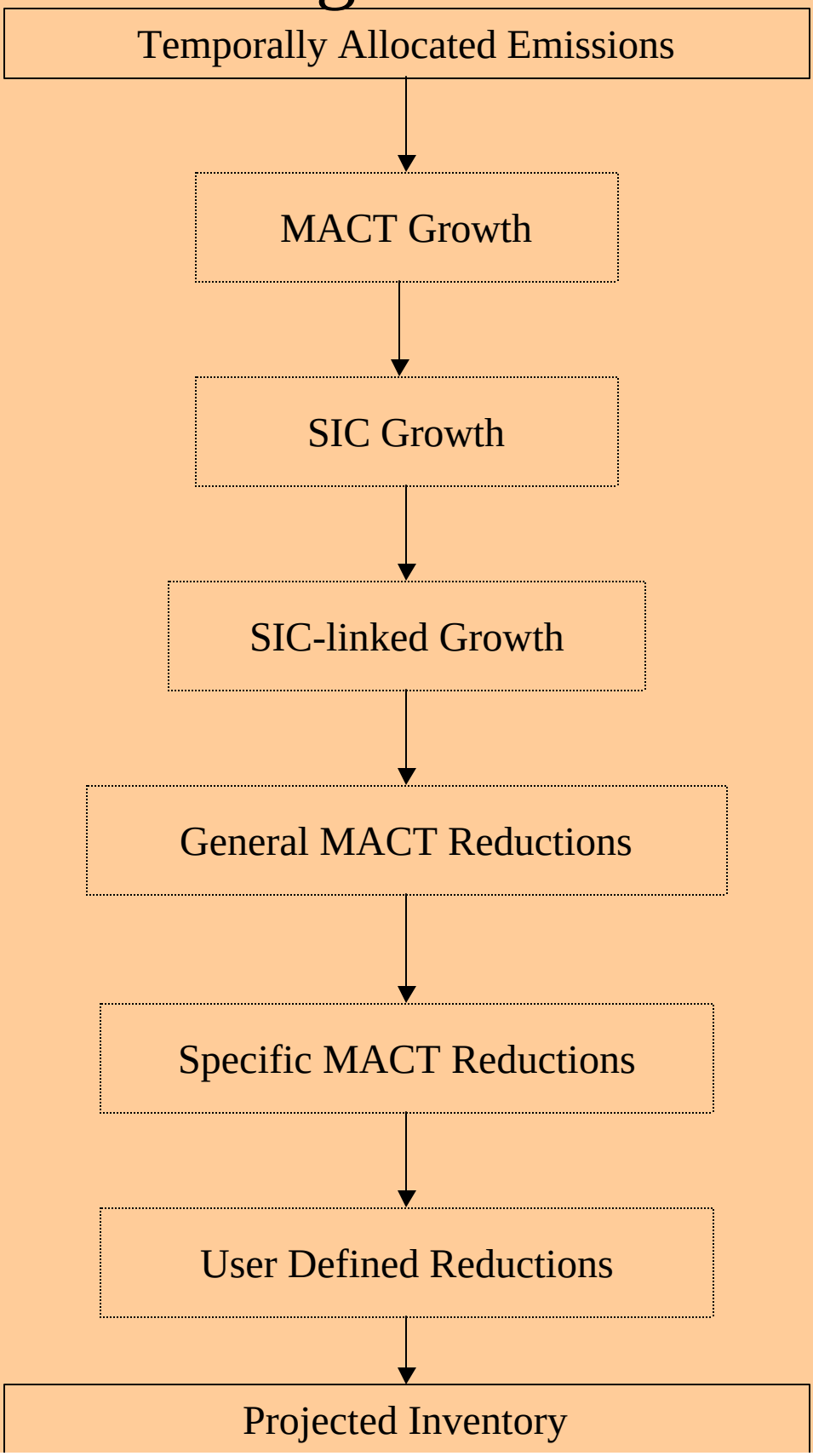
Stationary Source Emissions (point, non-point): → **EMS-HAP**

