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FLORIDA'S LAW FIRM FOR BUSINESS

2023 Legislative Update

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Government Affairs Consultant

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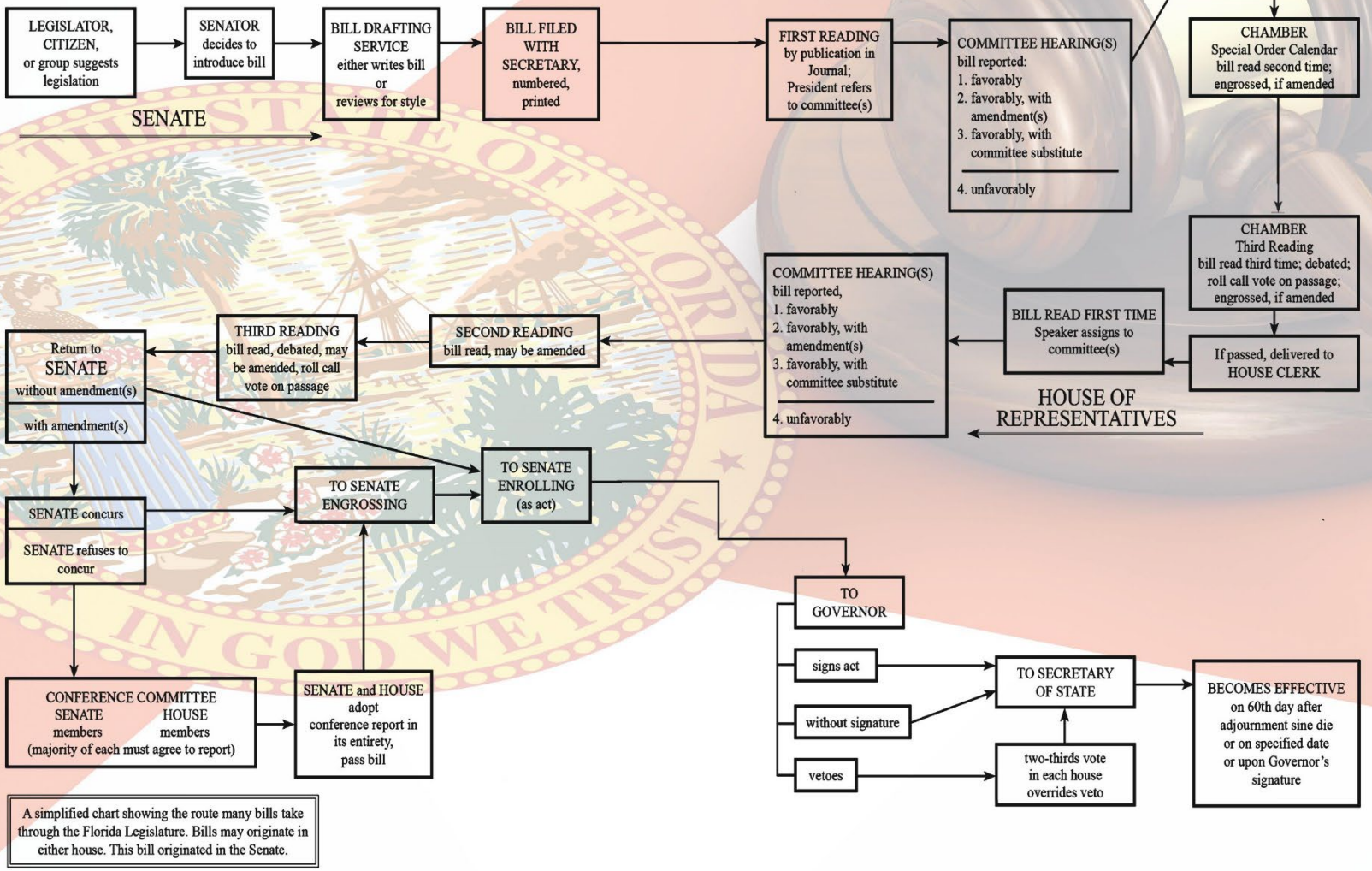
HOW AN IDEA BECOMES A LAW



A simplified chart showing the route many bills take through the Florida Legislature. Bills may originate in either house. This bill originated in the Senate.

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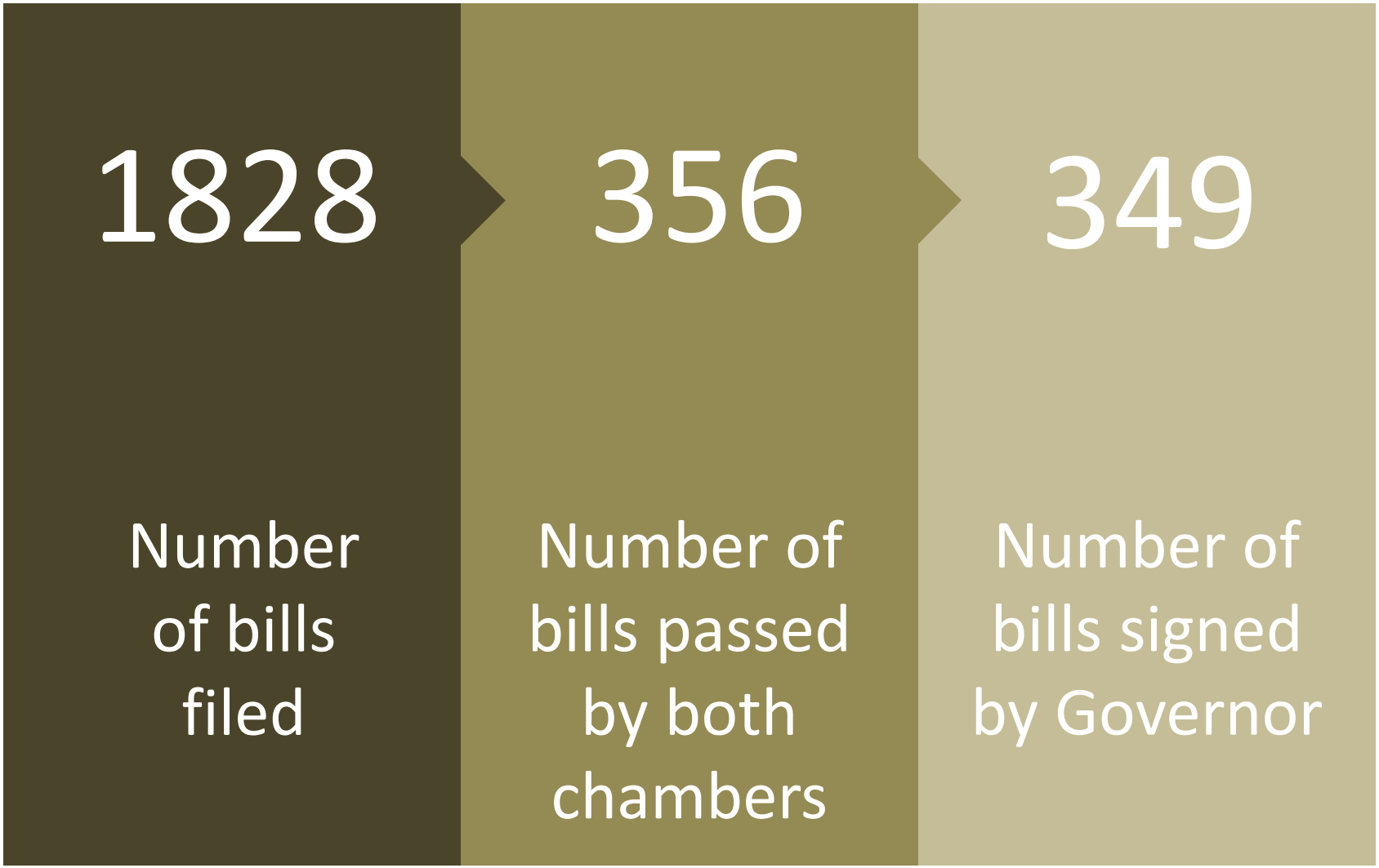
2023 Legislative Session



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2023 Legislative Session - Appropriations

The Legislature passed a record $117 billion dollar budget, which included generous funding for many environmentally focused programs this Session, including appropriations for resilience, conservation, and environmental restoration programs.

