Evolution of Environmental Air Approvals in Ontario

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Americana 2013

Overview of Presentation

- Intro to Ontario Regulatory Regime
- Types of Environmental Compliance Approvals
- Approval approach
- Compliance after Modelling

Environmental Acts & Regulations

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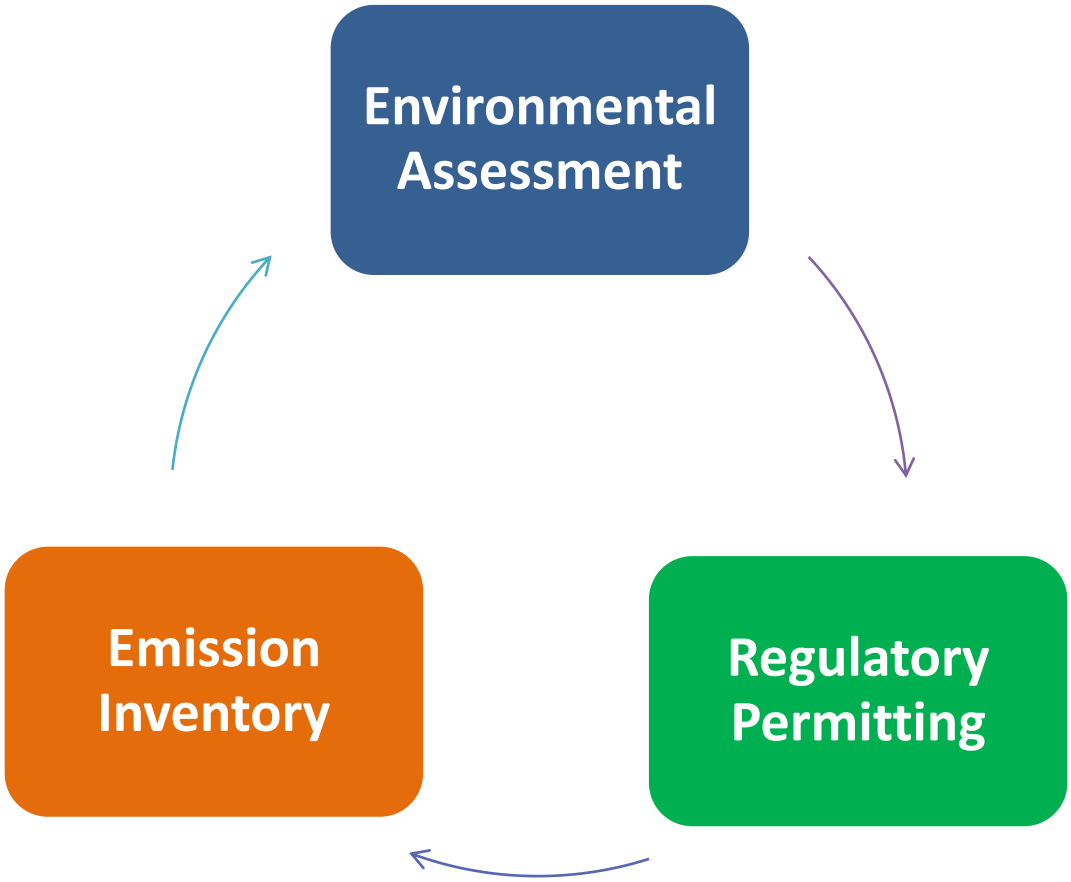
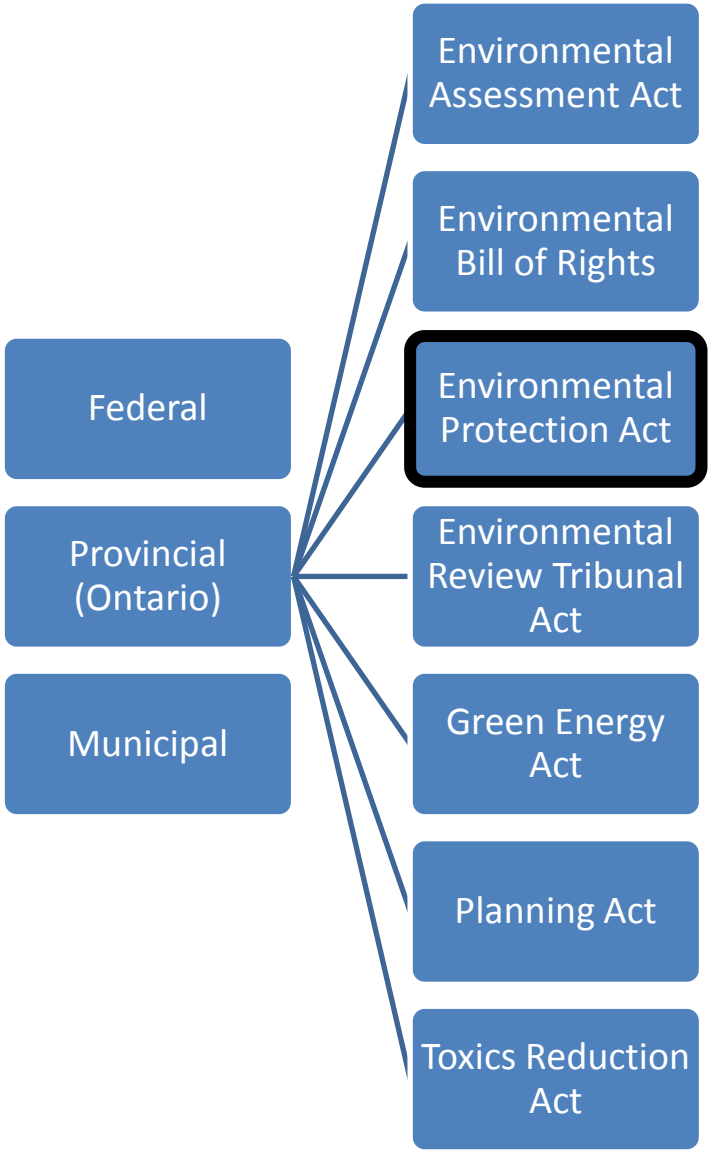


