



Economic Benefits of Tier 3 from Mobile Source Emissions Control Industry Perspective

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Message & Agenda

- Message:
 - Tier 3 will drive economic growth and job creation in the emissions control technology industry through the virtuous technology/investment cycle and global regulatory cycle
 - Regulatory review must be completed by early March to capture economic/job creation benefits in MY17 or benefits otherwise lost for a year
- Agenda:
 - Products
 - Industry structure
 - Virtuous technology/investment cycle
 - Global regulatory cycle
 - Industry economic contribution
- Navigant economic study of implications of Tier 3

Mobile Source Emission Control Industry's Contribution to Clean Air



- Mobile emissions control products have prevented



tons of hydrocarbons



tons of nitrogen oxides



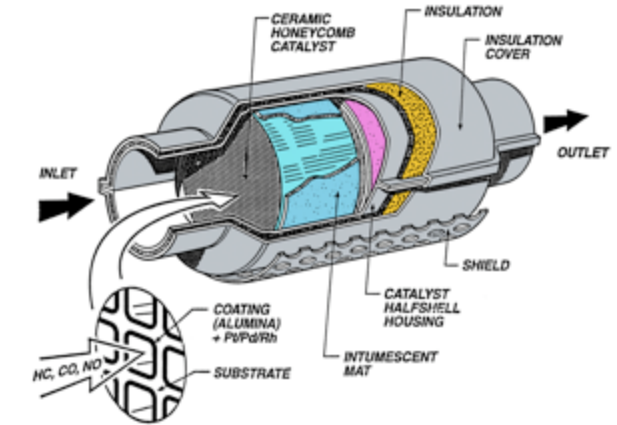
tons of carbon monoxide

...from entering the air we breathe

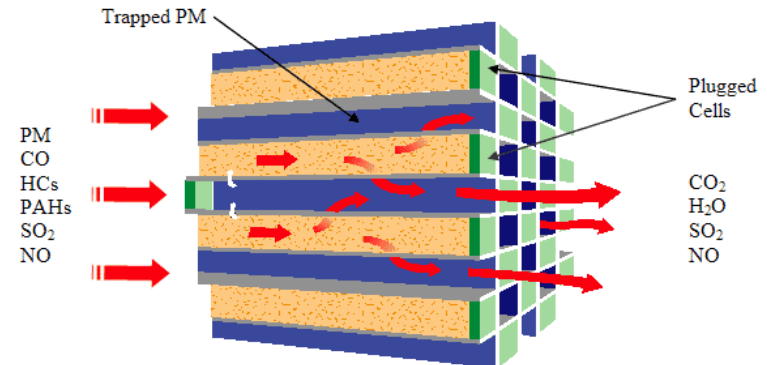
Mobile Source Emissions Control Products

