

The Louisiana Method of Calculating CAIR Nitrogen Oxide (NO_x) Allowances

The Louisiana Method of calculating annual CAIR NO_x allowances reflects the recommendations of the Louisiana Public Service Commission. The following directions refer to the columns in the spreadsheet used in allocating allowances each control period.

ANNUAL NO_x ALLOCATIONS

Step 1: Calculate the average annual NO_x emissions per CAIR unit.

- This Step applies only to the Independent Power Producers (IPPs) and cogeneration units not regulated by the LPSC
- Information appears on worksheet tab “Annual for Non-regulated Units”
- Initial allocation of allowances for 2009, 2010, & 2011:
 - ✓ Use 2002, 2003, and 2004 actual annual NO_x emissions for each CAIR unit
 - ✓ Source for actual NO_x emissions is either emissions inventory or emissions info available at http://cfpub.epa.gov/gdm/index.cfm?fuseaction=whereyoulive.state&displaymode=view&programYearSelection=none&prg_code=ARP&year=2003&state=LA

Example:

Actual NO_x emissions [tons per year (tpy 2002 + 2003 + 2004/3 = average actual NO_x emissions (tpy)

- ✓ Result of the average calculation in columns H and I of the spreadsheet.
- For each control period beginning in 2008, use the last 3 years emissions data.
 - Examples:
 - To allocate 2012 allowances in 2008 use 2005, 2006, 2007
 - To allocate 2013 allowances in 2009 use 2006, 2007 2008
- Basis for NO_x allocations for new units:
 - ✓ A year of data (partial or complete). No average or
 - ✓ 2 years of data averaged

Step 2: Calculate the average heat input (MMBtu) per CAIR unit.

- This Step applies only to units regulated by the LPSC
- See worksheet tab “Annual for Regulated Units”
- Initial allocation of allowances for 2009, 2010, & 2011:
 - ✓ Use 2002, 2003, and 2004 actual heat input for each CAIR unit
 - ✓ Source for heat input data available at http://cfpub.epa.gov/gdm/index.cfm?fuseaction=whereyoulive.state&displaymode=view&programYearSelection=none&prg_code=ARP&year=2003&state=LA

- ✓ Excel spreadsheet will perform calculation by entering appropriate heat input data (MMBtu) for the appropriate years.

Examples: (next page)

Actual heat input 2002 + actual heat input 2003+ actual heat input 2004/3
= average heat input (MMBtu)

Columns I+J+K/3 = Column M

- For each control period beginning in 2008, use the most recent 3 years heat input (MMBtu) divided by 3 (for 3 years).

Example:

To allocate 2012 allowances in 2008 use the heat input (MMBtu) from 2005, 2006, and 2007

To allocate 2013 allowances in 2009 use the heat input (MMBtu) from 2006, 2007, and 2008

- New LPSC-certified CAIR units.
 - ✓ Units that are approved for construction
 - ✓ For new coal-fired units multiply the PSC certified gross electrical output in MW by 7,900 Btu/kWh and divide by 1,000,000 Btu/MMBtu. To convert from hourly to yearly multiply by 8,760 hours per year and to convert MW to kW multiply by 1,000.

Example for a new coal-fired unit with a certified gross electrical output of 700 MW, heat input =
 $700 \times 7,900 \times 8760 \times 1000 / 1,000,000 = 38,754,240$ MMBtu.
 - ✓ For new units, not coal-fired, the PSC certified gross electrical output in MW by 6,675 Btu/kWh and divide by 1,000,000 Btu/MMBtu. To convert from hourly to yearly multiply by 8,760 hours per year and to convert MW to kW multiply by 1,000.

Example for a new gas-fired unit with a certified gross electrical output of 200 MW, heat input =
 $200 \times 6675 \times 8760 \times 1000 / 1,000,000 = 9,355,680$ MMBtu.
- Basis for NOx allocations for new units:
 - ✓ A year of data (partial or complete). No average,
 - ✓ 2 years of data averaged.
- The heat input may be obtained from the link above or the emission inventory after 2007.