The Acts


Federal
Provincial (Ontario)
Municipal
Environmental Assessment Act
Environmental Bill of Rights
Environmental Protection Act
Environmental Review Tribunal Act
Green Energy Act
Planning Act
Toxics Reduction Act

Ontario Environmental Acts & Regulations

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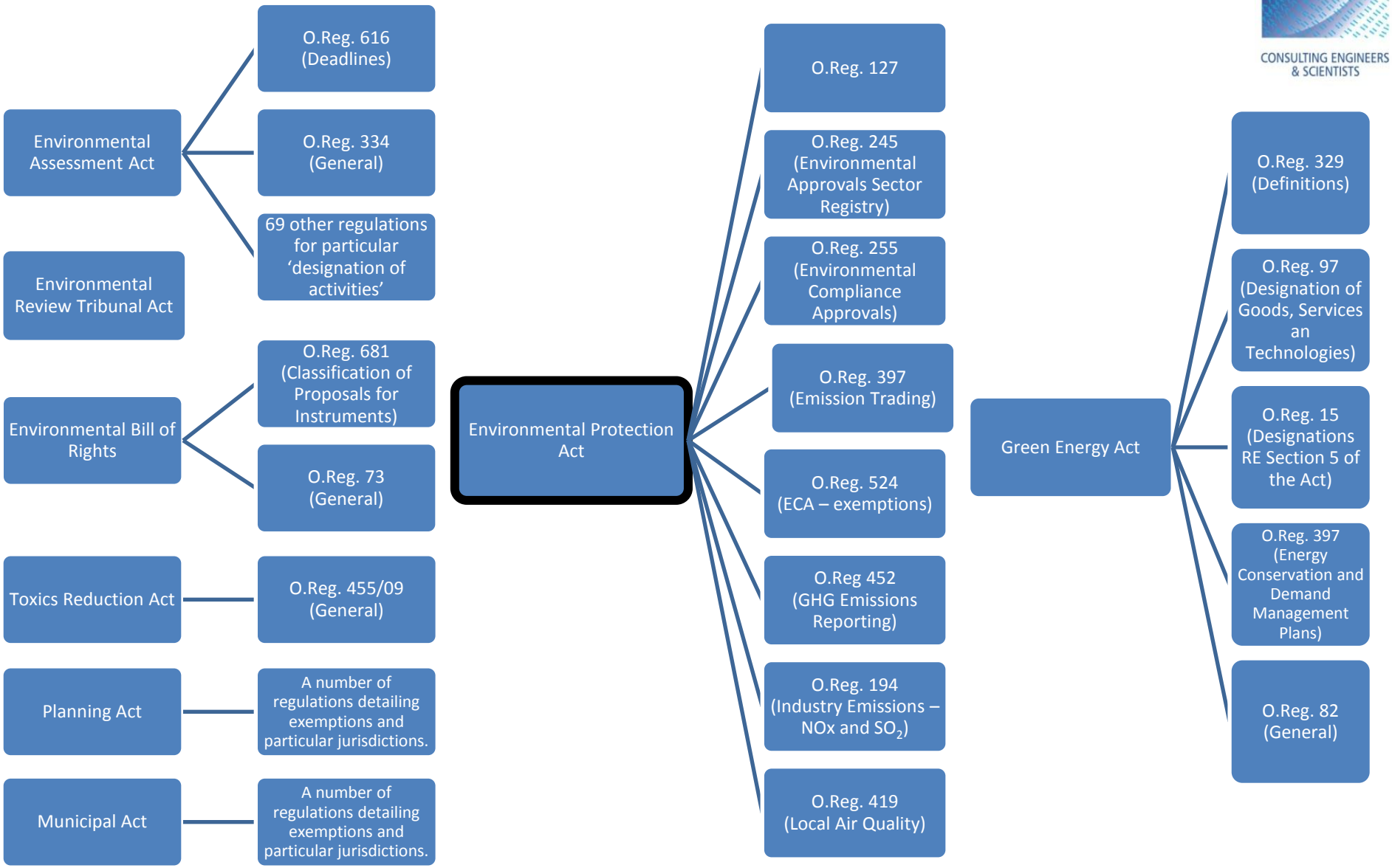

