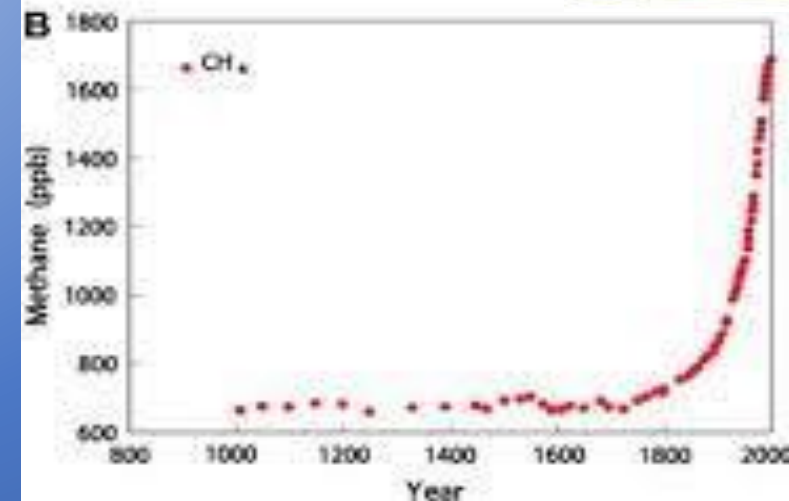
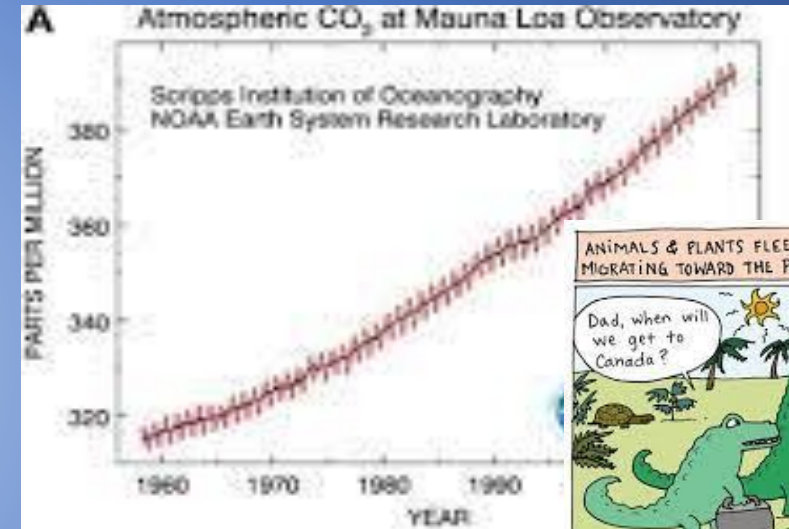