- Funding for the Resilient Florida program includes:
  - $300 million for Resilient Florida Flooding & Sea Level Rise Resilience Plan projects,
  - $20 million for planning grants and
  - $2 million for regional resilience collaboratives.
- Everglades Restoration funding includes:
  - $478,520,477 for the Comprehensive Everglades Restoration Program (CERP),
  - $86,084,653 for the Northern Everglades and
  - $70,000,000 for the C-51 reservoir.
- The legislature also prioritized water quality improvement funding:
  - $104,900,000 for the new Indian River Lagoon Project Program,
  - $304,671,849 for the Wastewater Construction Revolving Loan Program,
  - $200,000,000 for the Wastewater Grant Program and
  - $432,993,047 for local government water projects.

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2023 Legislative Session
Bills that Passed

- HB 1405 – Biosolids
  - Authorizes the Department of Environmental Protection to provide grants for projects that convert wastewater residuals to Class A biosolids and Class AA biosolids.
- HB 1379 – Environmental Protection
  - Imposes new requirements and restrictions on local governments relating to pollutant load reduction, local government comprehensive plans, basin management action plans, on-site sewage treatment and disposal systems, mandatory connection to central sewer systems, septic system and wastewater treatment facility remediation plans and advanced waste treatment systems.
- HB 111 – Flooding and Sea Level Rise Vulnerability Studies
  - Expands the scope of the Sea Level Impact Study (SLIP) study requirement originally enacted in 2020, repeals the original SLIP requirement in section 161.551 of the Florida Statutes (s.161.551, F.S.), and creates a new s.380.0937, F.S.
- HB 7027 - Ratification of Rules of the Department of Environmental Protection
  - Ratifies rules relating to the standards for on-site sewage treatment and disposal systems and domestic wastewater facility planning for facilities expansion, collection/transmission systems and an operation and maintenance manual.
- HB 1281 – Preemption Over Utility Service Restrictions
  - Prohibits local governments from banning gas stoves and other appliances based on the energy source used by the appliance.

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2023 Legislative Session
Bills that Passed

- HB 3 - Government and Corporate Activism
  - Attempts to eliminate the consideration of environmental, social and governance (ESG) from government investment strategies, procurements, bond issuances and use of banks.
- SB 162 – Water and Wastewater Facility Operators
  - Requires the Department of Environmental Protection to issue reciprocal licenses to public water utility workers licensed in other states who meet specified requirements. Further, the bill provides that, during a declared state of emergency, the Department may issue a temporary license to applicants who otherwise meet the requirements for license reciprocity, and it must waive the application fee for a temporary operator license.
- SB 641 – Restoration of Osborne Reef
  - The bill requires the Department of Environmental Protection (DEP) to submit a report on the status of the Osborne Reef cleanup and tire removal project by December 1, 2023. By July 1, 2024, the bill requires DEP to develop a comprehensive coral reef restoration plan for Osborne Reef to be commenced, subject to appropriation, upon the completion of the cleanup and tire removal project.
- HB 1191 – Use of Phosphogypsum
  - Authorizes DOT to undertake demonstration projects using phosphogypsum in road construction aggregate material; requires DOT to conduct study on phosphogypsum as construction aggregate material; provides that phosphogypsum used under specified circumstances is not solid waste & is allowed use in state

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2023 Legislative Session
Bills that Passed

- HB 1367 – Unlawful Dumping
  - Specifies it is unlawful to dump litter in or on any water control district property or canal right-of-way without consent; provides when litter is thrown or discarded from boat, operator or owner, or both, are in violation of certain provisions; requires water control district to report unlawful dumping to law enforcement;
- SB 284 – Energy (Vetoed)
  - Requires vehicles of a given use class to be selected for procurement based on the lowest lifetime ownership costs rather than on the greatest fuel efficiency available. Emergency response vehicles are exempt from this requirement. The bill requires, when available, the use of ethanol and biodiesel blended fuels and natural gas fuel when a state agency purchases an internal combustion engine vehicle. It requires the Department of Management Services to make recommendations to state agencies and local governments before July 1, 2024, regarding the procurement of electric vehicles, natural gas fuel vehicles and vehicles powered by renewable energy.
- SB 724 – Seagrass Restoration Technology Development Initiative
  - Establishes the Seagrass Restoration Technical Development Initiative within the Department of Environmental Protection (DEP), in partnership with Mote Marine Laboratory (Mote) and the University of Florida (UF), to develop cost-effective innovative and environmentally sustainable technologies needed to restore coastal seagrass ecosystems. Mote and the UF are required to create a 10-year Florida Seagrass Restoration Plan to implement tools and technologies developed under the initiative.

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2023 Legislative Session
Bills that Failed

- HB 1427/SB 506 – Comprehensive Waste Reduction and Recycling Plan
  - Required the Department of Environmental Protection to develop a comprehensive waste reduction and recycling plan by July 2024 based on recommendations from the Department's 2020 75% Recycling Goal Final Report. The bills would have also required the Department to convene a technical assistance group to help develop the plan. The plan would have mandated the inclusion of the following: recycling goals based on sustainable materials management and waste diversion; a 30-year plan to implement strategies relating to recycling education and outreach; local government recycling assistance; and recycling materials market development. The bills would have required the Department to submit a report and recommendations to the Legislature following completion of the plan.
- SB 192/HB 175 – Everglades Protection Area/Comprehensive Plan Amendments
  - Would have required comprehensive plans and plan amendments by a county defined in Section 125.011(1) or any municipality therein (i.e., Miami-Dade County and municipalities within the county), that apply to any land within, or within two miles of, the Everglades Protection Area (EPA) to follow the state-coordinated review process for state agency compliance review. Requires the Department of Environmental Protection (DEP) to coordinate with the affected local governments on mitigation measures for plans or plan amendments that would impact Everglades restoration.

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2023 Legislative Session
Bills that Failed

- HB 423/SB 1538 - Implementation of the Recommendations of the Blue-Green Algae Task Force
  - Would have required septic tank owners to have the system inspected every five years and directed the Department of Environmental Protection to implement the inspection program. The bills would have required basin management action plans to include estimated pollutant load reductions that met or exceeded the amount of load reductions needed to meet the total maximum daily load requirements under the plan.
- HB 1197/SB 1240 – Land and Water Management
  - Would have prohibited counties and municipalities from adopting laws, regulations, rules or policies relating to water quality, water quantity, pollution control, pollutant discharge prevention or removal, or wetlands, and preempt such regulation to the state. The prohibition would not have applied to an interagency or interlocal agreement between the Department of Environmental Protection and any agency or local government and would not have applied to any local government conducting programs relating to or materially affecting the water resources of the state. In addition, the prohibition would not have applied to the authority of a county or municipality to regulate and operate its own water system, wastewater system or stormwater system.

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2023 Legislative Session
Bills that Failed

- HB 371/SB 910 – Management and Storage of Surface Waters
  - Would have provided an exemption from surface water management and storage regulations for implementing certain projects for environmental habitat creation, restoration and enhancement activities, and water quality improvements on agricultural lands and government-owned lands. The bills would have removed current law requirements for the Department of Environmental Protection and water management districts to be notified of such projects.
- HB 1331 – Municipal Utilities
  - Would have substantially amended provisions of law relating to municipal water and electric utility extraterritorial surcharges, extraterritorial service and transfers of enterprise funds. The bill would have authorized a municipal utility to transfer a portion of its earnings to the municipality for general government purposes. The revenues transferred to fund general government purposes could not have exceeded a rate equal to the amount derived by applying the average of the midpoints of the rates of return on equity approved by the PSC for investor-owned utilities in the state. The amount of the transfer would have been required to be further reduced based on the percentage of extraterritorial customers served by the utility. The bill would have eliminated the automatic 25% surcharge that may be added to the rates and fees charged to extraterritorial customers.