Mobile Source Emissions → Less automated Methodology based on Mobile toxics models and VOC and PM inventories (details in http://www.epa.gov/otaq/toxics.htm#regswww.epa.gov/otaq/)

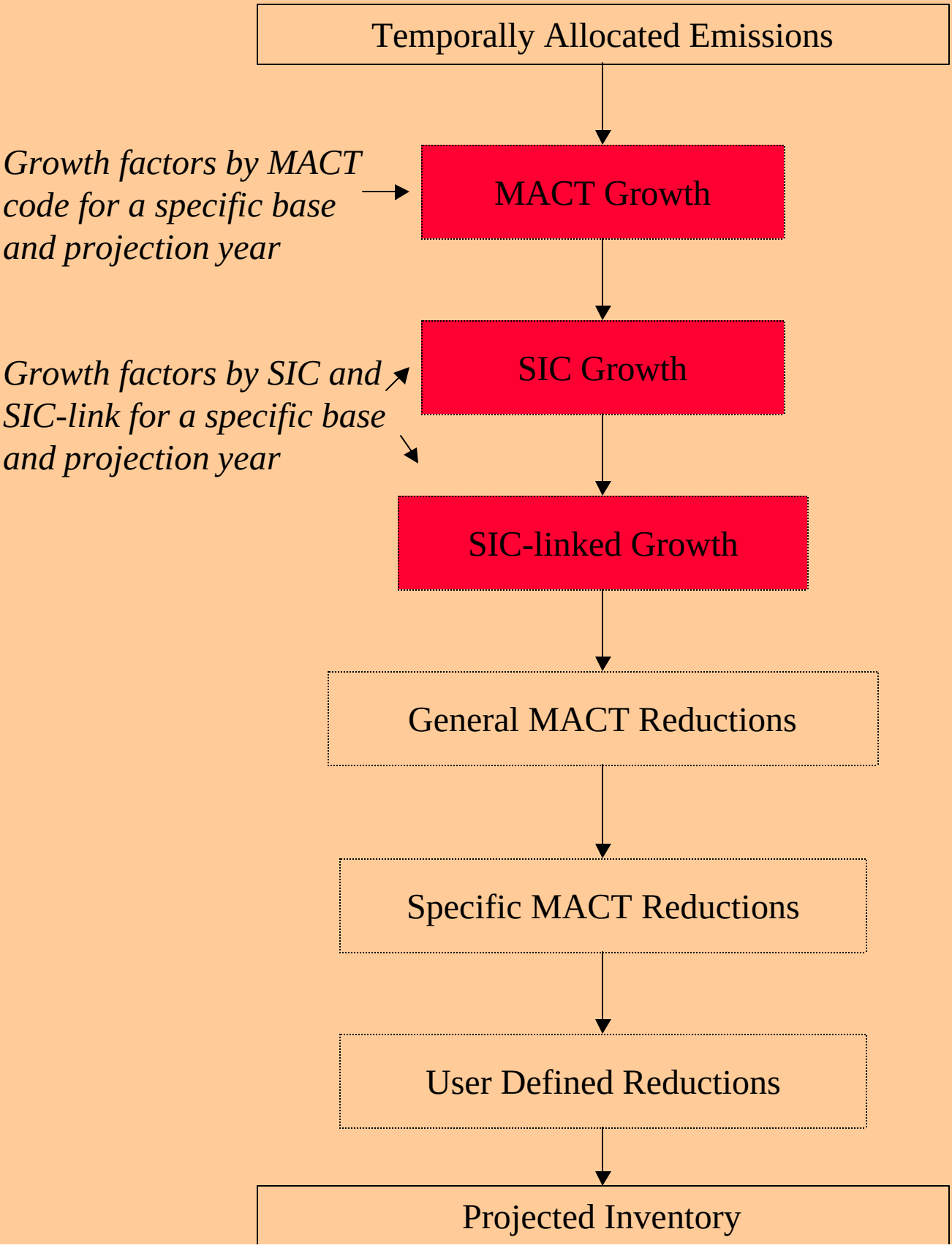
Overview of EMS-HAP Functions



EMS-HAP's Projection Algorithm



Two Ancillary Growth Factor Files



Assignment and Application of Growth Factors

Assigned on National, State, or County level

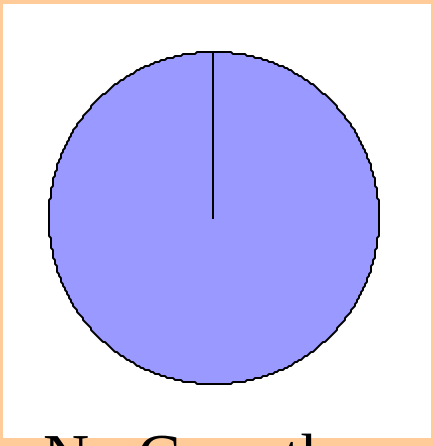
