

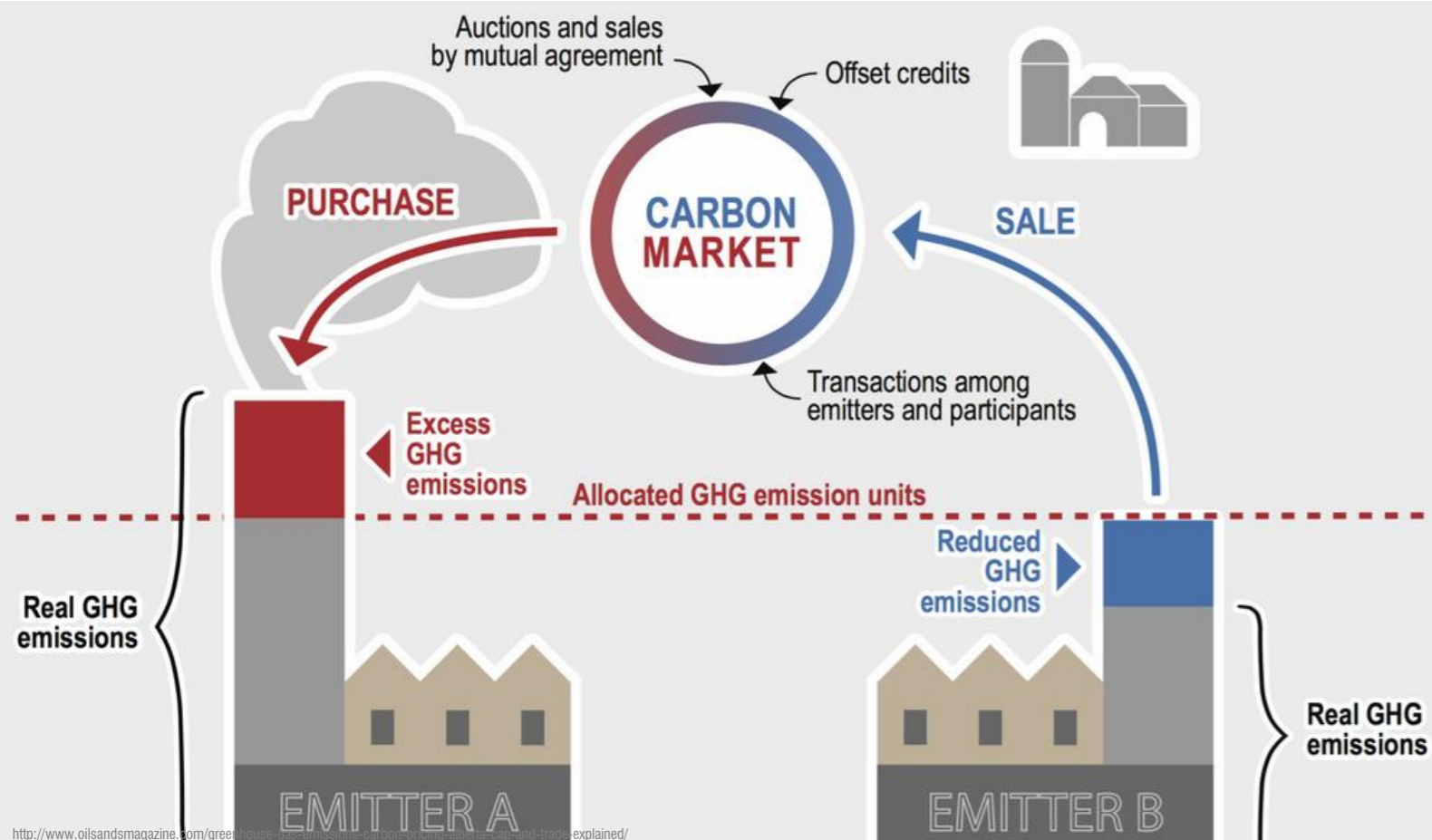


# Facility Level Cap and Trade Impact Assessment

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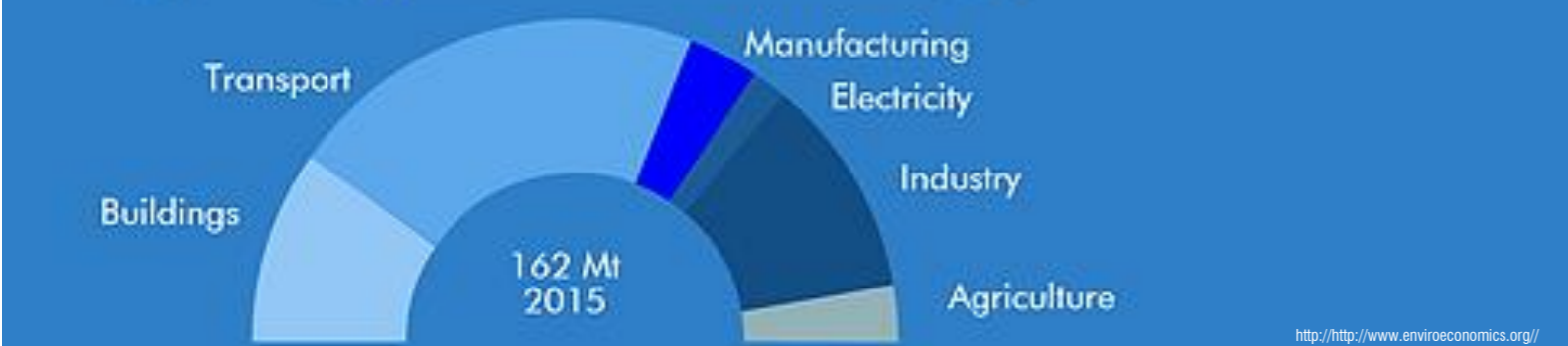
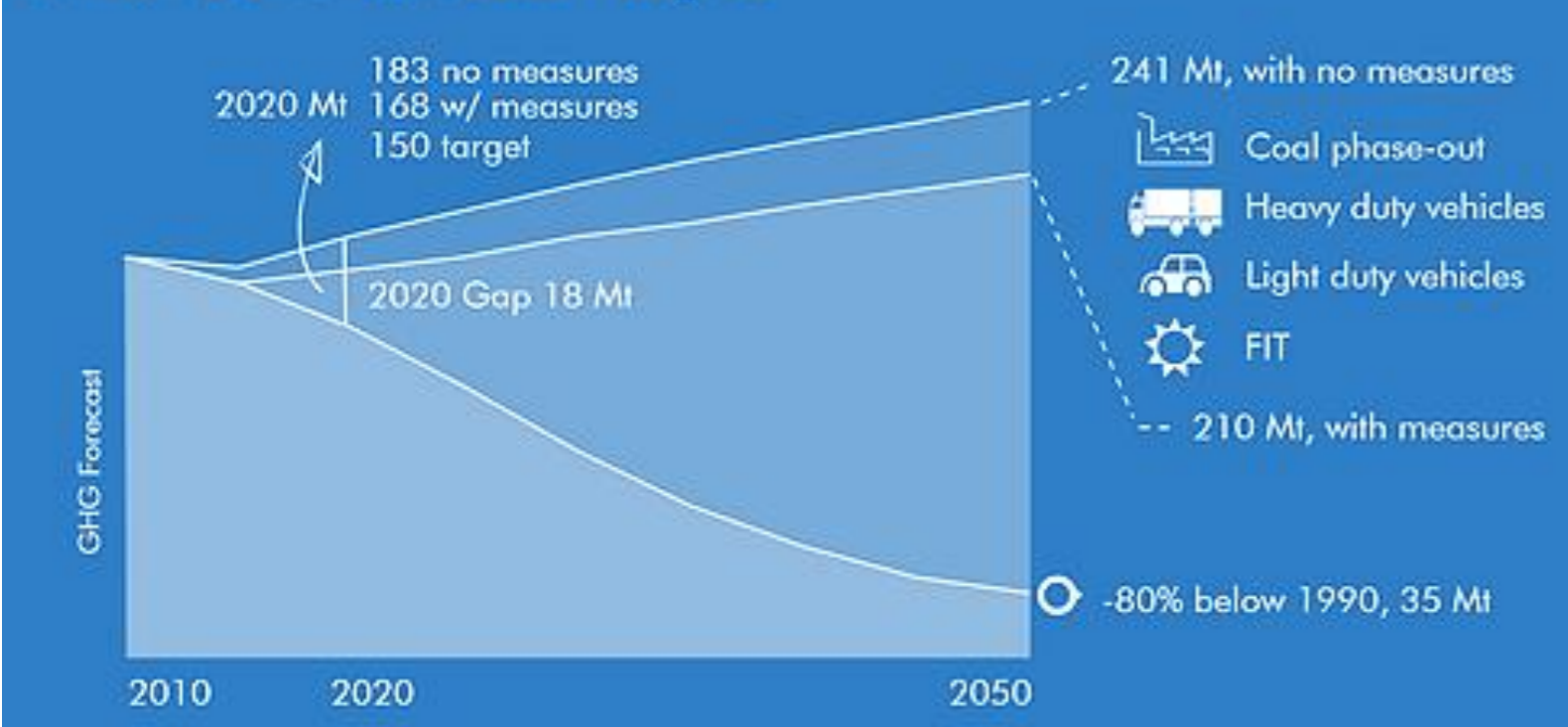
June 10, 2016





<http://www.oilsandsmagazine.com/greenhouse-emissions/carbon-cap-and-trade-explained/>

## Ontario's GHGs and Targets



<http://http://www.enviroeconomics.org/>

Six Months and Counting for Ontario Cap-and-Trade - Are You ...  
 Lexology (registration) - Jun 6, 2016  
 Canada is turning a new leaf on climate change and this will have a real impact on consumers and business. **Ontario's cap-and-trade** program, ...