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2023 Legislative Session
Bills that Failed

- SB 1380 – Municipal Electric Utilities
  - Would have provided that any municipal electric utility serving any electric retail customer located outside of the municipality's corporate boundaries would have been a "public utility" subject to regulation by the Public Service Commission (PSC) for a minimum of five years. The bill would have directed the PSC to develop rules for such regulation.
- SB 734/HB 1079 – Saltwater Intrusion Vulnerability Assessment
  - Would have authorized the Department of Environmental Protection to provide grants to coastal counties for saltwater intrusion vulnerability assessments that would have analyzed the effects of saltwater intrusion on a county's water supply, water utility infrastructure, wellfield protection and freshwater supply management. The bills would have required the Department to update its comprehensive statewide flood vulnerability and sea level rise data set to include information received from the county saltwater intrusion vulnerability assessments.

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2024 Legislative Session
Looking Ahead

- SB 338/HB 165 – Safe Waterways Act
  - Requiring the Department of Health and the Department of Environmental Protection to submit to the Governor and the Legislature, by a specified date, certain recommendations relating to the transfer of duties related to the bacteriological sampling of beach waters and public bathing places; specifying that the Department of Environmental Protection is solely responsible for adopting and enforcing rules related to the bacteriological sampling of beach waters and public bathing places; requiring municipalities and counties to immediately notify the department of any incident that may affect the quality of beach waters or public bathing places within their respective jurisdictions, etc. Effective Date: Except as otherwise expressly provided in this act, this act shall take effect upon becoming a law
- SB 32 – Mangrove Replanting and Restoration
  - Requiring the Department of Environmental Protection to adopt rules for mangrove replanting and restoration;
- SB 104/HB 47 – Municipal Water and Sewer Utility Rates
  - Requiring a municipality to charge customers receiving its utility services in another municipality the same rates, fees, and charges as it charges consumers within its municipal boundaries under certain circumstances, etc.

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2024 Legislative Session
Looking Ahead

- SB 298 – Saltwater Intrusion Vulnerability Assessment
  - would have authorized the Department of Environmental Protection to provide grants to coastal counties for saltwater intrusion vulnerability assessments that would have analyzed the effects of saltwater intrusion on a county's water supply, water utility infrastructure, wellfield protection and freshwater supply management. The bills would have required the Department to update its comprehensive statewide flood vulnerability and sea level rise data set to include information received from the county saltwater intrusion vulnerability assessments.
- HB 163 - Dredging and Beach Restoration Projects
  - Directs DEP to require, as condition of permits issued for certain dredging & beach restoration projects, that any adverse impact analysis conducted for activity meet certain requirements; requires local government to provide notice of its intent to conduct analysis to certain adjacent local governments; provides fine for violations.
- SB 406 – Statewide Environmental Resource Permitting Rules
  - Requiring that stormwater management systems be designed with side slopes that meet a certain minimum design requirement; superseding certain side slope rules and authorizing their repeal by a specified publication of notice and a specified filing, etc.

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2024 Legislative Session
Looking Ahead

- SB 480 - Renewable Natural Gas
  - Authorizing a public utility to recover prudently incurred renewable natural gas infrastructure project costs through an appropriate Florida Public Service Commission cost-recovery mechanism; specifying eligible renewable natural gas infrastructure projects; revising the required contents of a basin management action plan for an Outstanding Florida Spring to include identification of certain water quality improvement projects; encouraging counties and municipalities to develop regional solutions to certain energy issues; authorizing the farm-to-fuel initiative to address the production and capture of renewable natural gas, etc.
- HB 527 - Land and Water Management
  - Requires certain buffer zones for land or water delineations established by county or municipality to be acquired by county or municipality through eminent domain; preempts regulation of specified dredge & fill activities to state; repeals land management review teams.

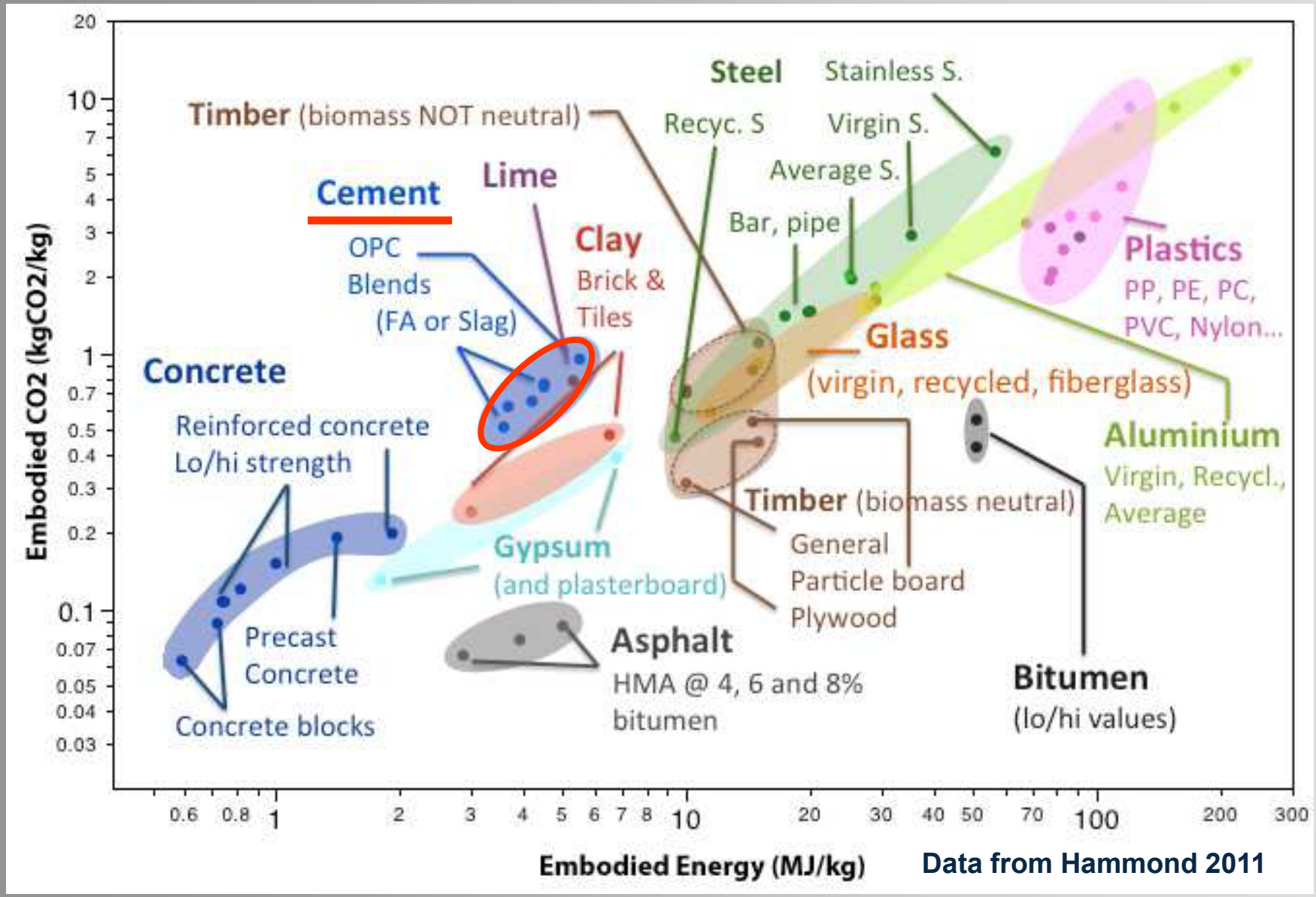
Path to Low CO_2 Cement and Concrete and Permit Implications