- **MACT-based Growth Factors**
  - Based on MACT category code

- **2-digit SIC-based Growth Factors**
  - Based on first 2 digits of SIC code

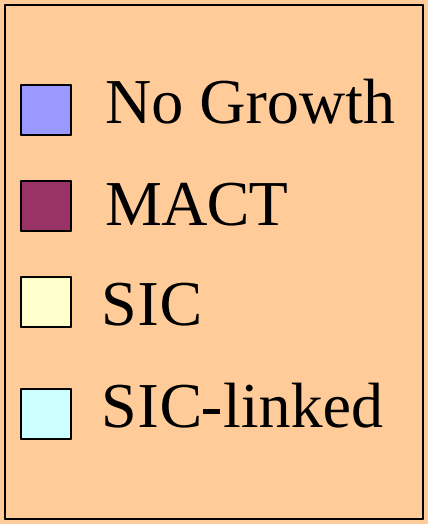
- **"SIC-linked" Growth Factors**
  - Match 8 digit SCC to 2-digit SIC for point
  - Match category name to 2-digit SIC or 4-character 'pseudo-SIC' code (e.g. Consumer Products).

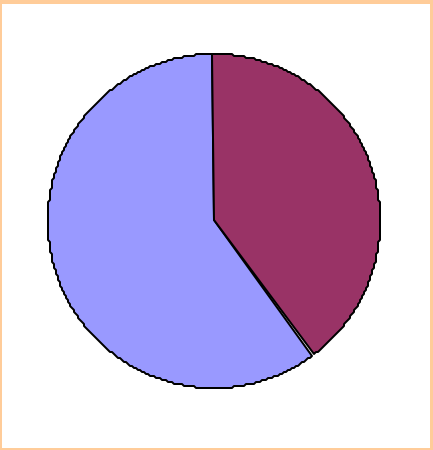
MACT-based growth factors are NEVER replaced by SIC-based growth factors