# National Maritime Safety Association

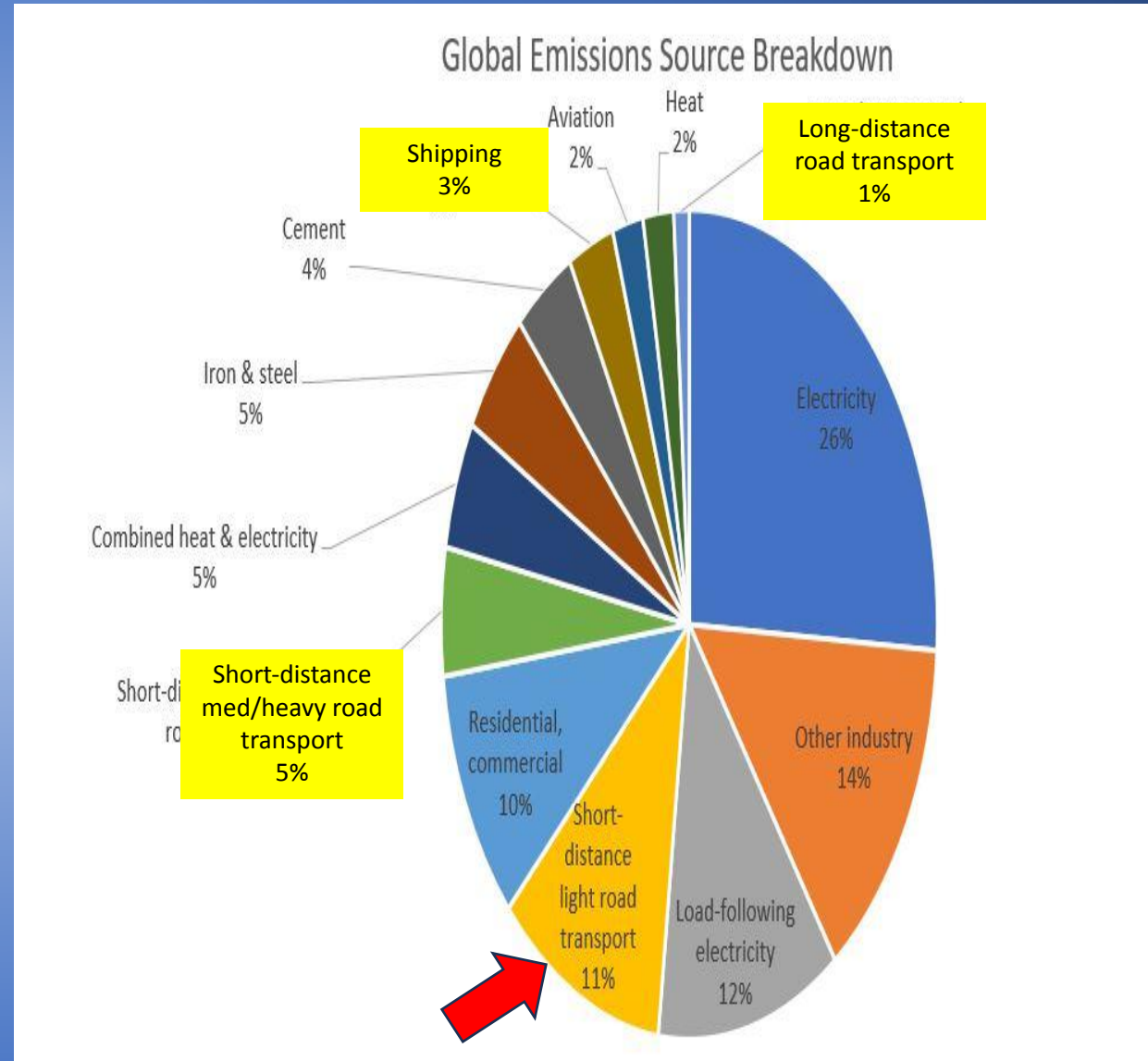
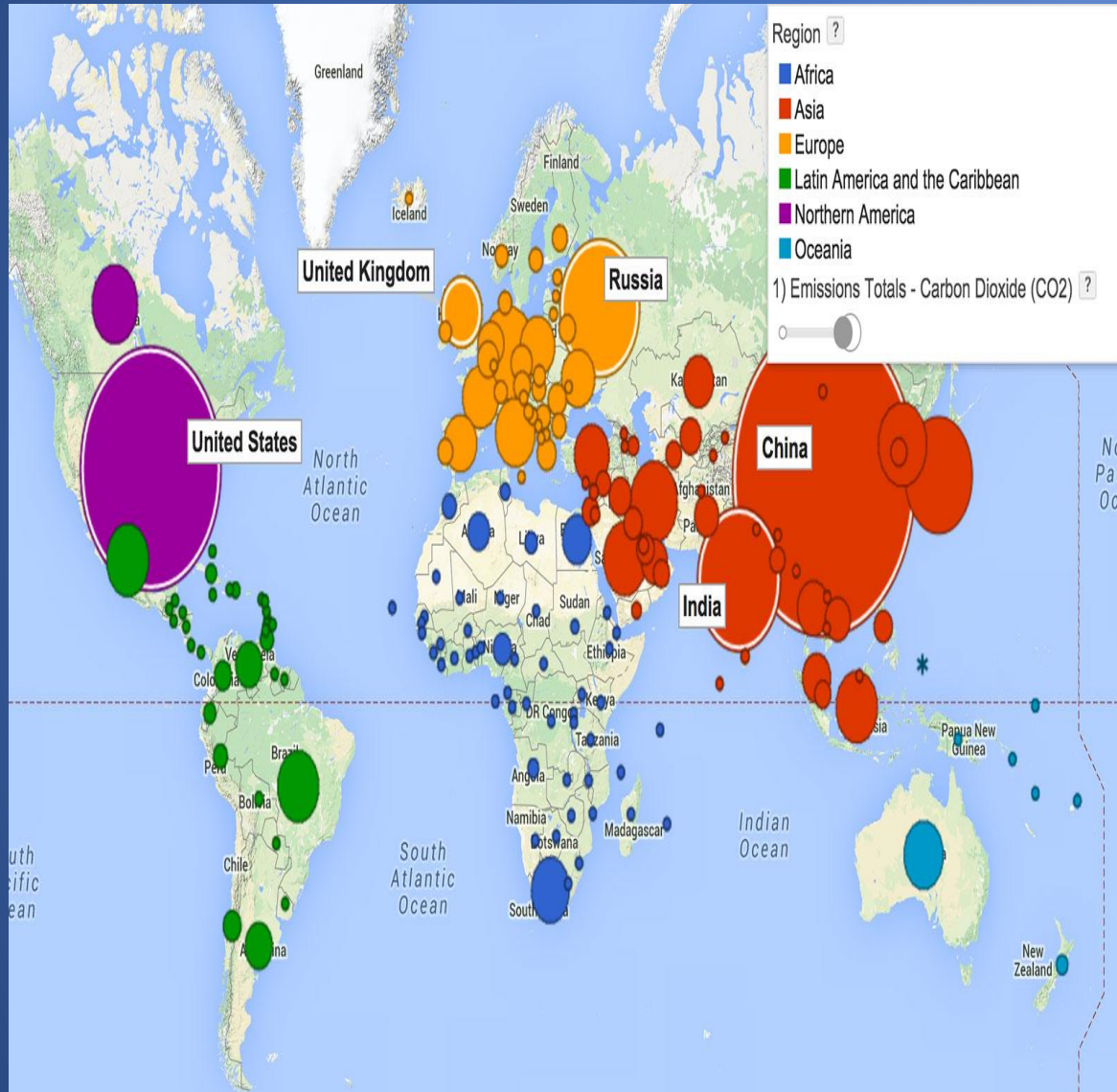
Adam Zellner  
President, GbD  
Professor, Rutgers University