Florida Section AWMA 2023
Annual Meeting
Tallahassee, Florida
December 4-5, 2023

Alvaro Linero, P.E.,
Linero Concrete Concepts, Tallahassee, Florida

LINERO CONCRETE CONCEPTS

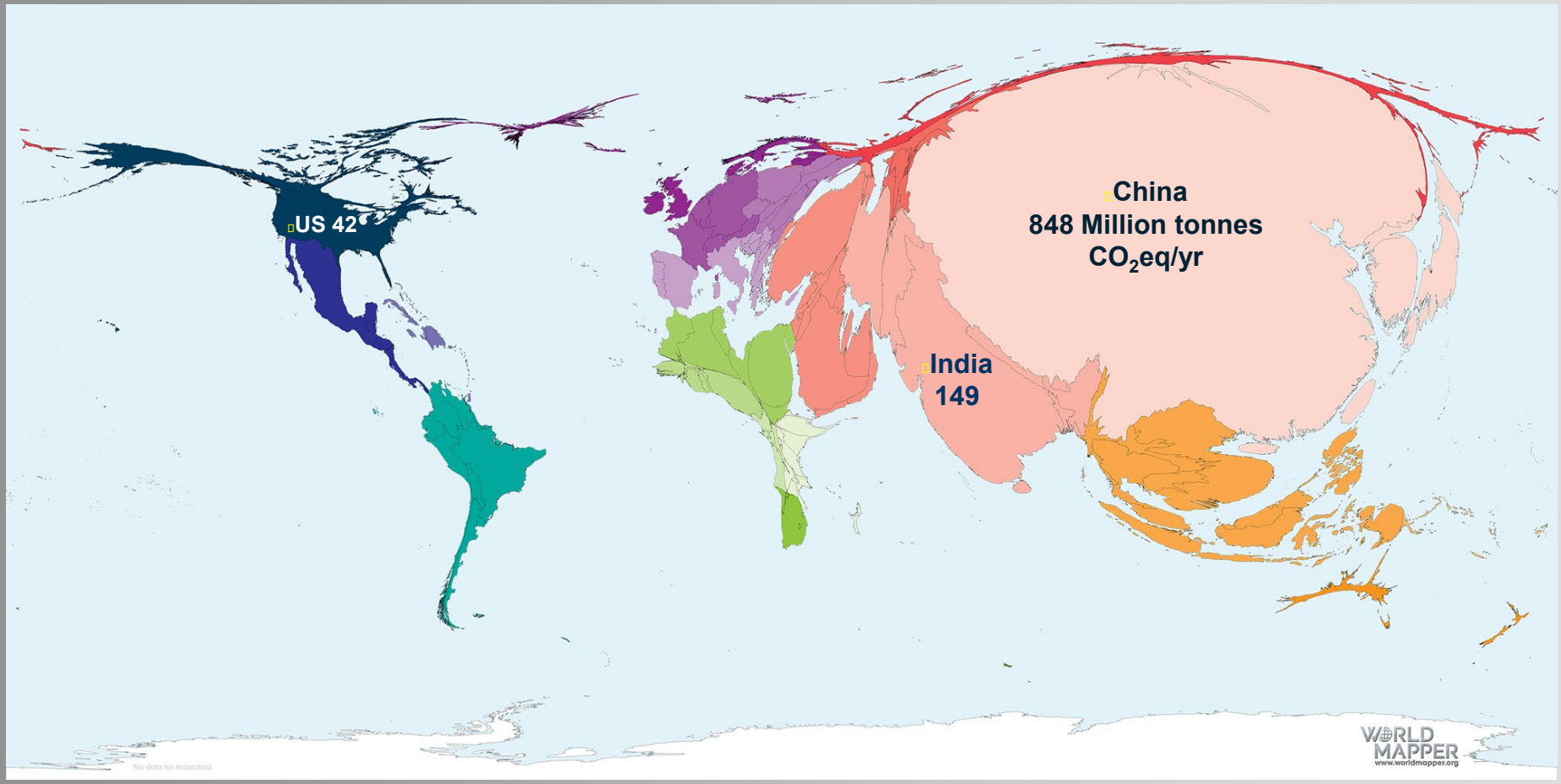
Cement Industry is Big Energy User, CO_2 Emitter



Data from Hammond 2011

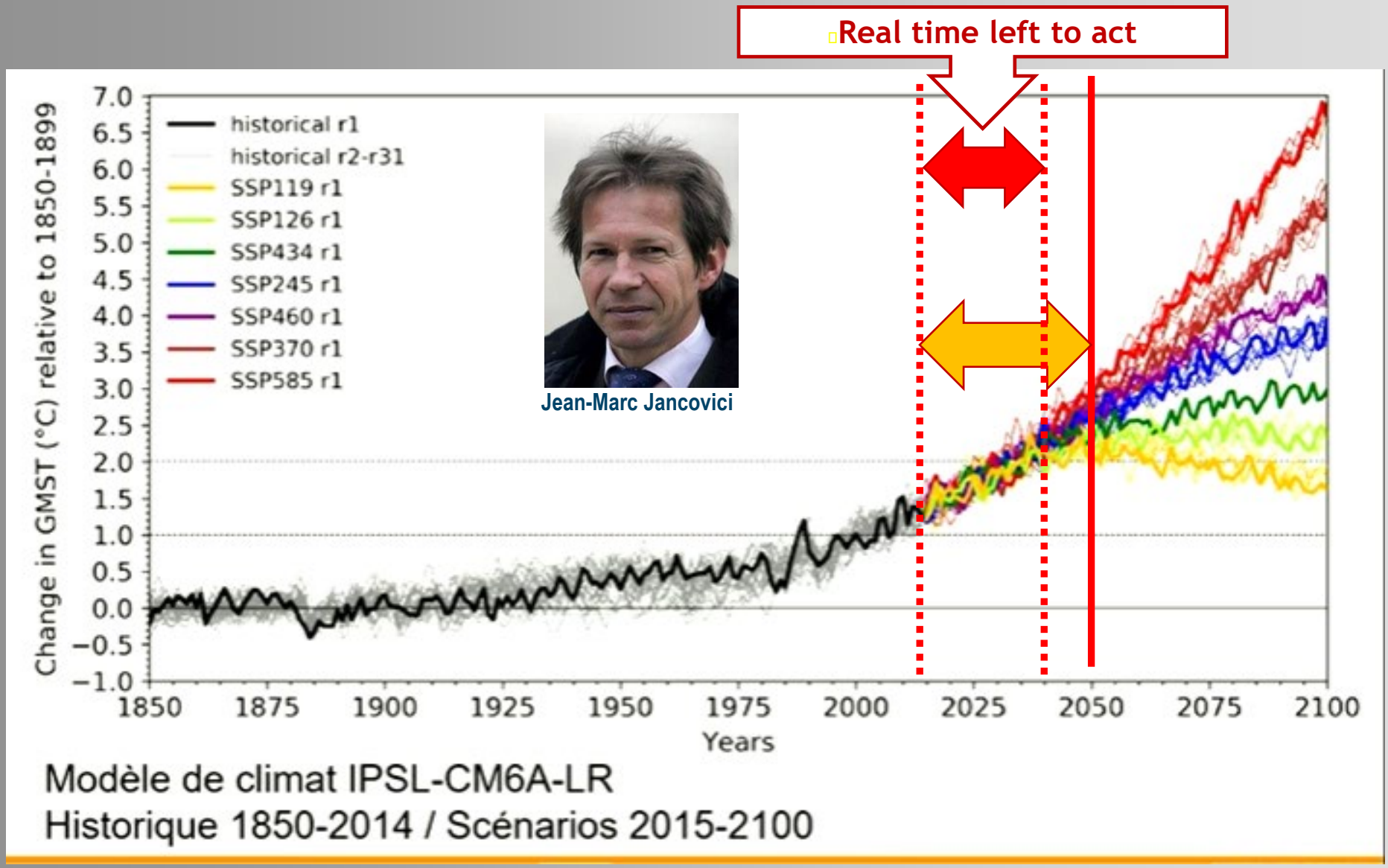
Coal (C) ⟶ Heat + CO_2(g) Limestone + Si, Al, Fe + Heat ⟶ Clinker + CO_2(g)