Three Way Catalyst

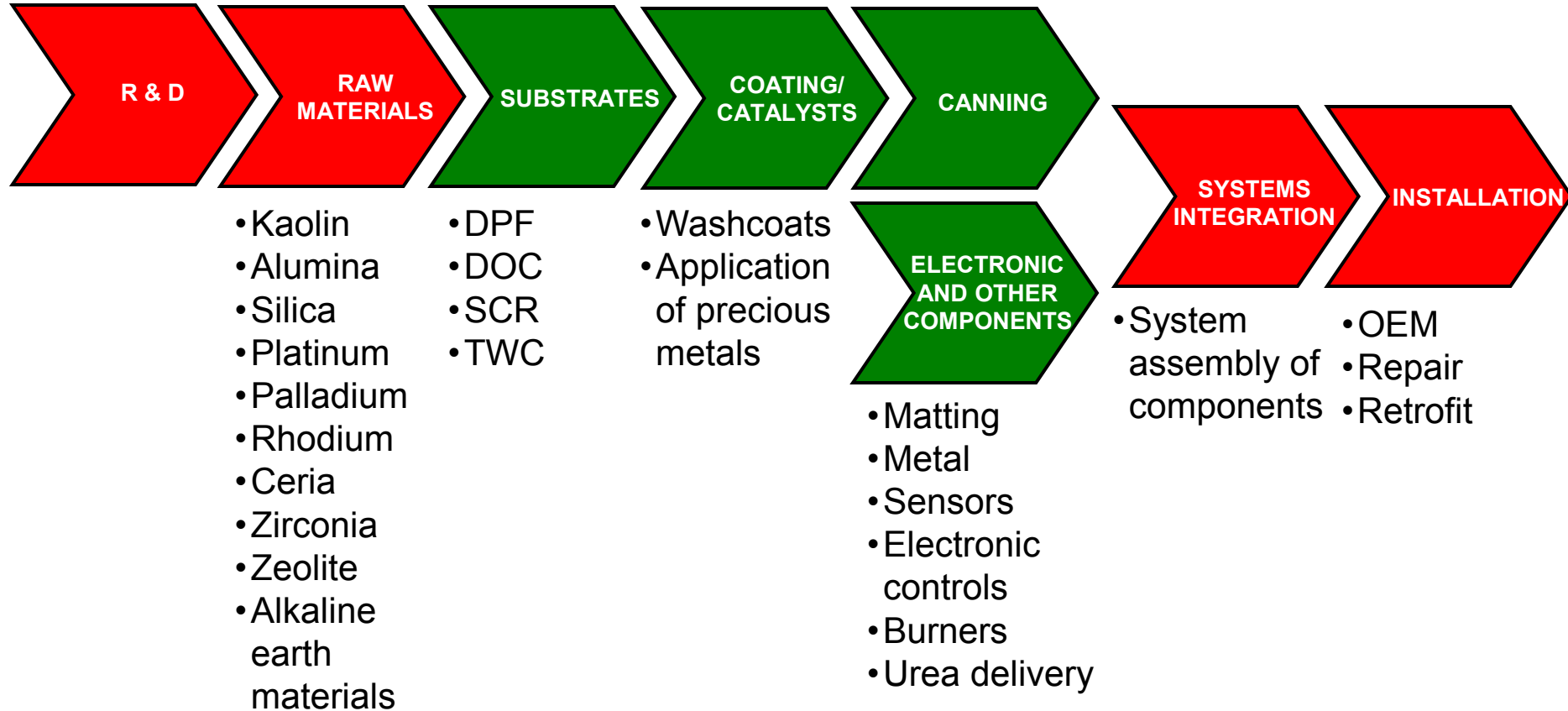
- Diesel Oxidation Catalysts
- Diesel Particulate Filters
- Exhaust Gas Recirculation (EGR)
- Selective Catalytic Reduction (SCR)
- Lean NOx Catalysts
- Engine Crankcase Filter System
- Three-Way Catalysts
- Catalytic Convertors
- Sensor Technology
- Evaporative ECT
- Engine Air Induction System ECT



Diesel Particulate Filter



Mobile Source Emission Control Industry Value Chain



Companies in the Mobile Source Emissions Control Industry

Substrate Manufacturers

- Corning Incorporated
- Emitec
- Ibiden
- NGK Automotive Ceramics USA

Canning

- 3M Company
- Benteler Automotive
- Bosal International North America
- Donaldson
- Eberspaecher
- Faurecia Exhaust Systems
- Tenneco
- Unifrax Corporation
- Visteon