Ontario Environmental Acts & Regulations

Permit Requirements

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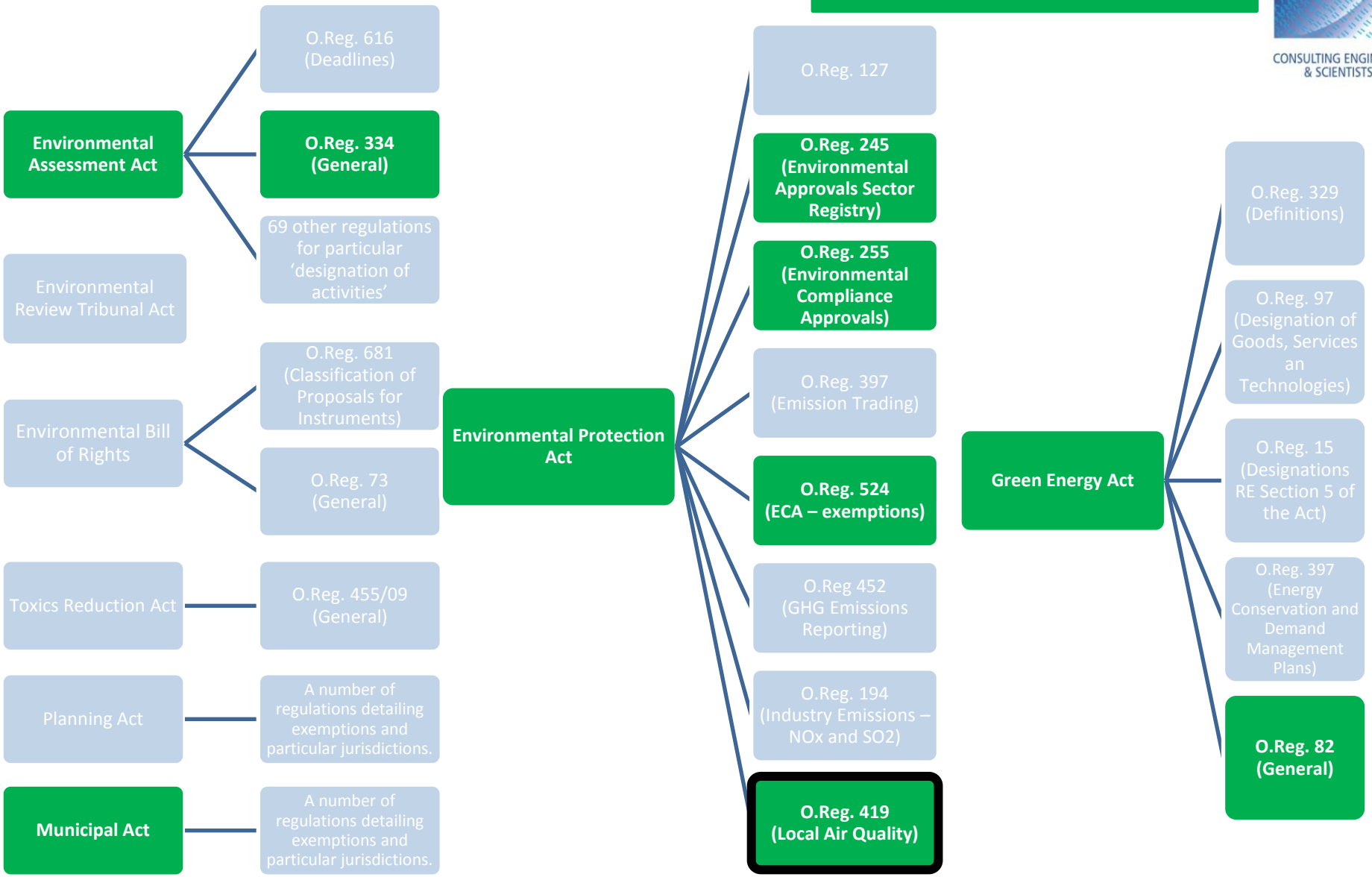
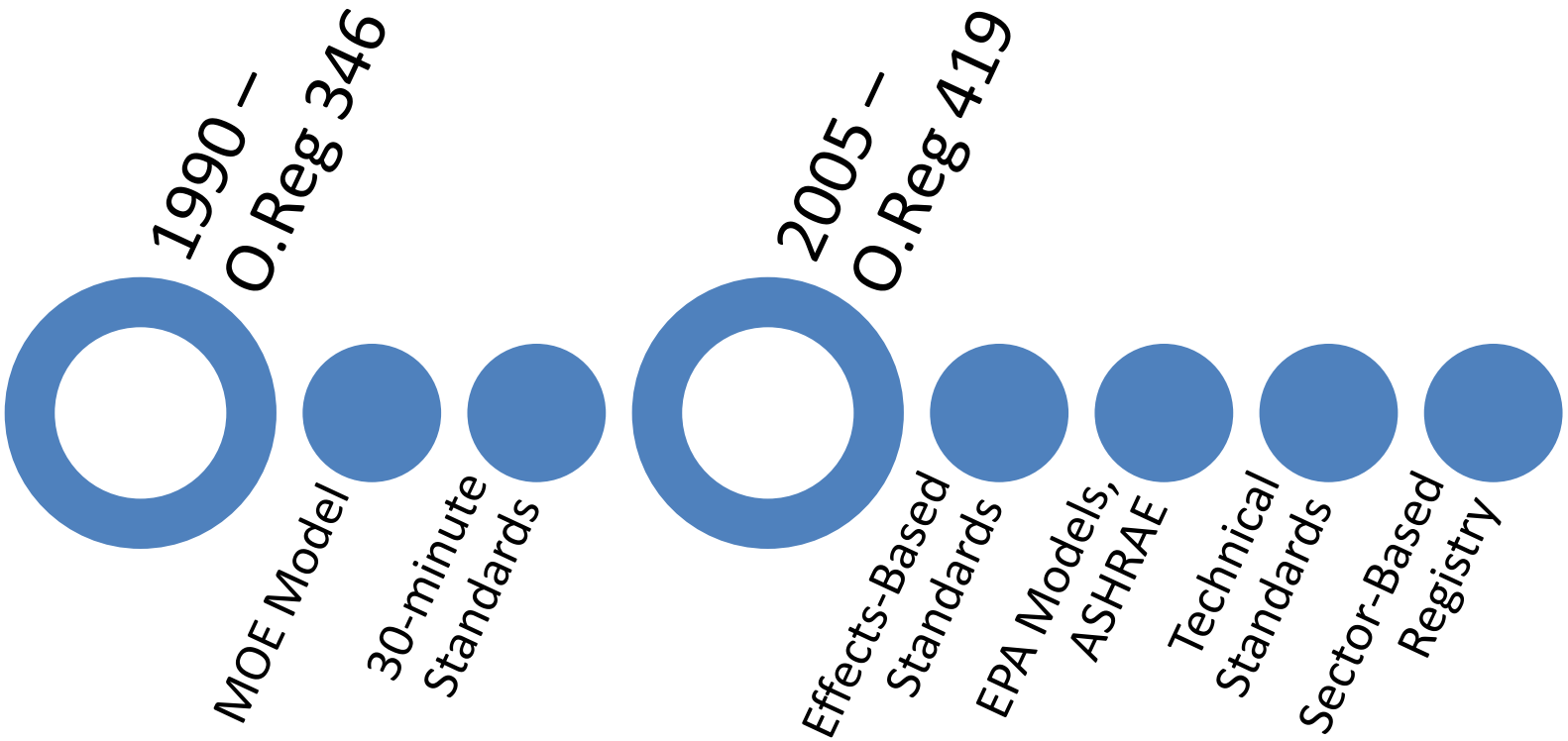
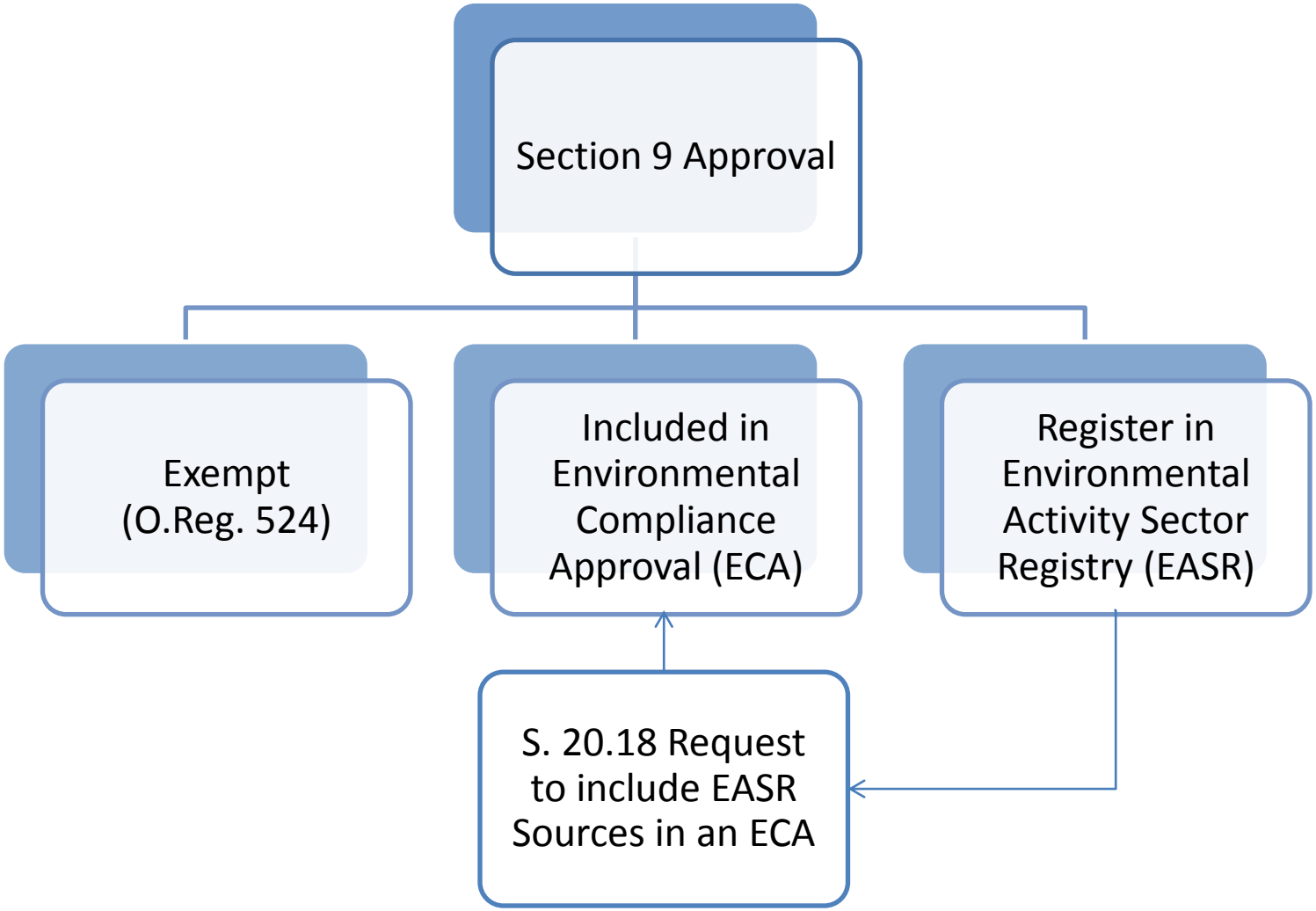