Worldwide Cement CO_2 Emissions



World Would Like to Reduce 500 million tonnes CO_{2eq}/year

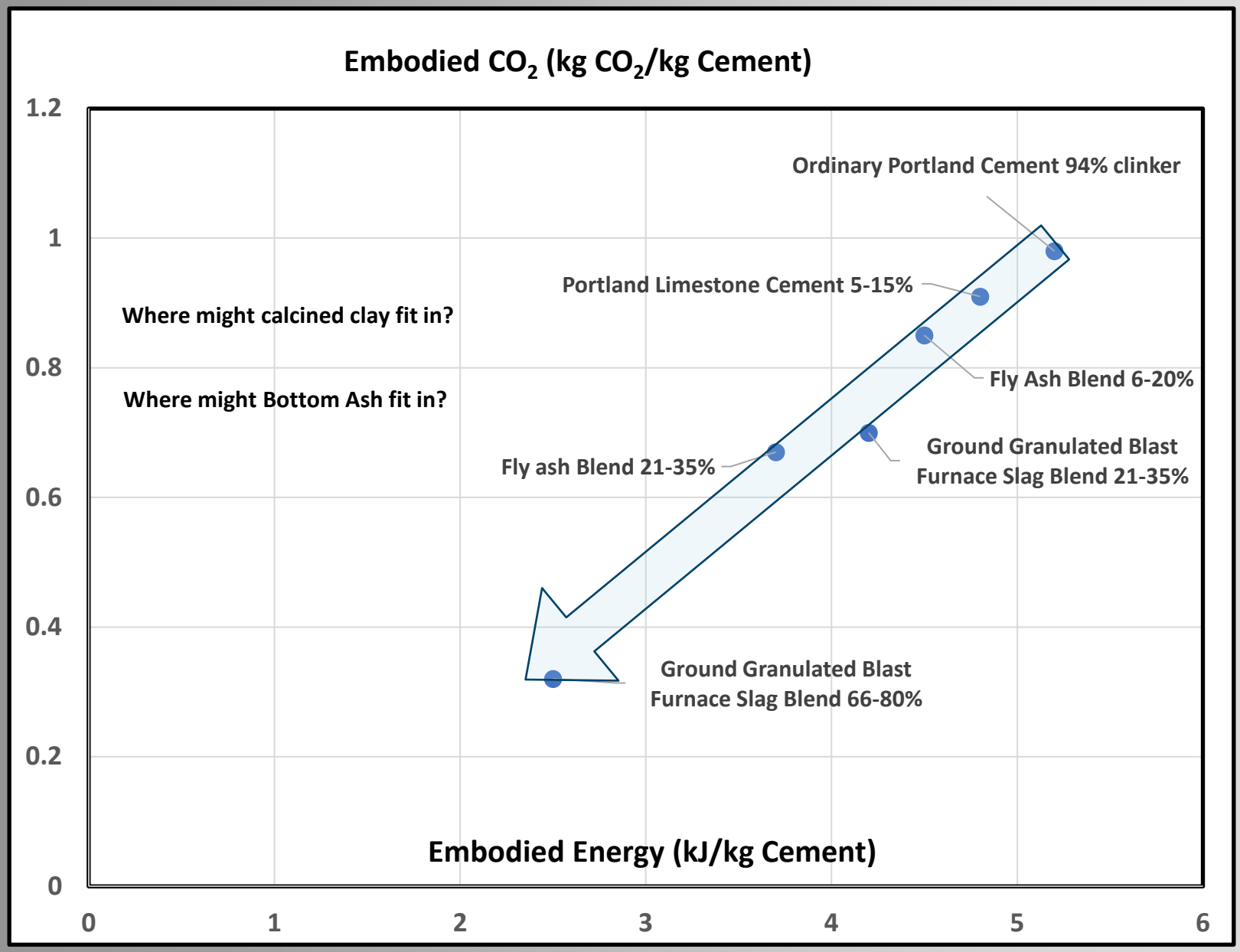
Why a 2050 Target and 2030 Milestone



Per JMJ, climate urgency requires closing all coal power plants worldwide within 30 years. Non-nuclear renewable energies will never be sufficient to transition to a carbon-neutral economy.

https://jancovici.com/transition-energetique/transports/se-passer-de-voiture-au-quotidien-est-ce-possible/

Embodied CO_2 and Energy of Cement Blends

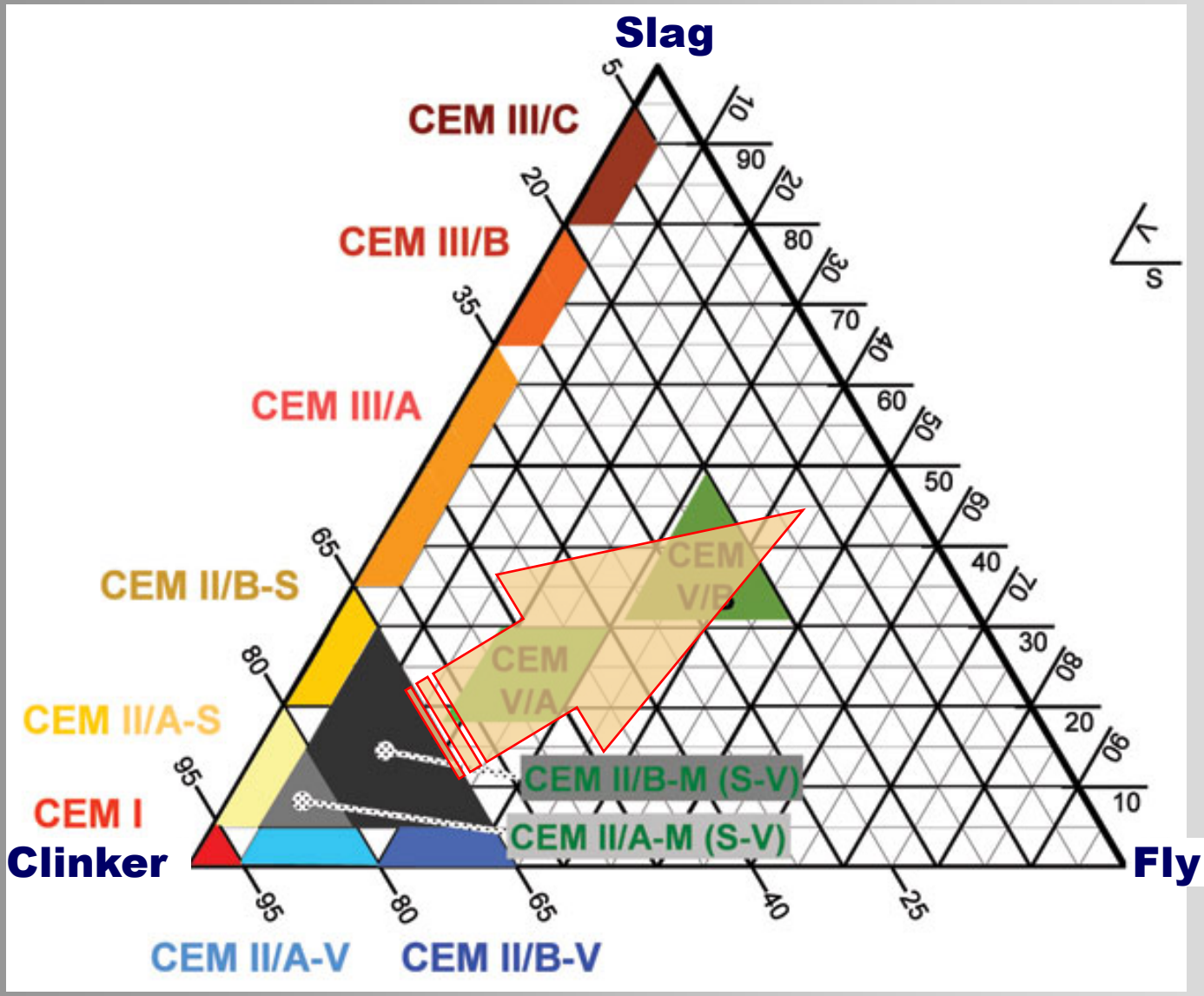


Coal (C) → Heat + CO_2(g) Limestone + Si, Al, Fe + Heat → Clinker + CO_2(g)