Overview of Growth Options

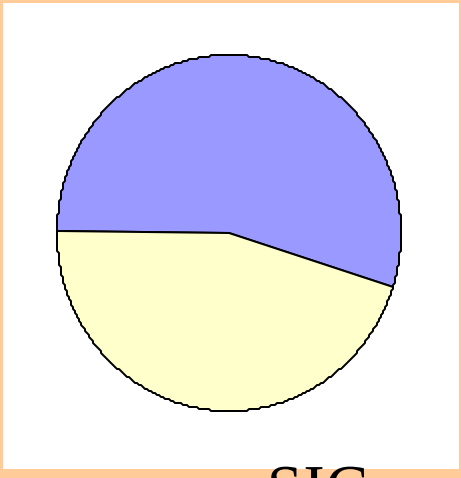


No Growth

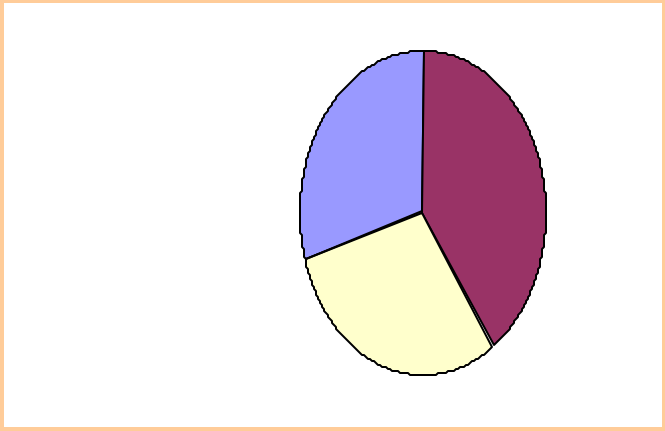




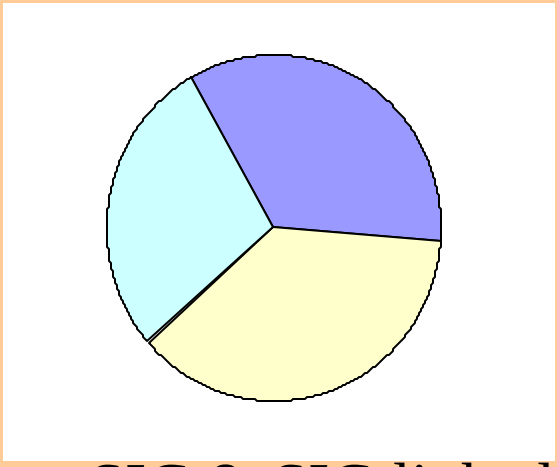
MACT



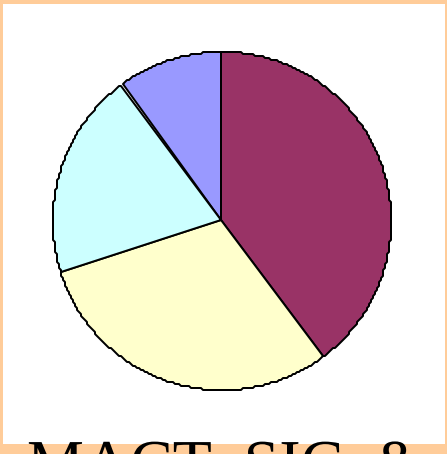
SIC



MACT & SIC

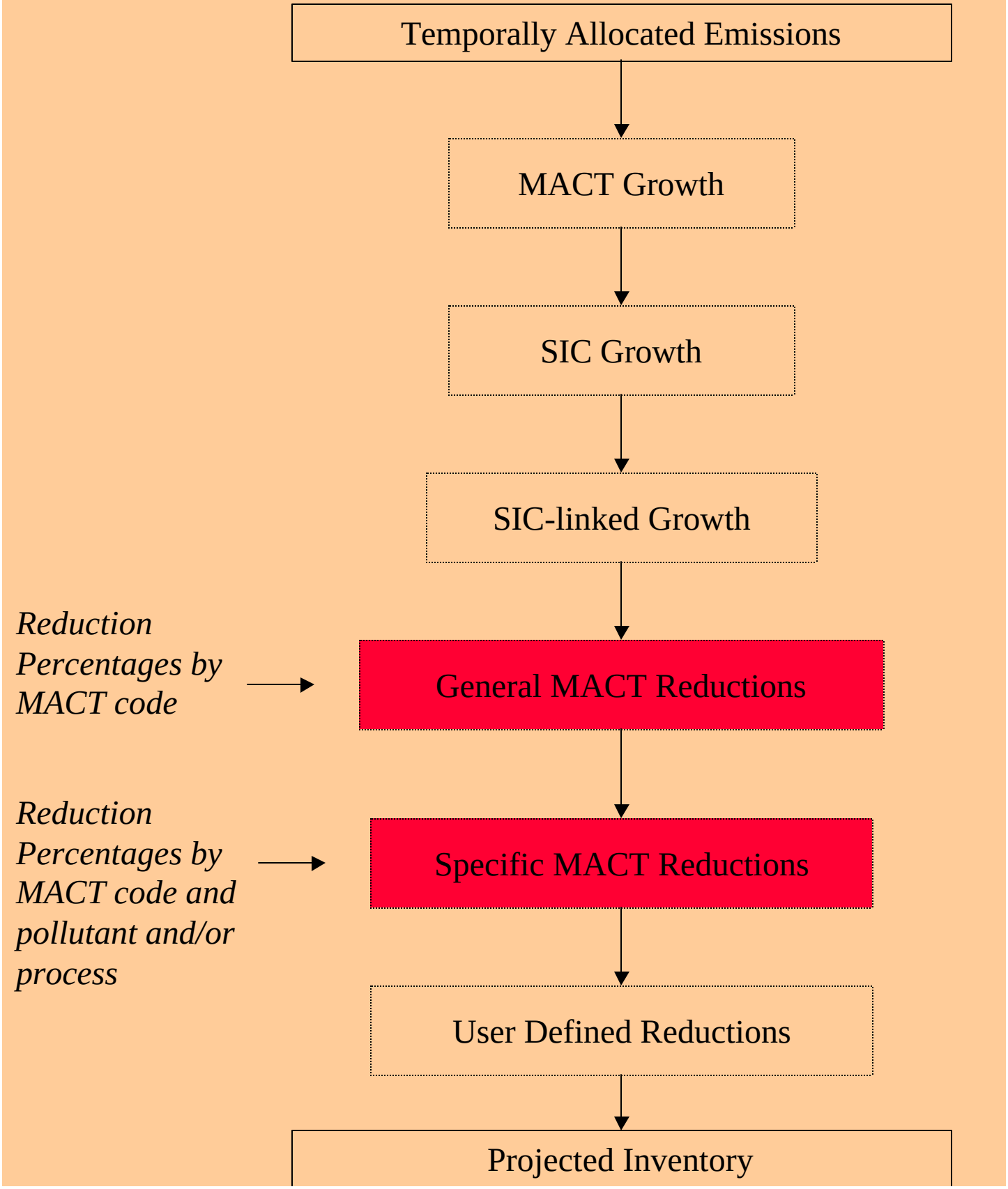


SIC & SIC-linked



MACT, SIC, & SIC-linked

Two Ancillary MACT Files For MACT Reductions



Basic Variables Used to Reduce Emissions

- **Two Reduction Efficiencies: Existing and New Sources**

- **Percentage of Emissions at Existing Sources expected to come from New sources**