Timeline of Air Compliance Regulations in Ontario



Types of Environmental Compliance Approvals

EPA Section 9 Compliance



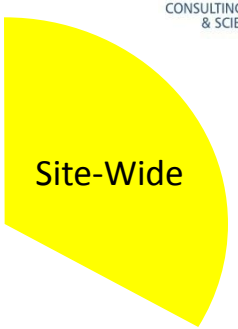
Types of Approvals

Equipment Specific ECA

- Not a preferred method by the MOE
- Specific equipment or process
- Multiple approvals possible
- Must still consider all emissions (facility-wide) for inventory, dispersion modelling and compliance assessment
- Requires ECA amendment for any changes to emission characteristics

Example: Single Piece or Few Pieces of Equipment at Site (e.g., Generator), Frequent Changes Not Expected

Site-Wide ECA



- Single approval document for air emissions
- Covers all emission points, equipment and processes
- Involves complete emission inventory, dispersion modelling and compliance assessment
- Requires amendment for any changes to emission characteristics

Example: Manufacturing facility with multiple emission points & like emissions, but frequent changes not anticipated

ECA with LOF

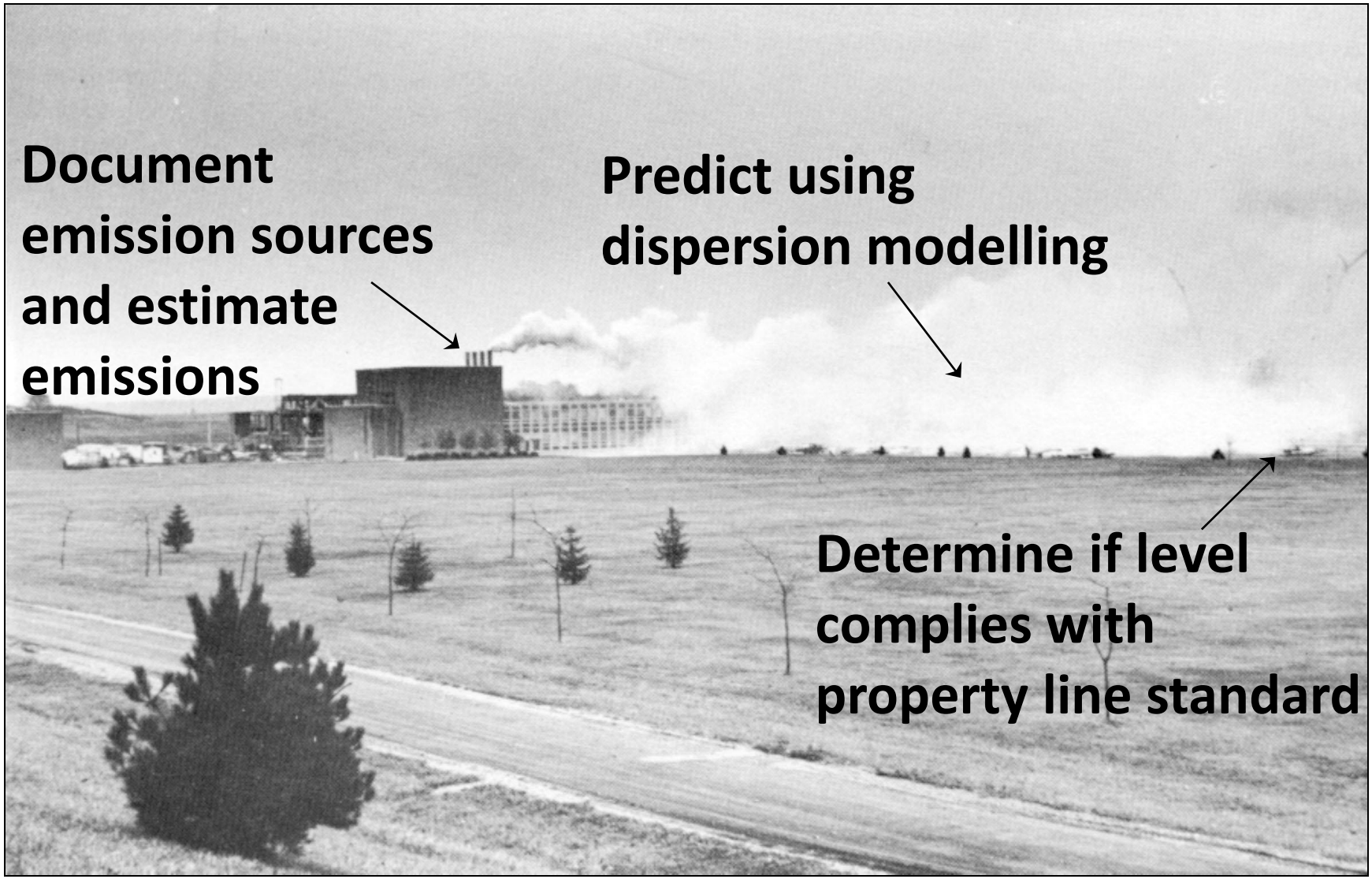
- Environmental Compliance Approval with Limited Operational Flexibility (ECA with LOF or ECALOF)
- Allows for operational limited flexibility (i.e., process changes, relocations of exhausts, or processes)