Step 3: Calculate the adjusted heat input (MMBtu) for each CAIR unit.

- This Step applies only to units regulated by the LPSC
- See worksheet tab “Annual for Regulated Units”
- Initial allocation of allowances for 2009, 2010, & 2011:
 - ✓ average heat input (MMBtu) **multiplied by** fuel adjustment factor (taken from the FIP) = adjusted heat input (MMBtu) for the unit
 - ✓ Fuel adjustment factor (Column O) based on fuel used: coal = 1; gas = 0.4; other type fuels, consult the FIP
 - ✓ Columns M X O = Column Q

Example
Little Gypsy –Unit 1 4,993,669 MMBtu X .4 = 1,997,467 MMBtu
- New LPSC certified CAIR units.
 - ✓ Units that are approved for construction

- ✓ Using the heat input from Step 2, calculate the adjusted heat input as described above
- For each control period, beginning in 2008, this step will be calculated in the same manner using the appropriate data.

Step 4: Final CAIR Annual NO_x Allocations

- See worksheet tab “Annual for Regulated Units”
- Allocations for Non-LPSC regulated units, the allowances = average actual emissions from Step 1
- Subtract the allowances for the non-LPSC regulated units (Column I on the Annual for Non-regulated Units tab) from the Louisiana State Budget for the control period.
 - ✓ Louisiana (LA) Phase 1 Annual NO_x Budget 2009-2014 = 35,512 tpy
 - ✓ LA Phase 2 Annual NO_x Budget for 2015 forward = 29,593 tpy
 - ✓ Note: The Louisiana Budget will need to be adjusted each year beginning with 2008 when the allowances for control period 2012 are allocated
- The calculations are performed by the Excel spreadsheet and are found on the Annual for Regulated Units tab in columns T (ratio value) and U (allowances).
- For the initial allocation of allowances for 2009, 2010, and 2011
 - ✓ Determine the ratio of each unit’s adjusted heat input (MMBtu) (Column R) to the total adjusted heat input (MMBtu) (total of Column R). The value of this ratio (%) appears in Column T. The LA cap Phase 1 Annual NO_x Budget for 2009 is **multiplied by** the ratio in Column T. Round the answer to the nearest whole number (see Column U).
Example:
 Column R for the unit/Column R Total = Column T (% ratio)
 Column T X 31,808 tpy = Column U (allowances)
- Example: Little Gypsy-1
 1,997,467 MMBtu / 483,790,598 MMBtu (sum of all column R values) X
 31,808 tpy (adjusted Louisiana budget for 2009) = 153 tpy.
- For each control period, beginning in 2008, this step will be calculated in the same manner using the appropriate data

OZONE SEASON NO_x ALLOCATIONS

- Calculated in the same manner as annual NO_x allowances.
- Use Steps 1-4 but modify all the emissions (actual tpy NO_x emissions) and heat input (MMBtu) data by using seasonal (May through September) data found at the web address listed above. If seasonal data is not available use annual data and multiply the data by 5/12.
- Louisiana Ozone Season Budgets
 - ✓ Phase 1 Seasonal NO_x Budget 2009-2014 = 17,085 tpy
 - ✓ LA Phase 2 Seasonal NO_x Budget for 2015 forward =14,238 tpy

Example

Acadian Power Station –CT1 for 2009, 2010, and 2011 allowances. Seasonal NO_x data is unavailable.

Average annual NO_x emissions multiplied by 5/12
= average seasonal NO_x emission

$$20 \text{ tpy} \times 5/12 = 8 \text{ tpy}$$

Average annual heat input multiplied by 5/12 = average seasonal heat input

$$2,170,293 \text{ MMBtu} \times 5/12 = 904,289 \text{ MMBtu}$$

Average adjusted annual heat input multiplied by 5/12 = average adjusted seasonal heat input

$$2,170,293 \text{ MMBtu} \times 5/12 \times 0.4 = 361,716 \text{ MMBtu}$$