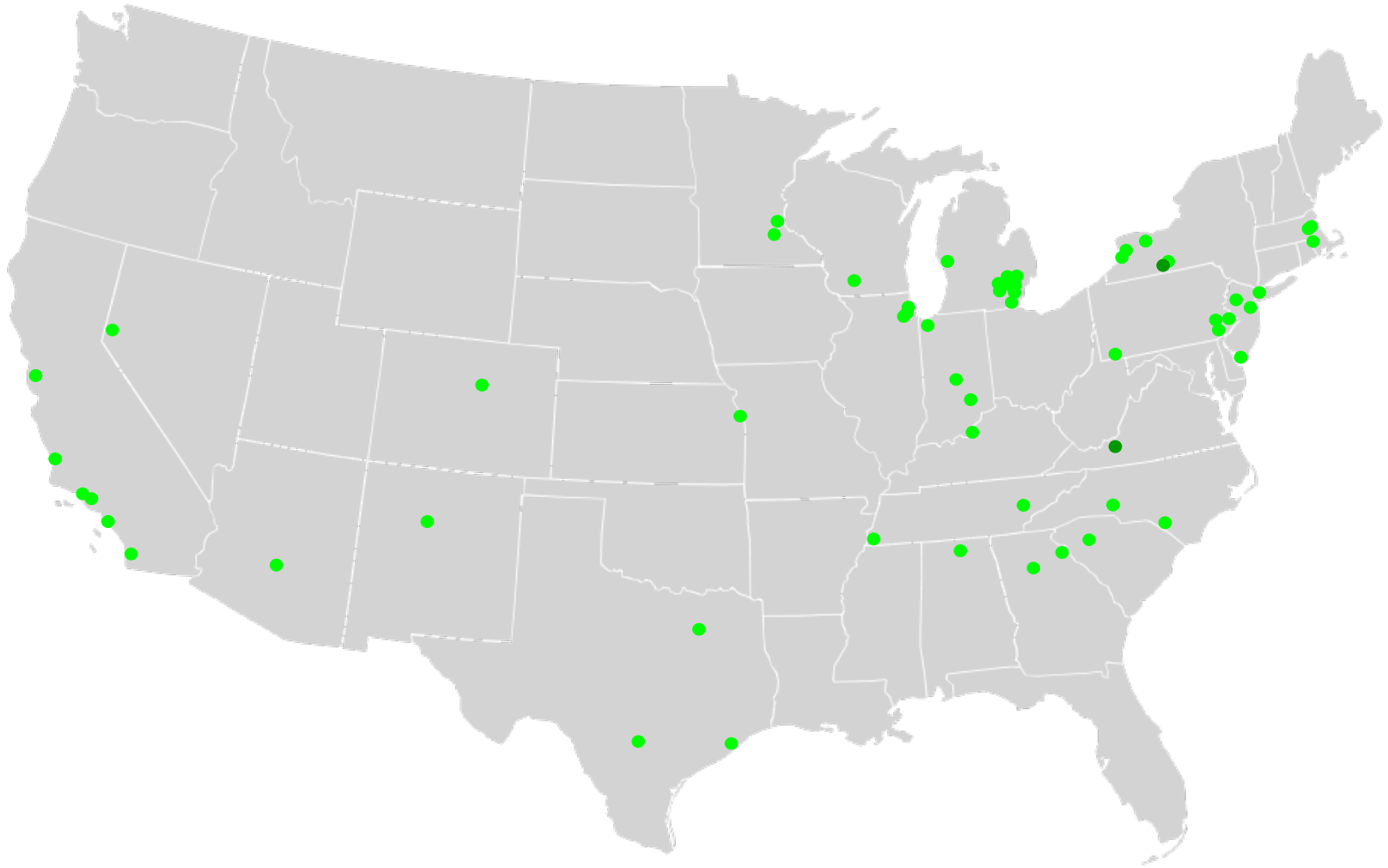
Coating Catalyst

- BASF
- Haldor Topsoe
- Johnson Matthey
- Sud-Chemie
- Umicore Autocat USA
- Rhodia

Electronic and Other Components

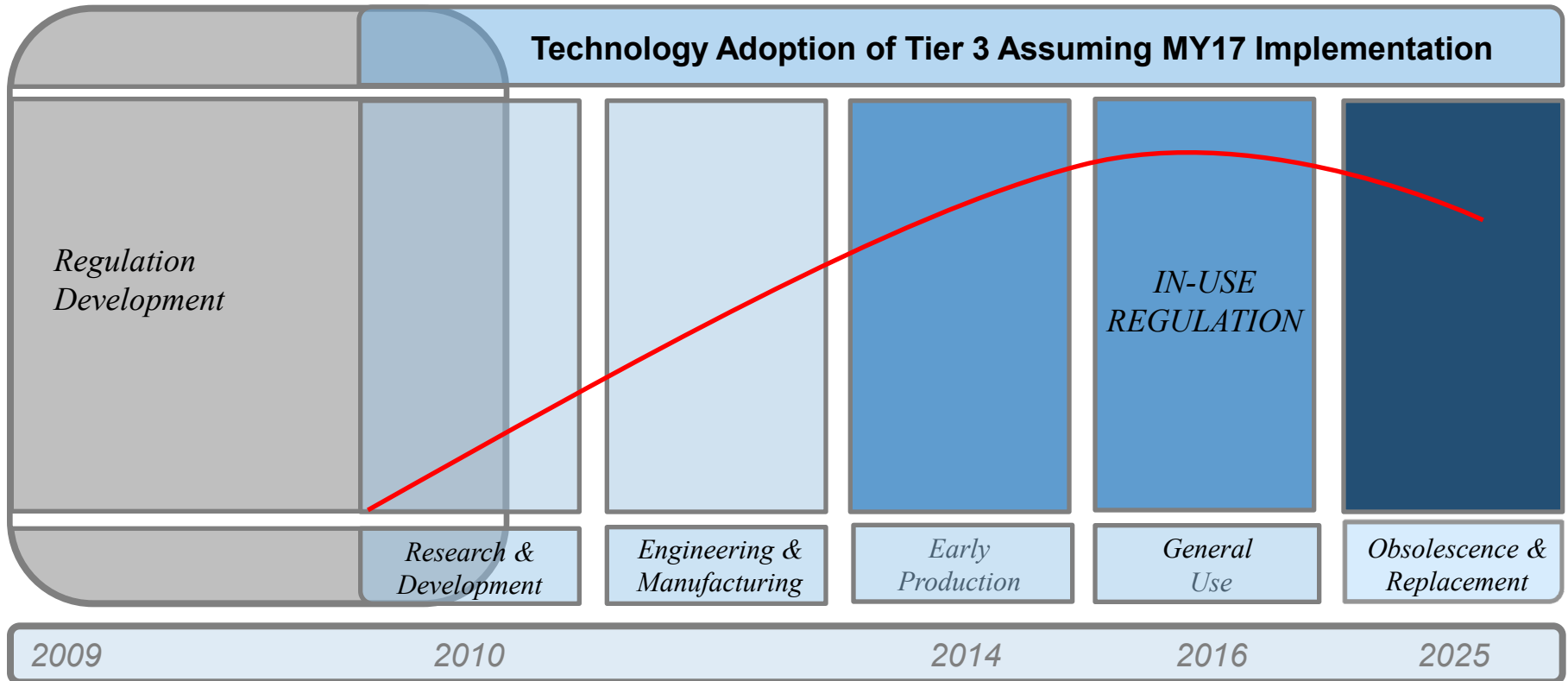
- Bosch (sensors and urea)
- Continental Automotive Systems
- Delphi
- Denso (sensors and urea)
- Honeywell
- NGK Sparkplug
- Pierburg (burners)
- Sensata
- Stoneridge
- Watlow (burners)