  * Not all changes are allowed *

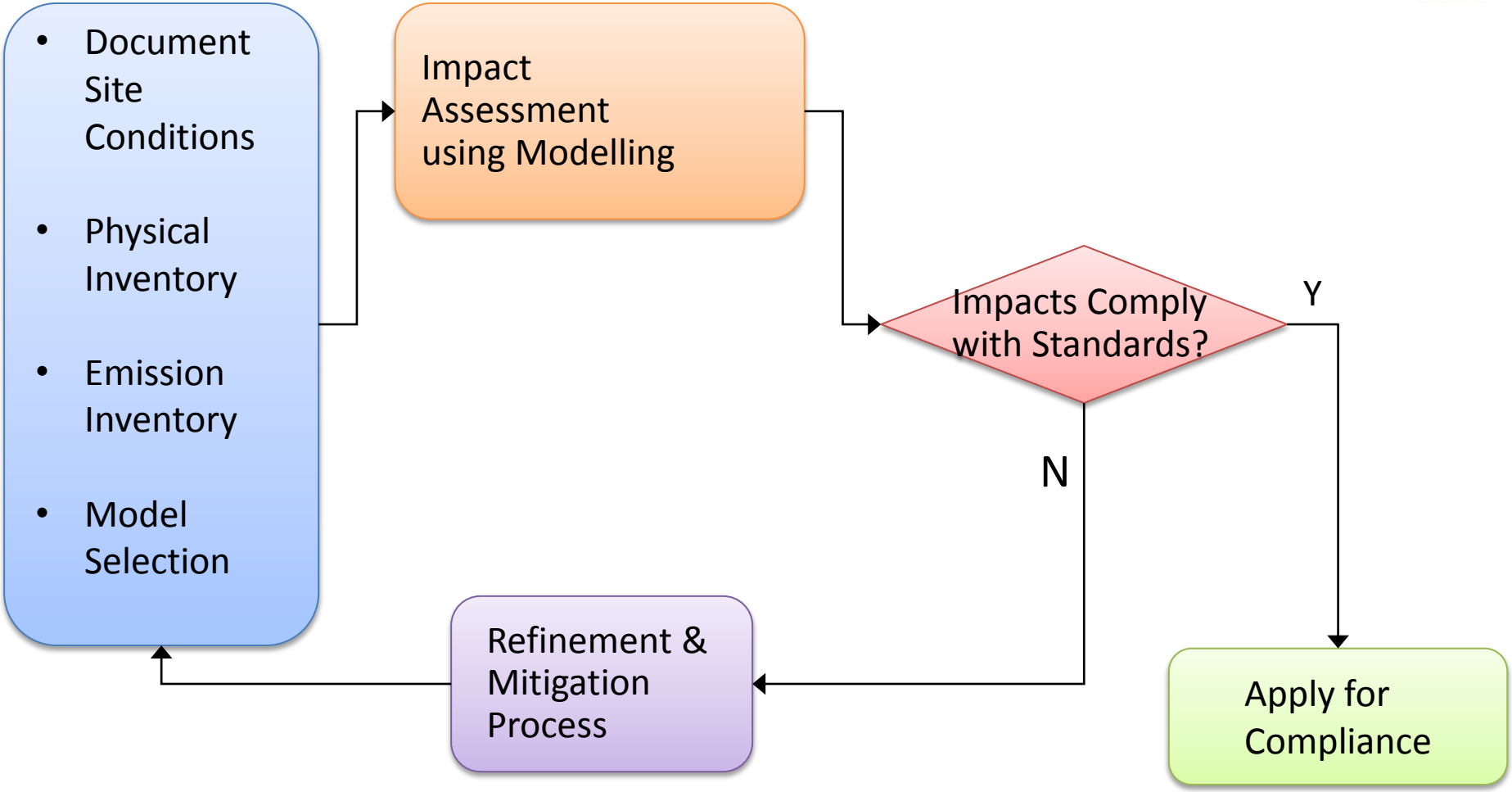
- Ongoing documentation of compliance required
- Annual update of changes to MOE
- Expiry every 5 years (renewable)

Example: Manufacturing facility with multiple emission points & like emissions, & frequent changes are anticipated

ECA Process – “In( )action”