Greener by Design 

# Decarbonization – What is it? Why? Where, When? And.....How do we deal with it?



# Where and who?



# Carbon Goals – What Are the Targets?

- CA → cut carbon emissions 48% below 1990 levels by 2030
- NJ → reduce carbon emissions 80% by 2050
- NY → 70% renewable energy by 2030; 40% reduction from 1990 levels of GHG emissions by 2030
- WA → reduce emissions 95% by 2050
- US as a whole → zero emissions by 2050
- Canada → net zero emissions by 2050
- IMO □ reduction of CO<sub>2</sub> emissions per transport work of 40% by 2030, 70% by 2050



## **New Jersey commits to reducing climate pollutants by 50% by 2030**

On Nov. 10, Gov. Phil Murphy signed an executive order establishing a goal to reduce carbon emissions in New Jersey by 50% by 2030.

## **Biden Administration Releases Maritime Decarbonization Strategy**

# How will it be Measured?

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- Green Marine
- Leadership in Energy and Environmental Design (LEED)
- Environmental, Social and Corporate Governance (ESG)
- Cap and Trade Markets
- Renewable Portfolio Standards
- Wall Street / Pension Funds / Venture Capital
- IMO 
  - Energy Efficiency Existing Ship Index (EEXI)
  - Carbon Intensity Indicator (CII)
  - Ship Energy Efficiency Management Plan (Part III) (SEEMP)