**David Suzuki in New Ontario Cap-and-Trade Ad**  
 640 Toronto News - 3 hours ago  
 Bonnie Lysyk claims that the pro cap-and-trade ad would have breached past rules banning political ads constructed using taxpayer money.  
 Revealed: **Ontario's** 'climate change action plan'  
 In-Depth - Toronto Star - 4 hours ago  
 Explore in depth (7 more articles)

**Ontario Liberals rethink \$1.9B cap-and-trade projection in uncertain ...**  
 CBC.ca - Jun 4, 2016  
 Ontario Premier Kathleen Wynne says her Liberal government might have to lower its expectations for how much money its cap-and-trade plan ...  
 Kathleen Wynne says crash of the carbon market in Quebec and ...  
 International - Toronto Sun - Jun 4, 2016  
 Explore in depth (20 more articles)

**Ontario's cap and trade fraught with regulatory and market challenges**  
 The Globe and Mail (subscription) - Jun 3, 2016  
 Under the province's recently adopted cap-and-trade system, Ontario plans to link its carbon market with that of California and Quebec in 2018 ...

**Wynne defends pro cap-and-trade ad**  
 Toronto Sun - 12 hours ago  
 Premier Kathleen Wynne is defending a government ad that promotes its yet-to-be revealed cap-and-trade plan, insisting that climate change is ...

**Ontario passes bill to create cap-and-trade system**  
 The Globe and Mail (subscription) - May 18, 2016  
 Ontario has passed legislation creating a cap-and-trade system to fight climate change, which is expected to add \$5 a month to home heating ...  
 Ontario government not denying report on sweeping climate change ...  
 International - CBC.ca - May 16, 2016

**William Watson: The Ontario Liberals are doing every possible thing ...**  
 Financial Post - May 25, 2016  
 Ontario is on track for a cap-and-trade system for carbon emissions starting Jan. 1. But, according to leaked planning documents, it also intends ...  
 Ontario Spending \$100 in Cap and Trade Proceeds  
 Net Newslidger - May 26, 2016  
 Wynne lowballs cap-and-trade cost  
 Toronto Sun - May 26, 2016

Wildrose slams visiting Ontario premier during Alberta legislature visit  
 International - Edmonton Journal - May 26, 2016  
 Wynne says province will not ban use of natural gas for home heating  
 In-Depth - CTV News - May 26, 2016  
 Natural gas heating won't be banned: Leal  
 International - Peterborough Examiner - May 27, 2016