ECA Application Process - Schematic



Dispersion Models Approved for Compliance

Increasing Complexity

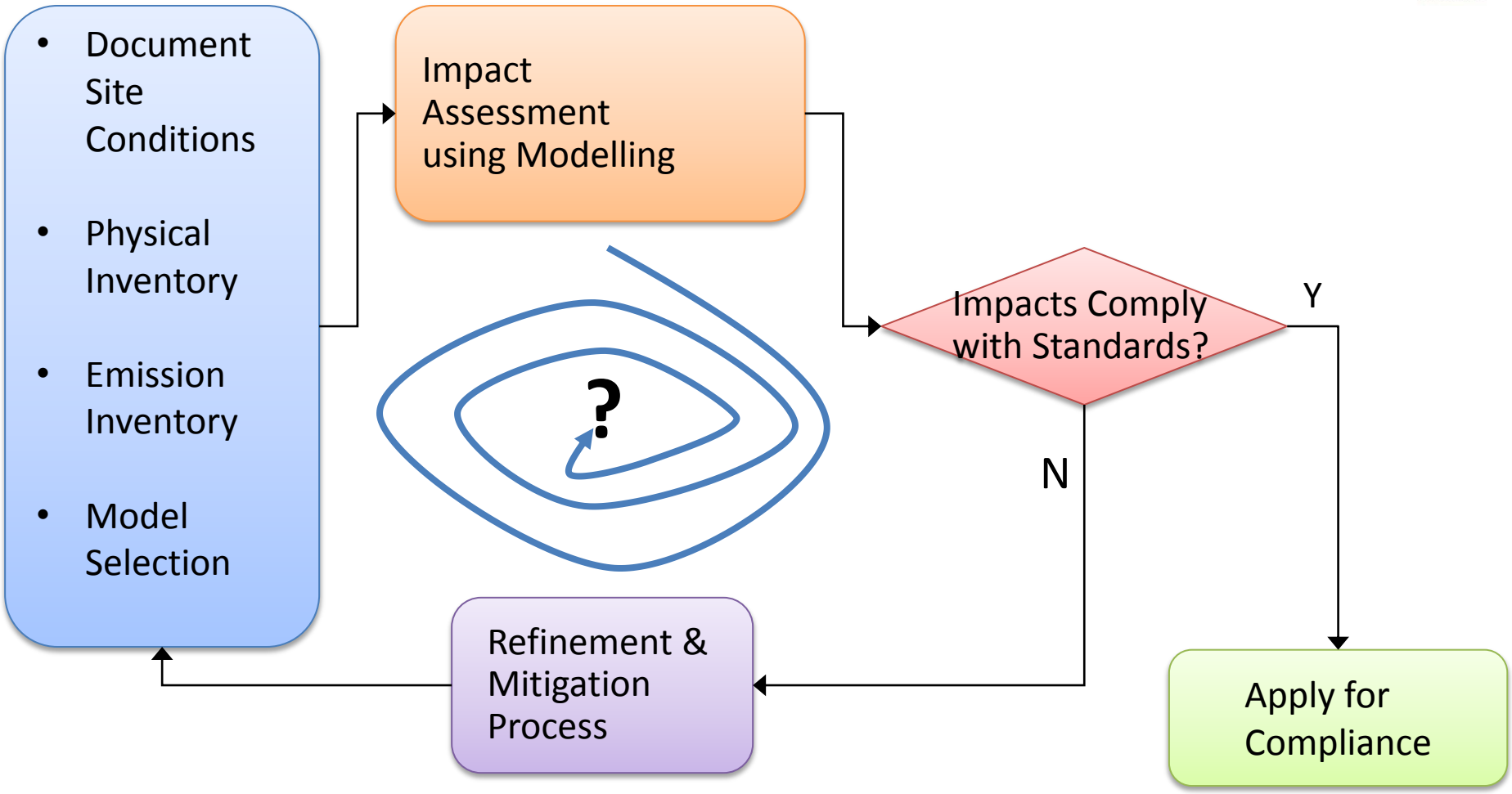
AIR QUALITY DISPERSION MODELS

- Regulation 346 (until 2020)
- SCREEN3
- ASHRAE
- AERMOD
- Physical Modelling (Wind Tunnel Testing)

Factors Affecting which Model to Use:

- *Same-Structure Contamination vs Off Site Impacts*
- *Complexity of the Building and the Campus*
- *Exhaust-Receptor Geometry*
- *Cost and Schedule*

What happens if Refinement and Mitigation aren't enough?



Sector Based Approach

The MOE includes three methods of complying with Regulation 419/05

- Meeting the standard;
- Applying for a site specific standard; or
- Sector Technical Standard.

Site-Specific Standards Approach

- The regulation includes a “Director’s Approval” (and associated order) for a Site-Specific Standard which differs from an Environmental Compliance Approvals (Air).
- A site-specific standard is a standard established for an individual facility that is challenged in meeting a provincial air standard due to technical and/or economic issues.
- This compliance approach allows a facility the time needed to make significant adjustments and investments to improve their environmental performance over time.
- The process requires a public meeting to be held before the request is made to MOE. The company’s request will also be posted on Ontario’s Environmental Registry for public comment.
- **A facility that meets its site-specific standard is in compliance with the regulation.**

Summary of Requests for Site-Specific Standards

Approvals Issued:

- Oxy Vinyls, Niagara: Approved from Jan 2009 to Feb 2017 [Vinyl Chloride].
- ArcelorMittal Dofasco, Hamilton: Approved from July 2010 to July 2014 [Suspended Particulate Matter; Total Reduced Sulphur; included review of Benzo-a-pyrene (BaP) and Benzene].
- Xstrata-Copper, Timmins; Approved from Feb 2010 to Feb 2014 [Sulphur Dioxide; Lead].
- Vale, Sudbury: Nickel [December 2011 to December 2021].

Requests Submitted and Under review:

- Xstrata-Nickel, Sudbury: Sulphur Dioxide, Cadmium
- U.S. Steel Canada, Hamilton Works: Suspended Particulate Matter; Sulphur Dioxide; includes review of Benzo-a-pyrene (BaP) and Benzene
- U.S. Steel Canada, Lake Erie Works – Nanticoke: Suspended Particulate Matter; Sulphur Dioxide; includes review of Benzo-a-pyrene (BaP); and Benzene
- Vale, Sudbury: Sulphur Dioxide
- Archer Daniels Midland, Windsor: Suspended Particulate Matter

