



Considerations for Decarbonization of Industry

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Council for Environmental and Economic Balance

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What is Carbon Neutrality?



Sources = Sinks



Carbon Neutral is a goal in which in state GHG emissions are minimized through the use of low GHG, zero GHG, and negative GHG technologies and achieving an equivalent amount of reductions from state, national, and international emission reductions projects.



Economics will help determine the balance between sinks, mitigations, and offsets

Protecting Competitiveness of California's Industrial Sector



INTERNATIONAL
POLICY



NATIONAL POLICY

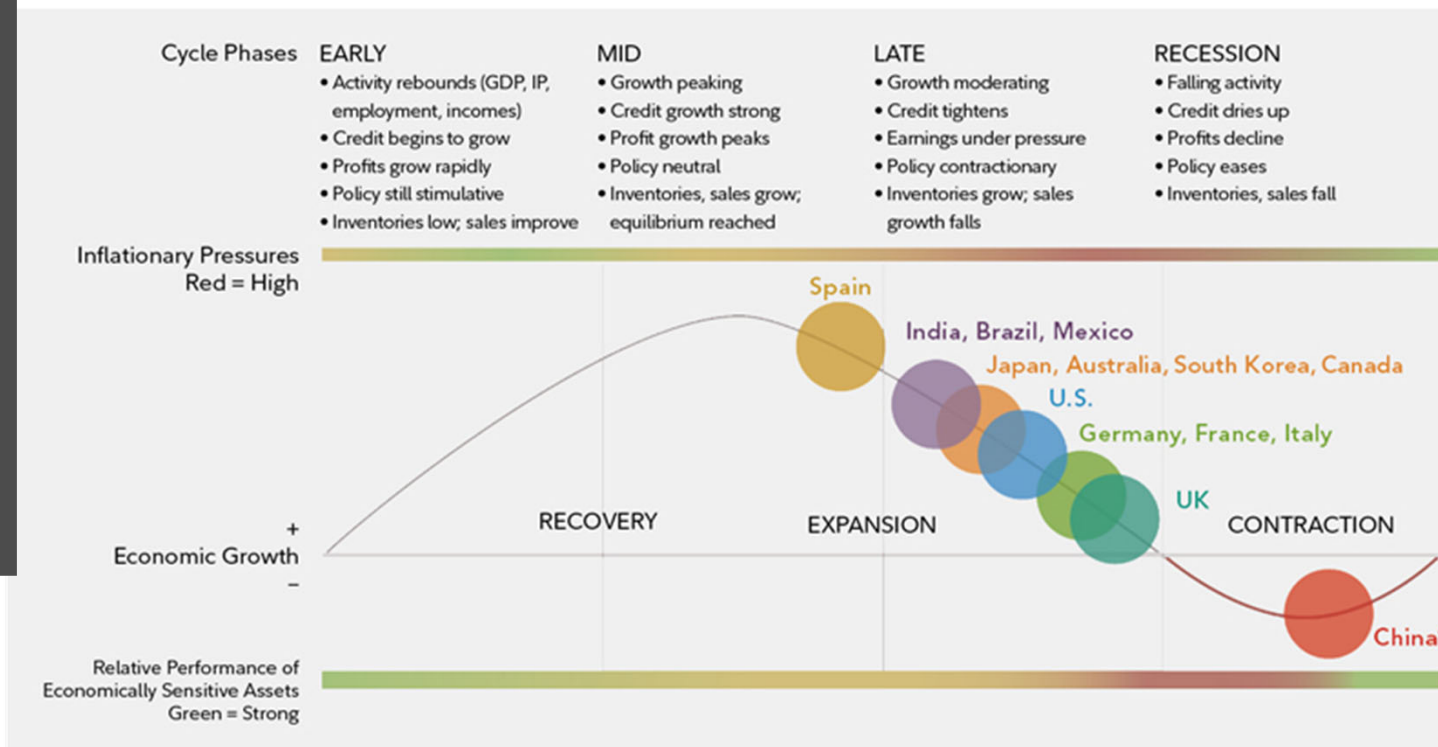


REGIONAL POLICY



STATE POLICY

Predictions for a Future Generation



Source: Fidelity Investments (AART), as of April 30, 2019

- Prepare and Account for business cycles in order to avoid the predictable politics that accompany contraction/recession and capitalize on the economic benefits from recovery and expansion cycles.
- Cannot precisely predict economics or technology – allow maximum flexibility based on evolving economics.

Everything And...

- All solutions for all sectors
 - Transition segments where a business case can be made
 - Renewable and carbon neutral fuels or carbon negative fuels
 - Carbon Capture and Sequestration/Use
- Maintain and protect high quality industrial jobs
 - Support a robust middle class through advanced energy and manufacturing
- Increase opportunities in biological and industrial sequestration as a field of work



Prescription – getting in the way of good...



Restriction and bans on
current and future
technologies

Restrictions on
emission reduction
project types and
locations



Picking winners and losers through
regulation or law



Displacement of
Manufacturing from
urban core –
potentially entire state

Reliance on
professional and
service-based two
track economy
Increased cost of
living in cities
Loss of unionized
manufacturing

Transforming Manufacturing



Will California pick winners and losers?



Electrification

Costs for industrial ratepayers
Energy Efficiency vs. Zero On-Site
Emissions
Infrastructure Needs



Carbon Neutral and Carbon Negative Fuels
for Thermal Processes



Carbon Capture and
Sequestration or Use

Standards and Policy
Carbon Emissions to Value
Added Product
•Polymers
•Cement
•Syngas

Conclusion – A Moonshot

- California's biggest contribution will be sound public policy that leads other jurisdictions to join our path
- Carbon Neutrality will transform every aspect of our economy
 - We still need to find the best questions that need answers...
- Consider reducing near and midterm prescription if the emission reductions are real and advance us towards the mid-century goal

"We set sail on this new sea because there is new knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people."

President John F. Kennedy