- **Application Reduction Flag**
  Determines whether or not to apply reductions

- **Source Reduction Flag**
  Applies reductions to particular source types

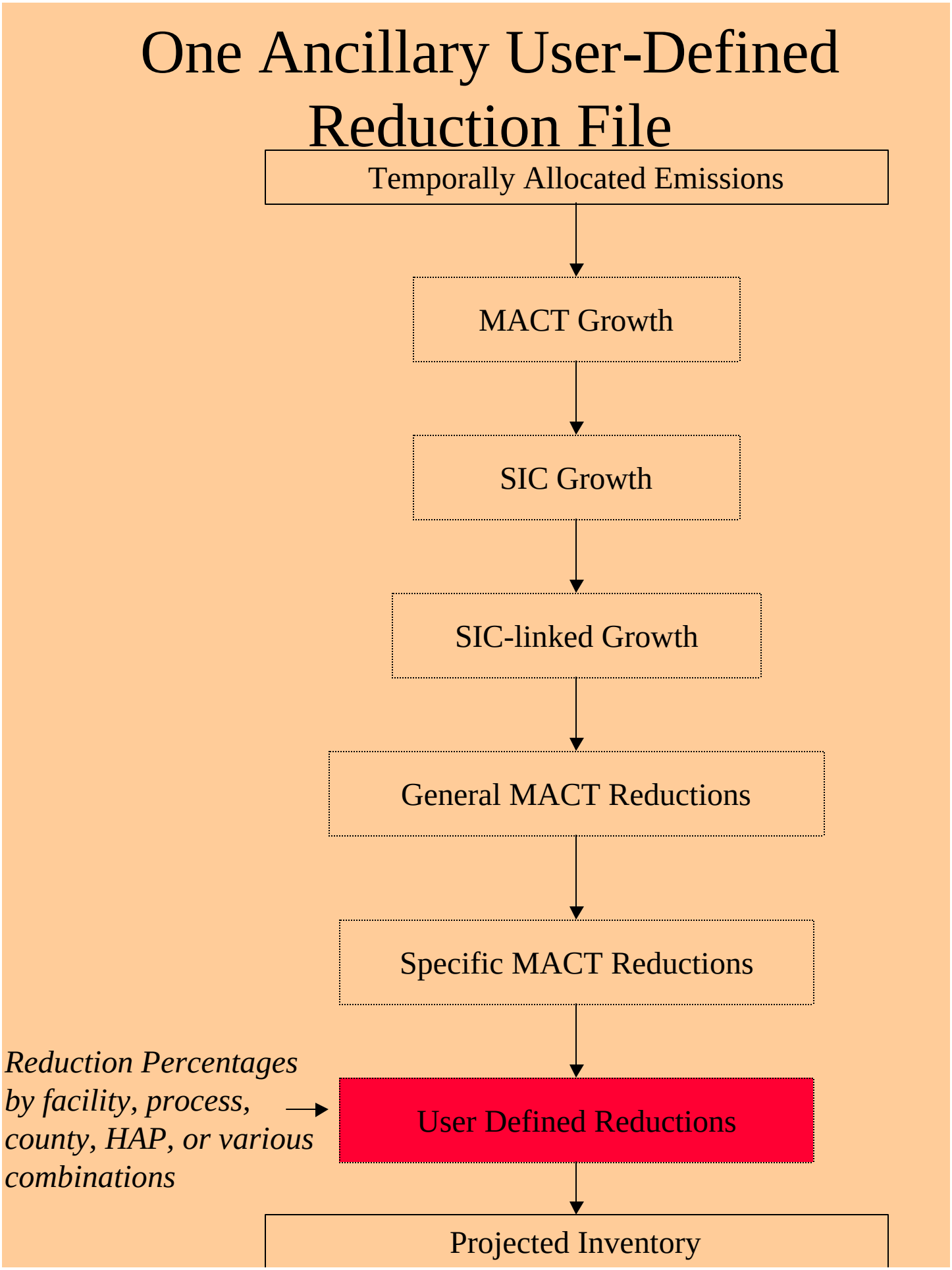
- **Compliance Year and/or Bin**
  Used to determine if standard is in effect for the entire future year

Assignment Order for Applying MACT Reduction Information

Assignment Order	MACT	HAP	6-digit SCC	8-digit SCC
1 (least specific)	X			
2	X	X		
3	X		X	
4	X			X
5	X	X	X	
6 (most specific: supercedes all others)	X	X		X

Most Specific MACT-based information possible when projecting the non-point inventory

One Ancillary User-Defined Reduction File



Applying User-defined Reduction Information

For Point Inventory

EMS-HAP applies MOST SPECIFIC of 36 possible combinations of: ACT_ID, MACT, SIC, SCC, HAP, and County-code information

For Non-point Inventory

EMS-HAP applies MOST SPECIFIC of 8 possible combinations of: Category name, MACT, HAP, and County-code information