Technical Standards Compliance Approach

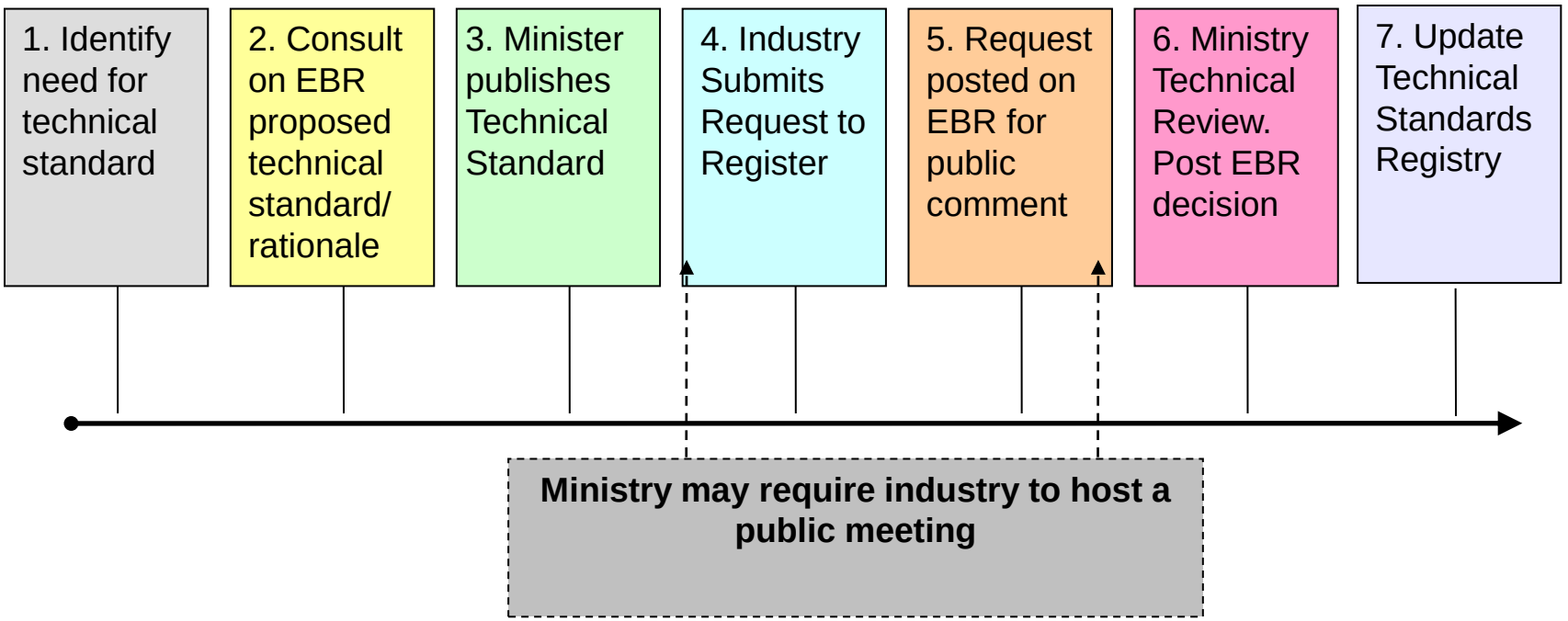
- In 2009, the newest compliance approach of Technical Standards was introduced to address emissions of multiple pollutants from multiple facilities.
- It also allowed us to address sector-wide issues in the Foundry and Forest Products sectors. The Minister now has the authority to establish technical standards for any sector.
- Technical standards are technology-based approaches to managing air emissions. They allow a sector-wide approach to managing air pollution approach rather than a facility-by-facility approach.
- Sectors are eligible to request a technical standard if there are at least two facilities in a sector that cannot meet at least one air standard. Once this criterion is met, the technical standard can include a wide range of contaminants.

Technical Standards Compliance Approach

- There are two types of technical standards:
  - **Industry standards** (deals with all sources of specified contaminants from a specific sector)
  - **Equipment standards** (addresses one source of contaminant, but may apply to one or multiple sectors)
- There are currently two sectors with Technical Standards: Foundries – Industry Standard; and Forest Products – Industry Standard for acrolein.
- The benefit of a Technical Standard also includes the opportunity to align with similar rules in the U.S. and with proposed Canadian federal air pollution initiatives (i.e. Base Level Industry Emission Requirements [BLIERs]).

Note 1: equipment standards are not intended to be used to avoid reasonable/cost-effective levels of control for other major sources of the relevant contaminants within a facility.

Overview of Technical Standards Process



Sector Based vs. Site Specific Standard

Deliverable	Site Specific Standard	Sector Based Approach
Model at highest data quality	Required as part of application	N/A
ESDM Report	Required as part of application	N/A
Technology Benchmarking Report	Required as part of application	Included in Technical Standard
Action Plan	Required as part of application	Included in Technical Standard
Public Meetings	Required as part of application	N/A
Posting on Environmental Registry for public comment	Yes, generally 90 days on existing applications.	Not yet decided, but likely.
Timeline	5 years (10 years for extenuating circumstances)	Not decided
Implementation of controls	Yes	Yes

EPA…*continued*

- Section 14, You can not cause an adverse effect even if you have an ECA

  Subject to subsection (2) but despite any other provision of this Act or the regulations, a person shall not discharge a contaminant or cause or permit the discharge of a contaminant into the natural environment, if the discharge causes or may cause an adverse effect.

- Section 1, Defines adverse effect

  "adverse effect" means one or more of,

  a) impairment of the quality of the natural environment for any use that can be made of it,
  b) injury or damage to property or to plant or animal life,
  c) harm or material discomfort to any person,
  d) an adverse effect on the health of any person,
  e) impairment of the safety of any person,
  f) rendering any property or plant or animal life unfit for human use,
  g) loss of enjoyment of normal use of property, and
  h) interference with the normal conduct of business; ("conséquence préjudiciable")

no scientific definition of adverse effect

THANK YOU

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