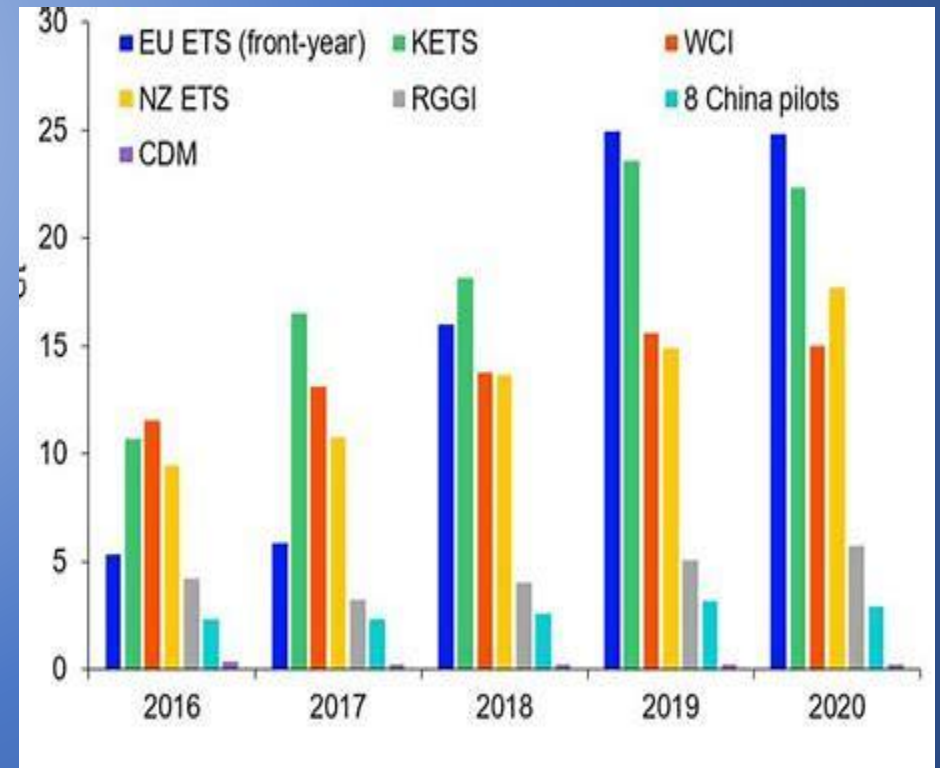


# How will it be funded?

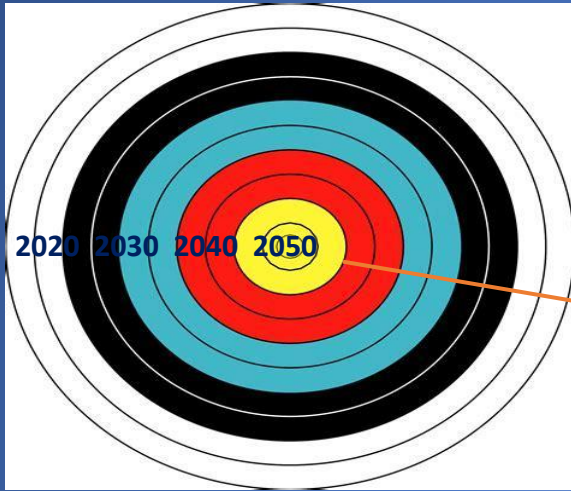
- Carbon Tax
- Local Carbon Taxes: Regional Greenhouse Gas Initiative (REGGI)
- Inflation Reduction Act (IRA)
- Paris Accord
- Voluntary Carbon Market
- Mandatory Carbon Market
- Regulatory Costs
- Legal Exposure
- *Wall Street/Pension Funds/Venture Cap...*

Canada will tax carbon emissions to meet Paris climate agreement targets

Prime minister Justin Trudeau made the announcement in parliament as debate started over whether Canada should ratify the Paris accord on climate change