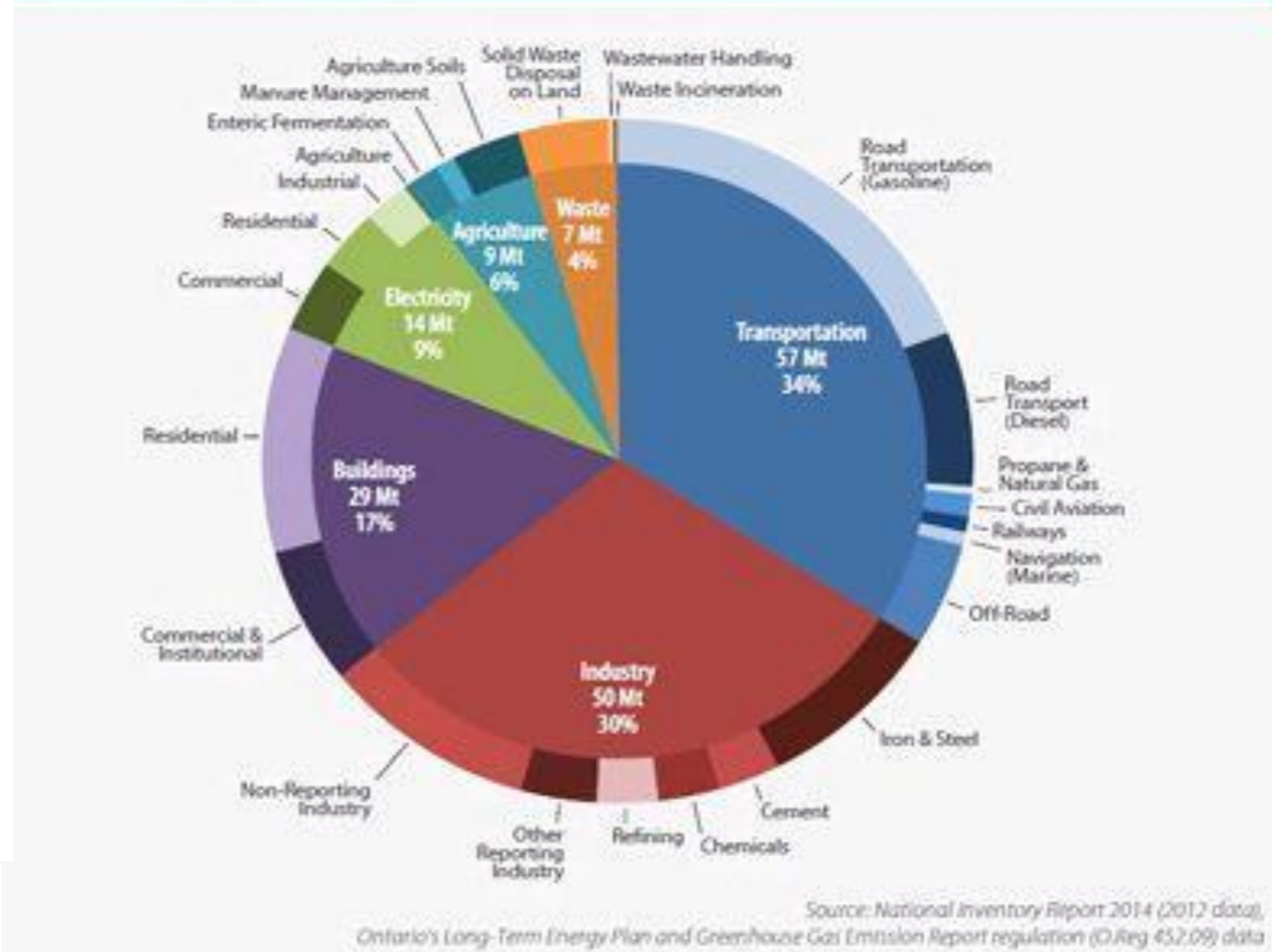
**Ontario Introduces Cap-And-Trade System**  
 Mondaq News Alerts (registration) - May 27, 2016  
 This Act, previously described in our February bulletin, introduces the new cap-and-trade system for Ontario. The corresponding Ontario ...  
 Words into Action: Ontario Gets Ready for Implementation as it ...  
 Lexology (registration) - May 27, 2016  
 Explore in depth (2 more articles)

**Ontario's climate plan undermines case for cap and trade**  
 Toronto Sun - May 18, 2016  
 Proponents of carbon taxes and cap and trade schemes often defend their position on the grounds that simply attaching a "price" to carbon is ...