Mobile Source Emissions Control Industry Locations

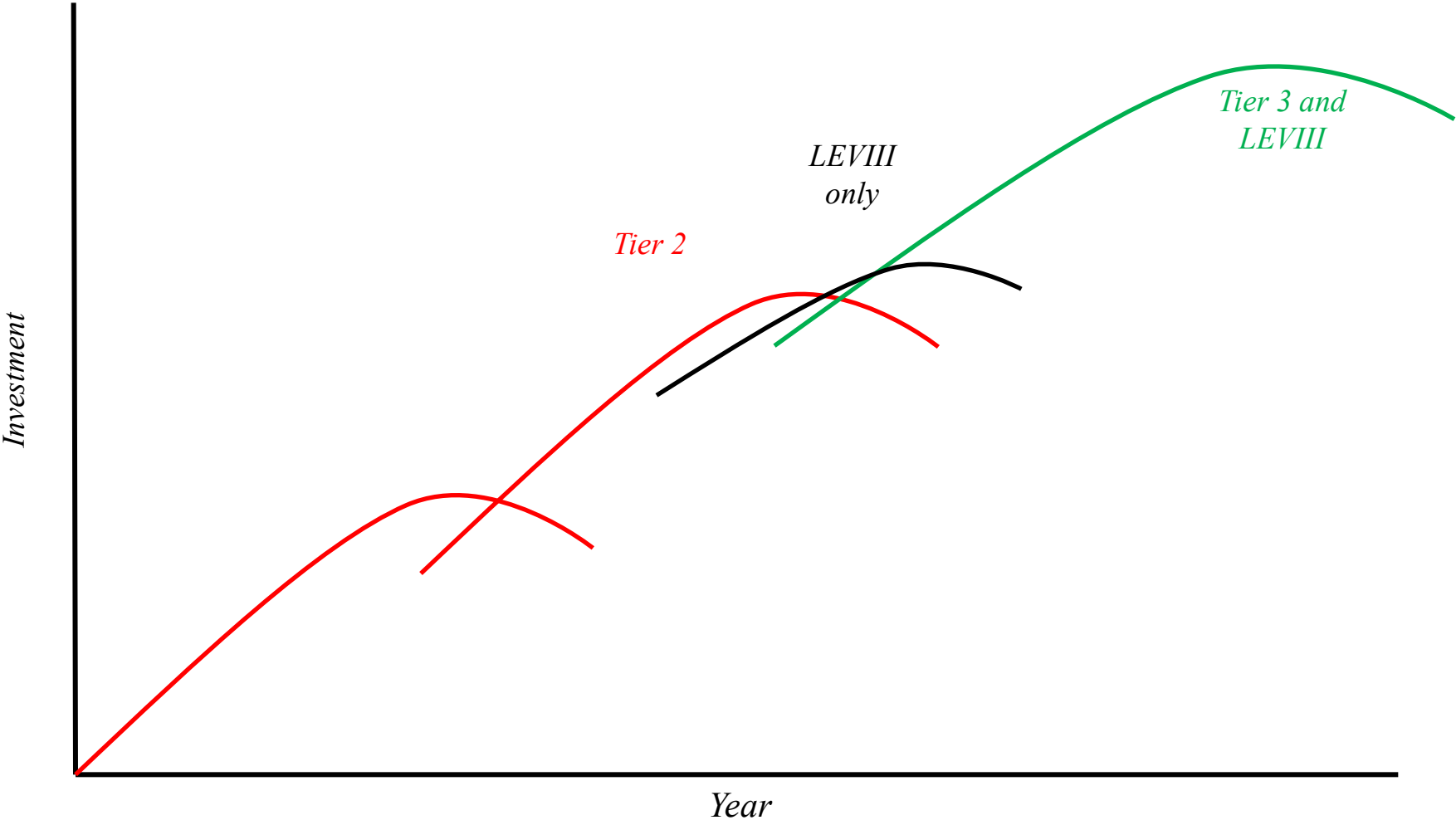


Source: MECA membership

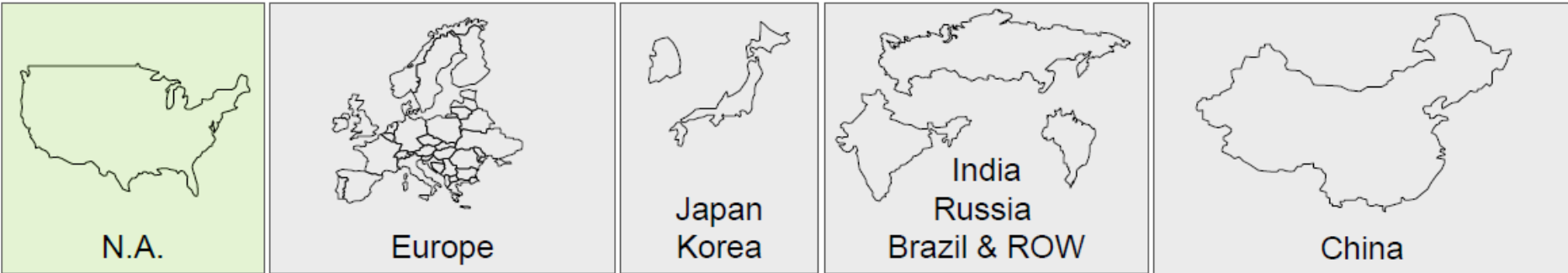
Regulations Drive Emissions Control Industry Technology Cycle



Regulations Drive Emissions Industry Investment



U.S. Initiatives Becomes Worldwide Phenomenon



1975



Tightening Regulations Bring Opportunity



N.A.



Europe



Japan
Korea



India
Russia
Brazil & ROW



China

2010



Another Wave Approaching



2017



Economic Benefits Generated by Mobile-Source Emissions Control Industry

- Mobile source emissions control industry generates significant economic activity
 - U.S. economic activity associated with emission control technology on new cars and trucks estimated at \$12B in 2010
 - Global light-duty vehicle emission control economic activity estimated at \$36-43B in 2010
- Mobile source emissions control industry creates jobs
 - Industry sustains approximately 65,000 jobs in the U.S.
 - High-level of skill required
 - Industry compensation is greater than the national average

Source: MECA press release dated March 11, 2011 at: <http://www.meca.org/galleries/default-file/MECA%20economic%20benefits%20press%20release%20031111.pdf>

Conclusion

- Emissions control industry has contributed significantly to the reduction of harmful emissions globally over the last four decades
- The industry has driven substantial technology development, economic growth, job creation, and exports
- Tier 3 promises to build on previous EPA regulation to drive the virtuous cycle of technology development and investment by the emissions control industry
- Tier 3 also promises to build on previous EPA regulation to drive a wave of global regulation that results in U.S. exports by the emissions control industry
- Delay in the review of Tier 3 beyond early March will lose the promise of technology development, economic growth, job creation, and export growth by the emissions control industry for a year