# Targets



# Measures

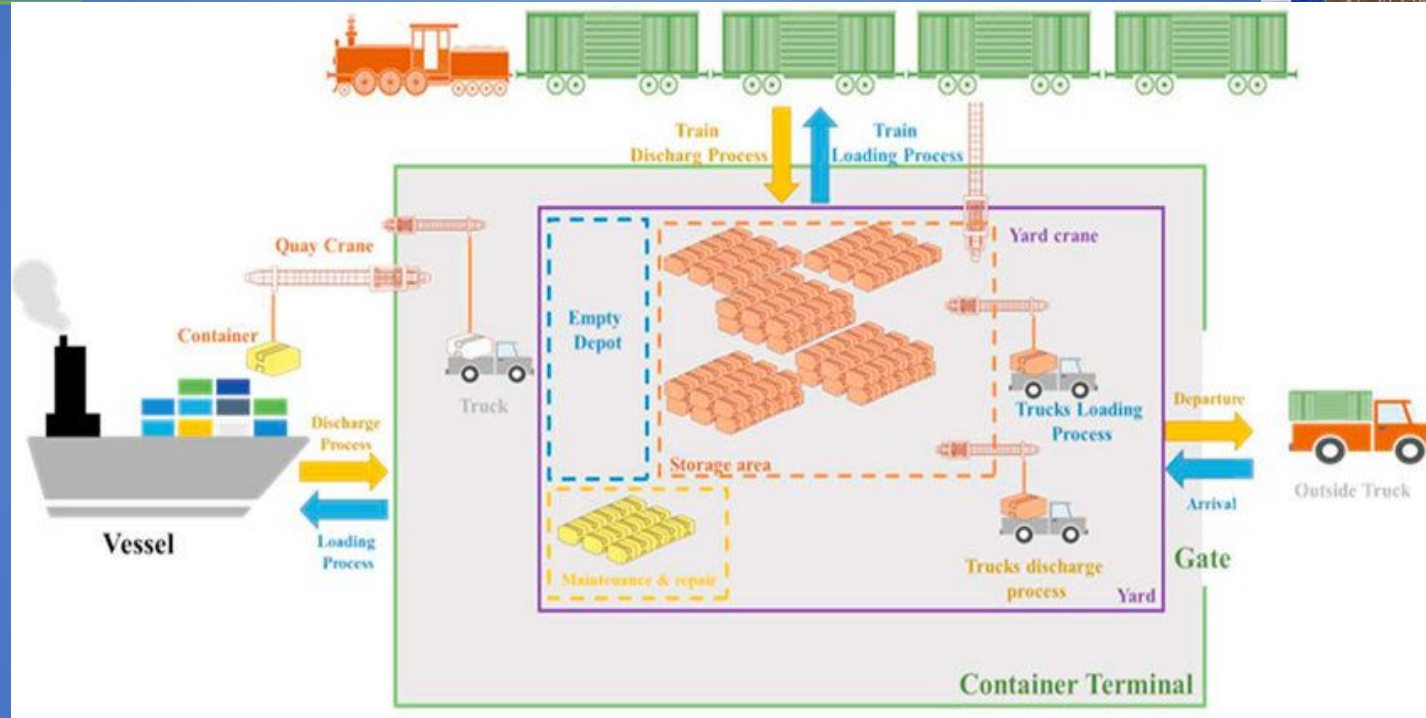


# Funding



What to do about it and how to get started.....

# Zero it OUT!





Benchmark – Know where you are!  
Audits – Utility, PUC, State, Local – Get it DONE!

- Energy Reduction 20% by 2030
- Electrification goals
- Renewable Energy
- ECM Implementation
- Operational Goals
- Carbon / ESG

Goals and Objectives – Federal, State, Local, Corporate  
Translate Goals and Objectives to your Operation!

Cross Check Available Resources – Incentives, Grants, ROI, Utility  
Who is going to pay for it? You? Others?



Building - 20% by 2030  
Energy – 20% by 2030  
Transportation – All Electric by 2040  
Cranes/Straddles/Etc – 10% Electric by 2030, 50% by 2040, All by 2050  
Operations – Net 0 by 2040

Implement the Plan!  
Set up internal calendar for steps  
Sector by Sector, Operation by Operation

# The Future

- Electrification
- Offshore Wind
- Hydrogen
- Battery Storage
- Controls Advance
- Artificial Intelligence
- *Increased Cost of Carbon!*
- *Competition!!!!*



# THANK YOU!!!

**Greener by Design**

Website

[www.gbdtoday.com](http://www.gbdtoday.com)

Phone

201-638-6754

Email

[azellner@gbdtoday.com](mailto:azellner@gbdtoday.com)

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