The Visionary

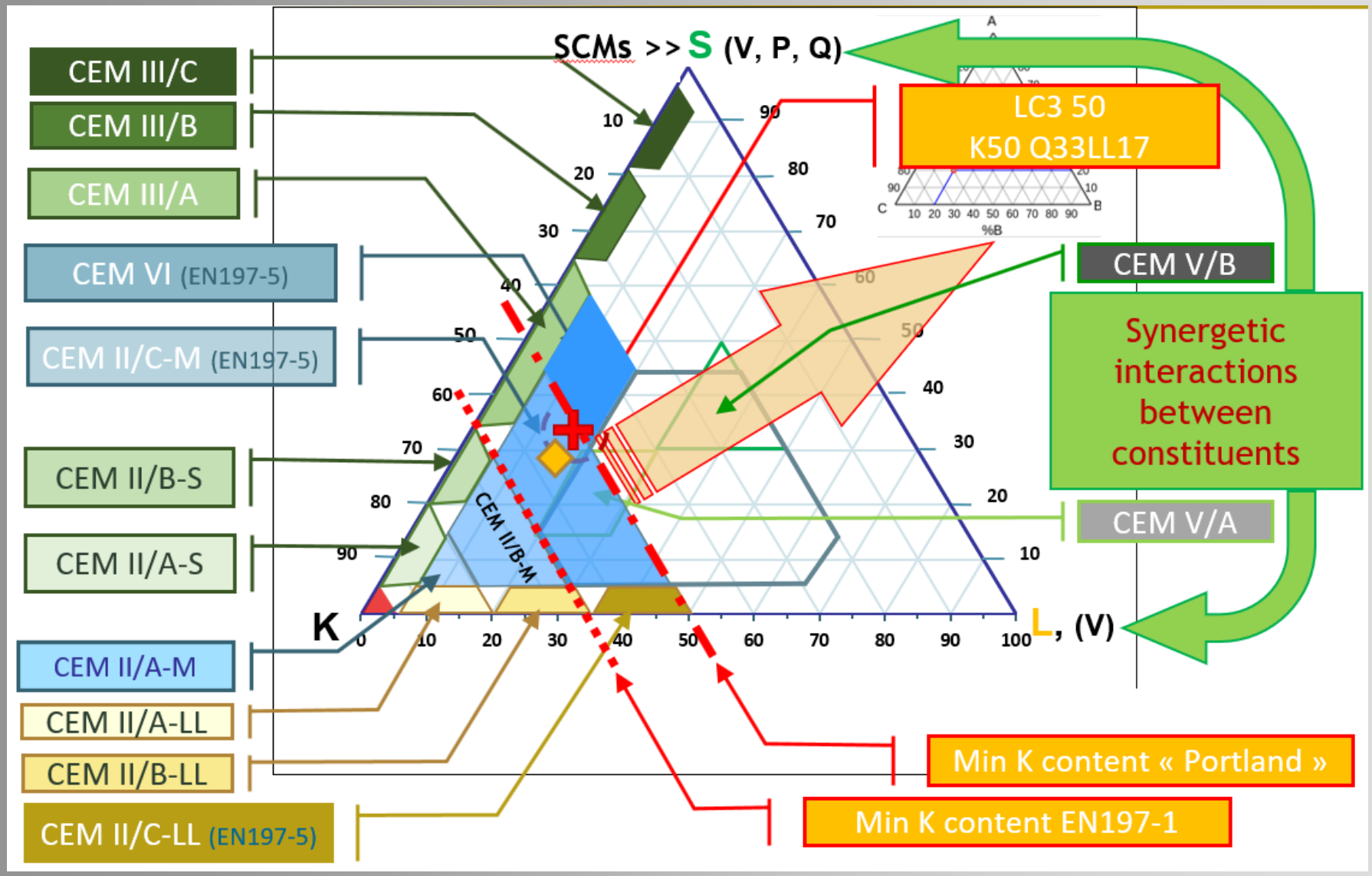
“To remain in the Market, we need concretes with lower cement content and cement with less clinker content”

Many Years to Revise Cement Standards



Turn Clinker, Slag, Fly Ash Diagram into Clinker, SCM, Limestone Diagram?

Not Easy to Add or Revise Cement Standards



If you are a Standardization Manager

Recycled Concrete Aggregate — CEN/TC 51 — Date: 2021-10 → EN 197-6

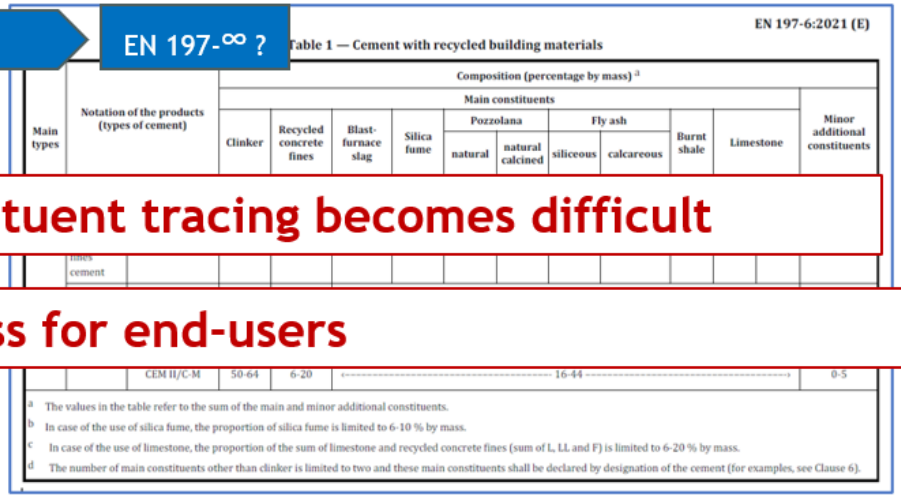
Recycled Fired Clay tiles & bricks — CEN/TC 51 — Date: 2021-10 → EN 197-7 ?

Scrap iron Slags — CEN/TC 51 — Date: 2021-10 → EN 197-8 ?

Recycled Si-Al-Ca glass — CEN/TC 51 — Date: 2021-10 → EN 197-9 ?

Paper Fly Ash — CEN/TC 51 — Date: 2021-10 → EN 197-10 ?

"Any Recycled materials" — CEN/TC 51 — Date: 2021-10 — EN 197-6:2021 — CEN/TC 51 — Secretariat: NBN — Cement — Part 6: Cement with recycled building materials — Descriptors: → EN 197-$^{\infty}$?



EN 197-6:2021 (E)

Table 1 — Cement with recycled building materials

Main types	Notation of the products (types of cement)	Composition (percentage by mass) [a]										
		Main constituents										Minor additional constituents
		Clinker	Recycled concrete fines	Blast-furnace slag	Silica fume	Pozzolana		Fly ash		Burnt shale	Limestone	
						natural	natural calcined	siliceous	calcareous			
	cement											
	CEM II/C-M	50-64	6-20	← 16-44 →								0-5