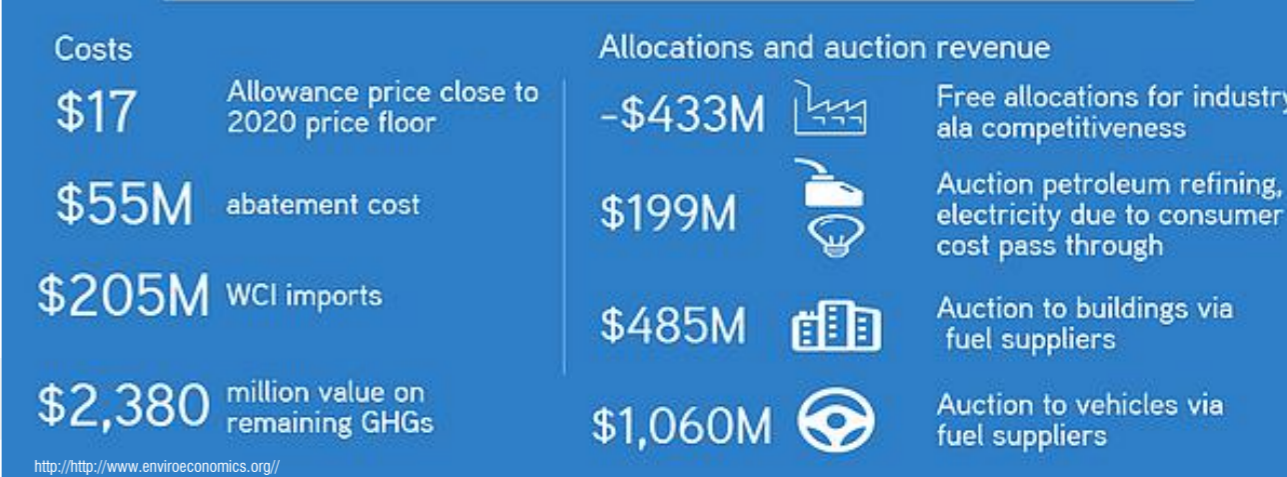
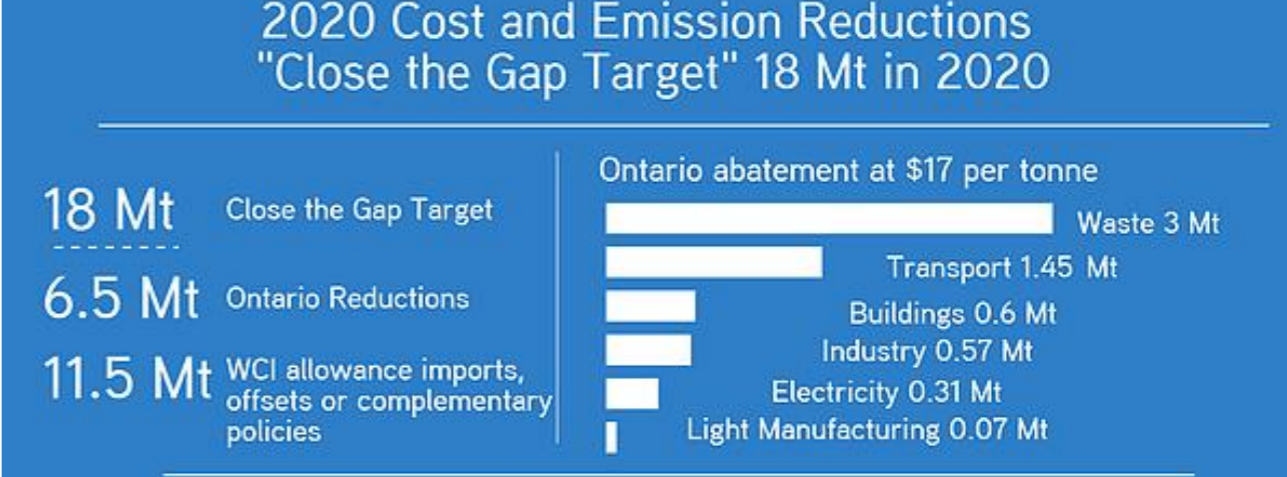
**Ontario's Cap-And-Trade Regime**  
 Mondaq News Alerts (registration) - May 27, 2016  
 Ontario's Climate Change Mitigation and Low-carbon Economy Act, 2016, which provides for the initial distribution of free allowances at levels ...

**Ontario's Climate Action Plan undermines case for cap and trade**

## FIGURE 3 Ontario's 2012 Greenhouse Gas Emissions by Sector



## 2020 Cost and Emission Reductions "Close the Gap Target" 18 Mt in 2020



<http://http://www.enviroeconomics.org/>

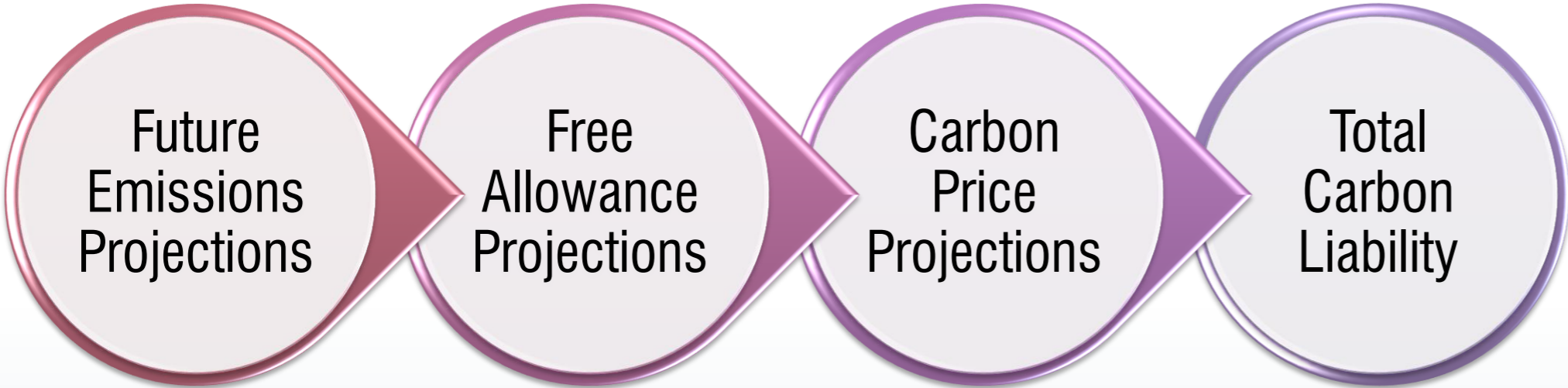


# Key Questions

- **What are facility's long term costs for compliance?**
- **What are potential changes in costs for production inputs (e.g., fuel, electricity)?**
- **What are potential opportunities associated with cap and trade?**