Input Data For EMS-HAP

Toxics Emissions Inventory

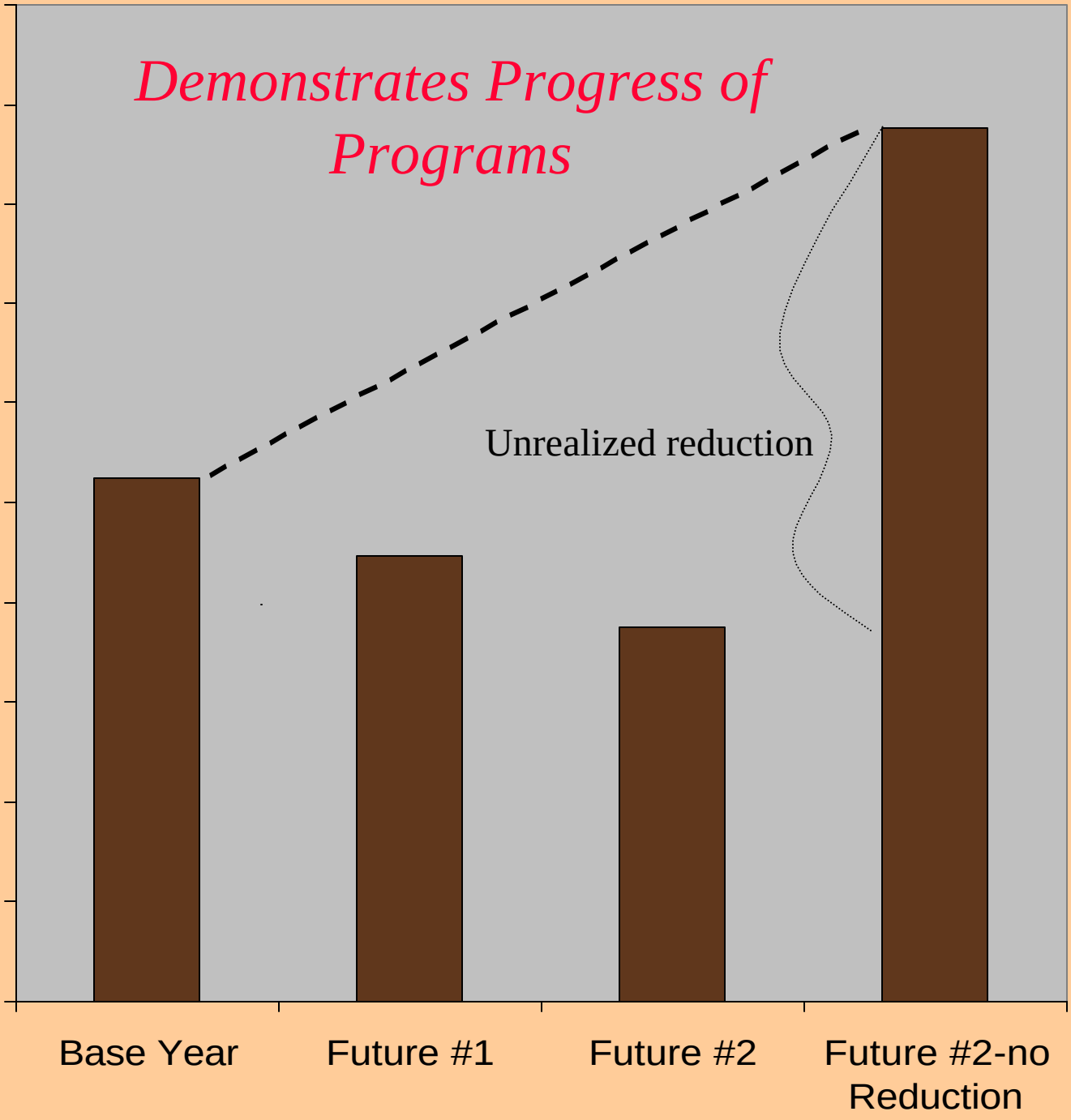
- 1996 NTI -point & non-point
- Detailed Local Scale Inventory – point & non-point (formatted similar to 1996 NTI)

Growth Factors and Emission Reductions

- EGAS -- Economic Growth and Analysis System (v4.0)
- Emission reductions from MACT program, other programs that effect toxics emissions

For a local-scale projection, facility-specific MACT reductions should be used

Example Application: 2 Future Years



Limitations

- Inputs should be reliable to get meaningful results
- Not really designed to project mobile inventories
- Growth cannot be applied on facility level

Conclusions

•EMS-HAP can project emissions inventories using multiple reduction strategy scenarios

•Growth is MACT and SIC based and can be applied on a national, state, or county basis

•Projected emissions can be fed into ISCST3 or ASPEN air quality dispersion models