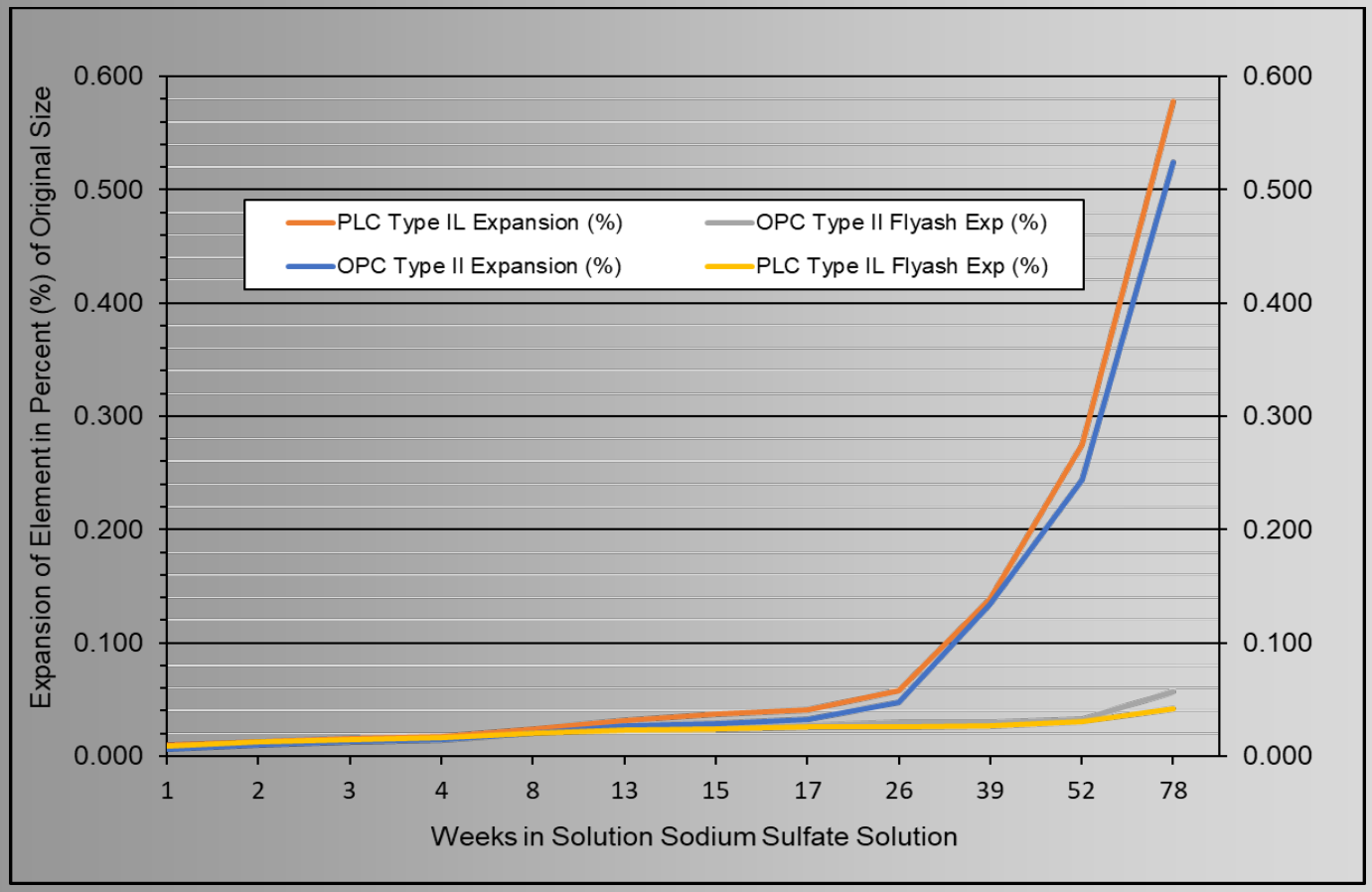
[a] The values in the table refer to the sum of the main and minor additional constituents.
[b] In case of the use of silica fume, the proportion of silica fume is limited to 6-10 % by mass.
[c] In case of the use of limestone, the proportion of the sum of limestone and recycled concrete fines (sum of L, LL and F) is limited to 6-20 % by mass.
[d] The number of main constituents other than clinker is limited to two and these main constituents shall be declared by designation of the cement (for examples, see Clause 6).

Unmanageable for Producers: constituent tracing becomes difficult

and… meaningless for end-users

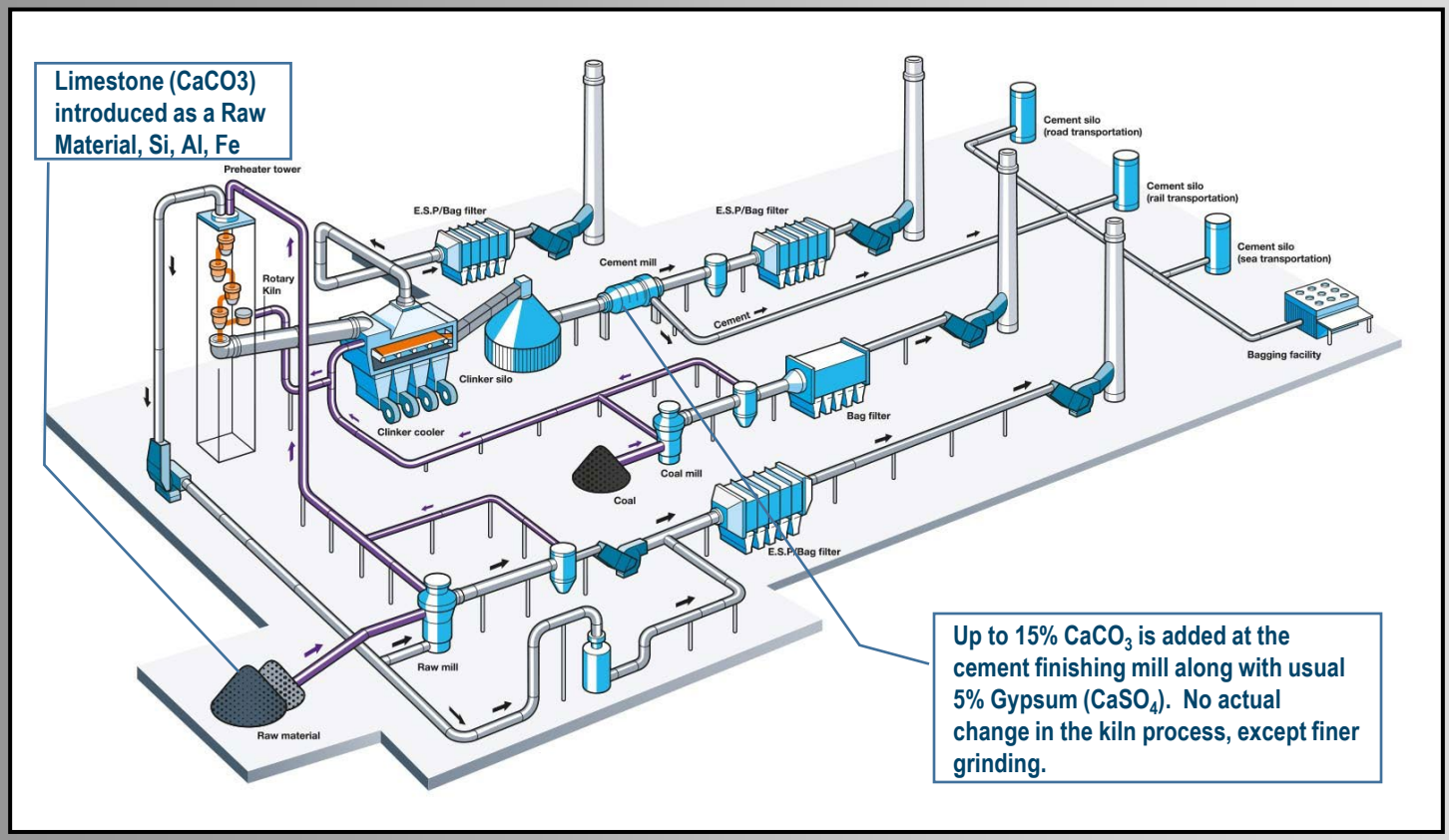
Approvals to Use PLC

- ASTM approved C595 Type IL (85/15% OPC/limestone) for blended cements a few years ago
- FDOT Approved for Bridges, Roads in Context of Concrete Mixes
- FDEP Approved Use in Waterwells and Municipal Injection Wells (studied thoroughly)
- Neither OPC Type I/II nor PLC Type IL are Actually SO_4 Resistant (my opinion)
- Either Type might need a Secondary Cementitious Material (SCM) like Fly Ash, Calcined Clay
- Fly Ash might be objectionable Cementing through Aquifers



Air Permit for Portland Limestone Cement (PLC)?