**Compliance Obligations**

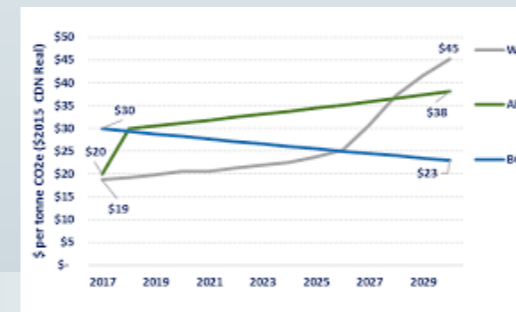
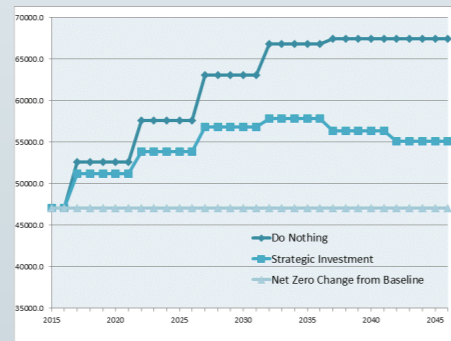
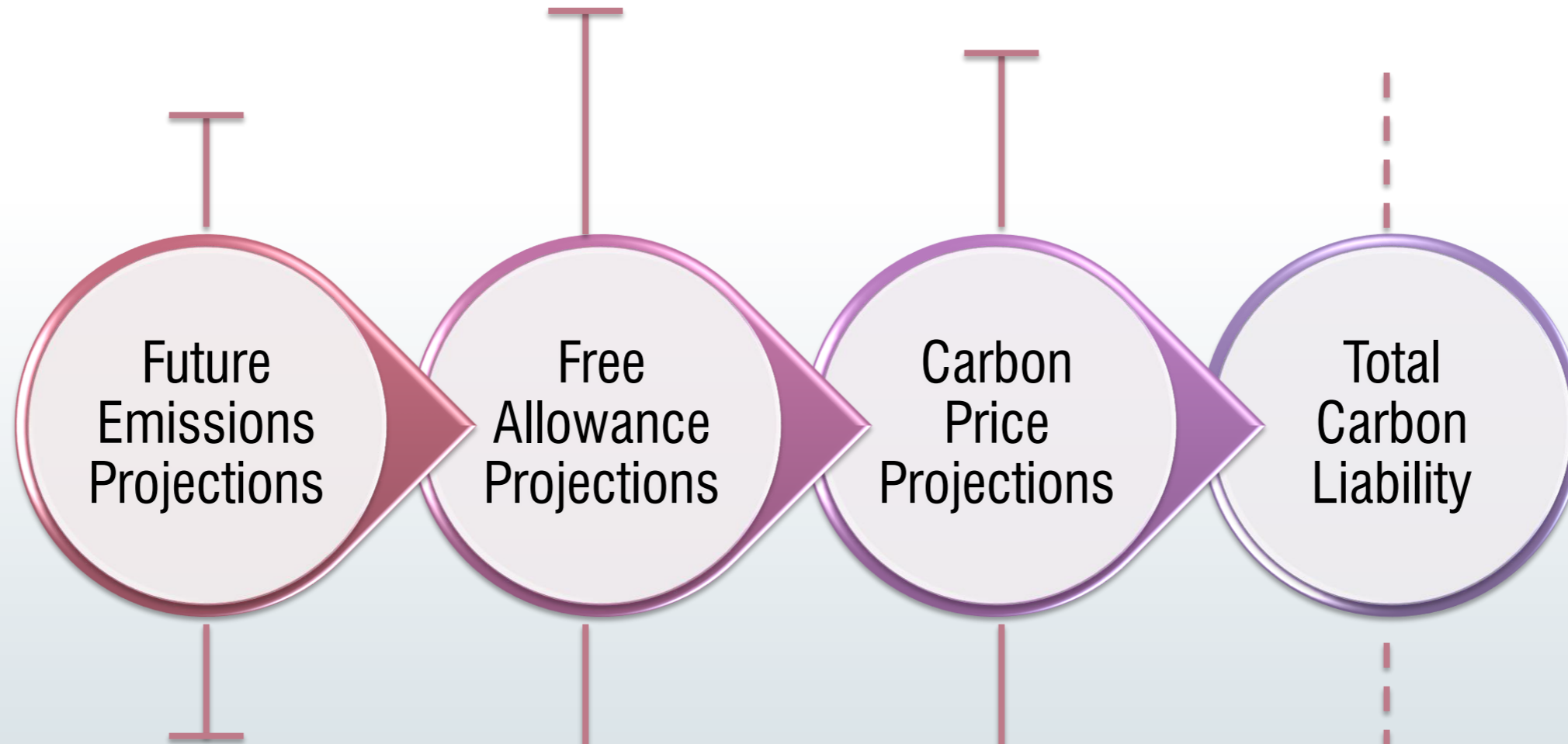
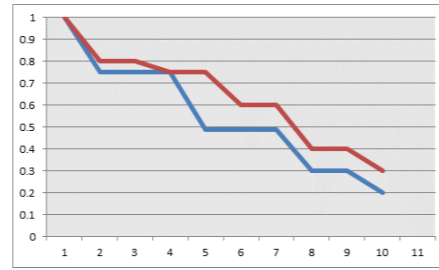


**Production/Operational Cost Impacts**



**Opportunities**

# Characterizing Uncertainty



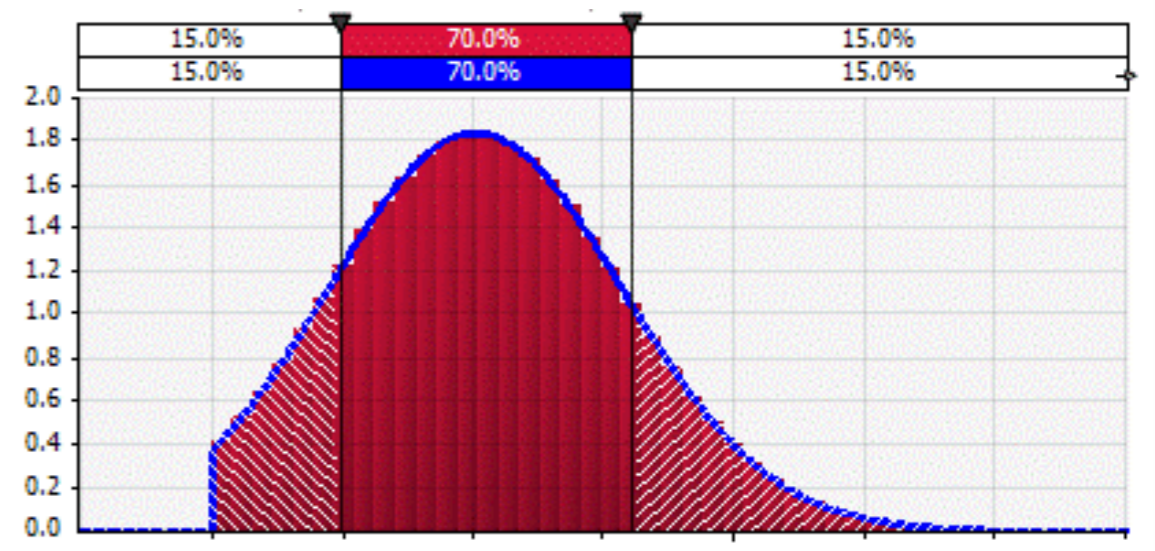
## Compliance Obligations



# Assessing Uncertainty

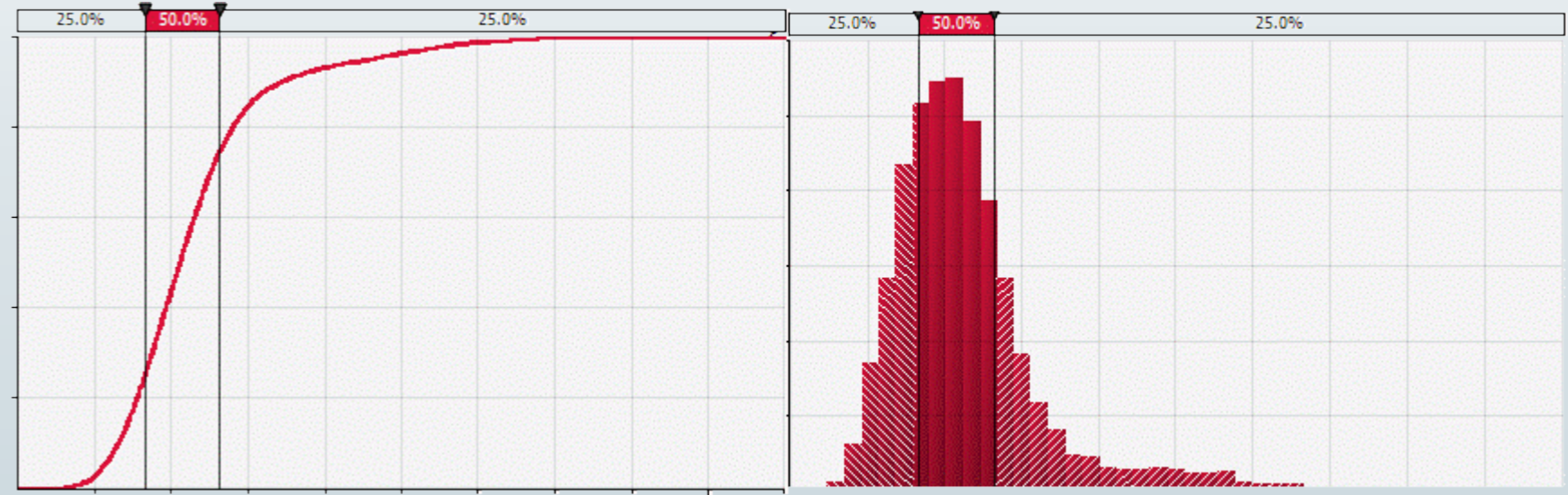
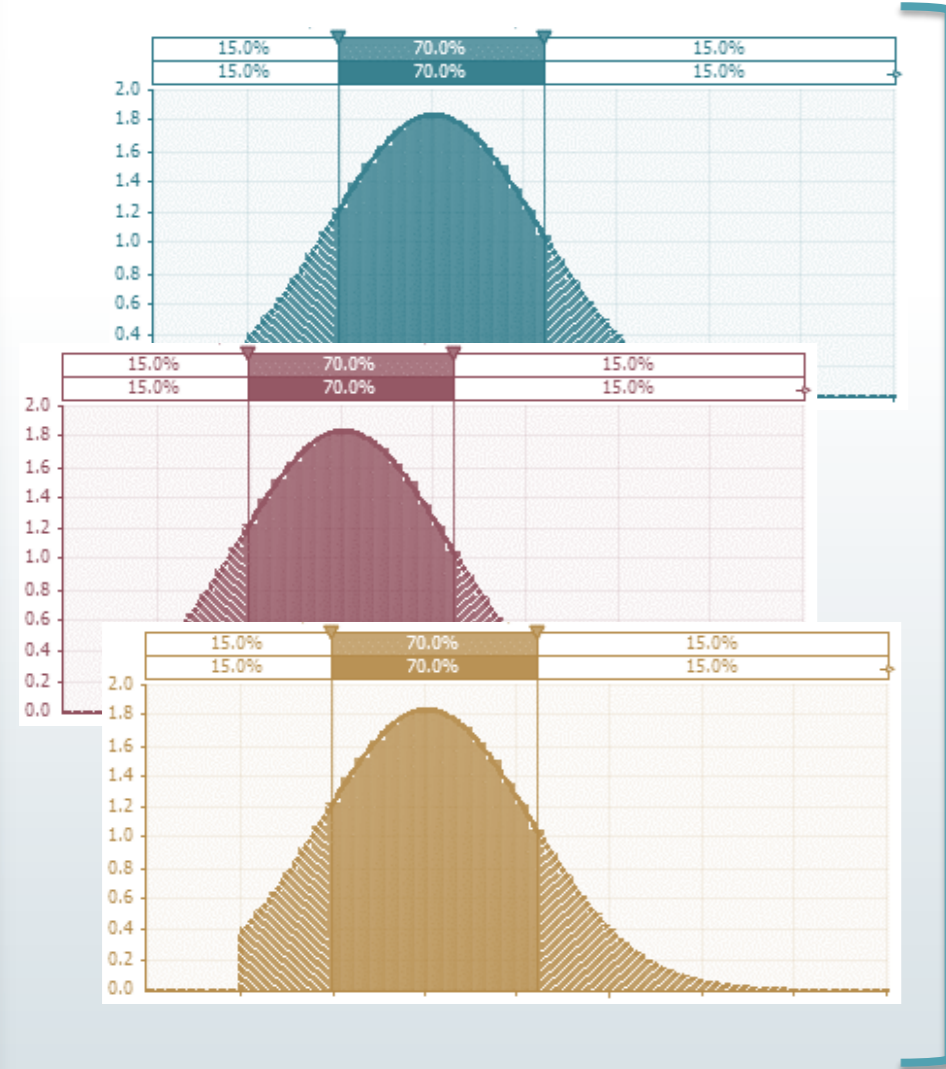


- Identify key drivers (e.g. assistance factor)
- Project drivers into the future
- Define confidence bounds
- Conduct quantitative analysis of variability



# Simulation of Scenarios

- Statistical simulation of variables possible
- Compile most probable ranges of cost
- Based on data confidence levels input



# Outputs

- Compliance Pathways
  - Annual Cost Projections
  - Net Present Value of Costs
- Flexibility is Important
  - Quickly Assess Potential Changes (in operations, in carbon costs etc.)
- Scalability is Critical



# Summary

- Uncertainty exists at a facility level on long term cap and trade impacts
- However.....
- Risk based modeling has proven to be a valuable tool in long term planning for cap and trade

# Thank you....

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