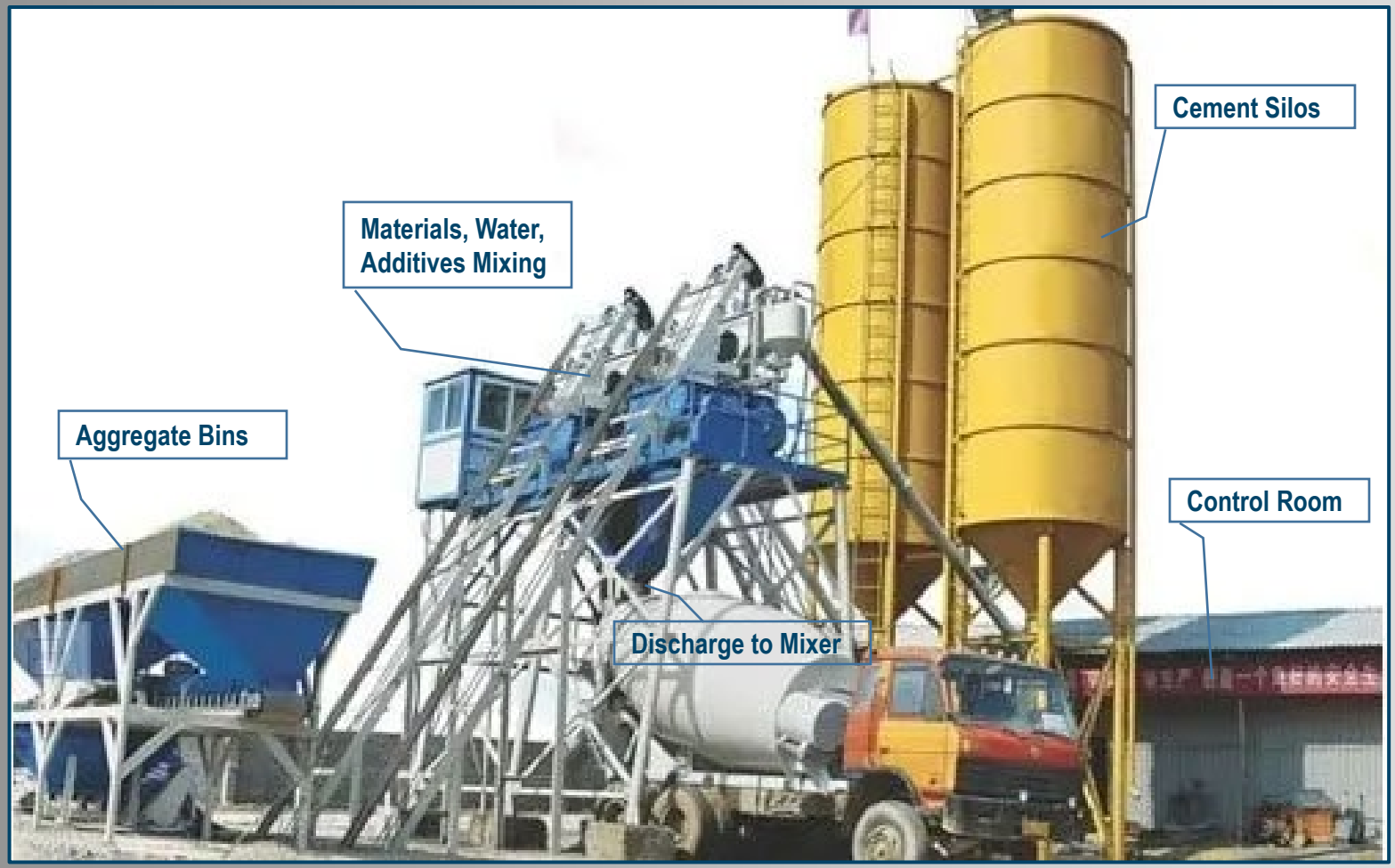
- PLC is OPC with 15% Limestone Blended into Product at End of Process
- Extra Limestone is not Calcined, thus less Process and Fuel CO_2



- Cement Company Requested Amended Permit to Clarify Limestone for Clinker
- Then they added several hundred tons/yr Limestone Use at end of Process
- No Combustion Emission Increases so no Additional Gaseous Air Pollution
- Provide Reasonable Assurance that $PM/PM_{10}/PM_{2.5}$ increases are Small

Air Permits for Fly Ash, other SCMs

- Ready Mix Plants Subject to Self-Implementing General Permit
- What Cement is in the Cement Silo? Already with SCMs?
- Is Blending at Cement Plant Preferable? Still Largely PM Permitting.



Air Permits for Coal Mill Repurposing

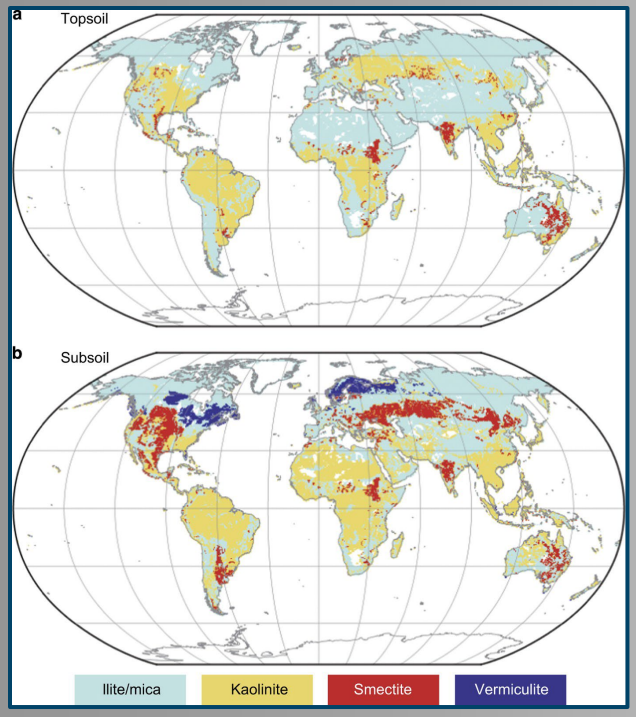
- Coal Mill Available when Converting to Natural Gas and Waste Burning
- Normally Clinker Cooler Air feed into Mill, Separate Baghouse and Stack
- Presently Limited to Processing 18.5 tons/hour of Coal/Petcoke
- Want to Grind Power Plant Bottom Ash (New Idea?) and into Cement
- Then Test Material for FDOT Acceptance in Ternary Cement Formulation

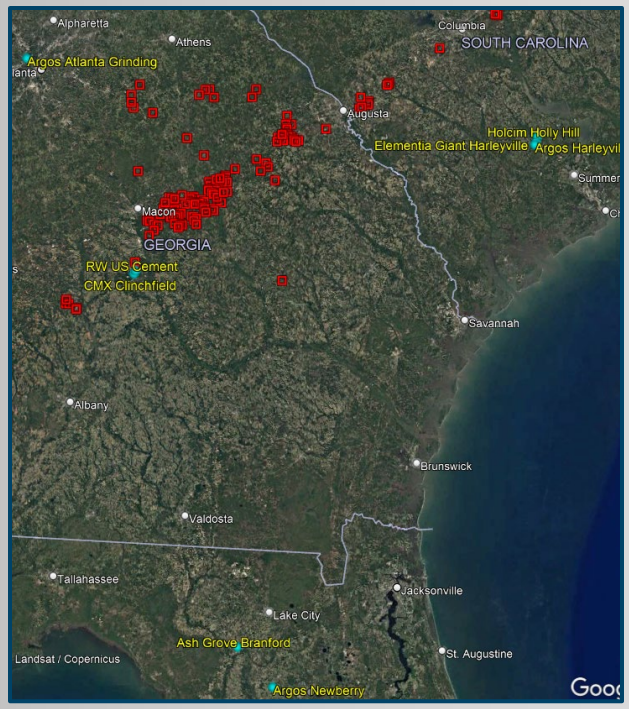
"Running other materials through the coal mill is "a change of operation method with potential of affecting emissions." Changes of method of operation need an air construction permit describing the trial, rates, amounts, time, methods that will be applied to prevent and measure emissions, and theoretical or practical explanation as to why the emissions would not be affected. Once submitted, the department will either request additional information, approve the trial, or approve the trial with conditions."

- Looks reasonable to me! Very helpful in keeping their plans moving.
- Power Plant Bottom Ash contains less Hg than Fly Ash
- Conceivably oily ash could Volatilize or Catalyze Nasty Characters

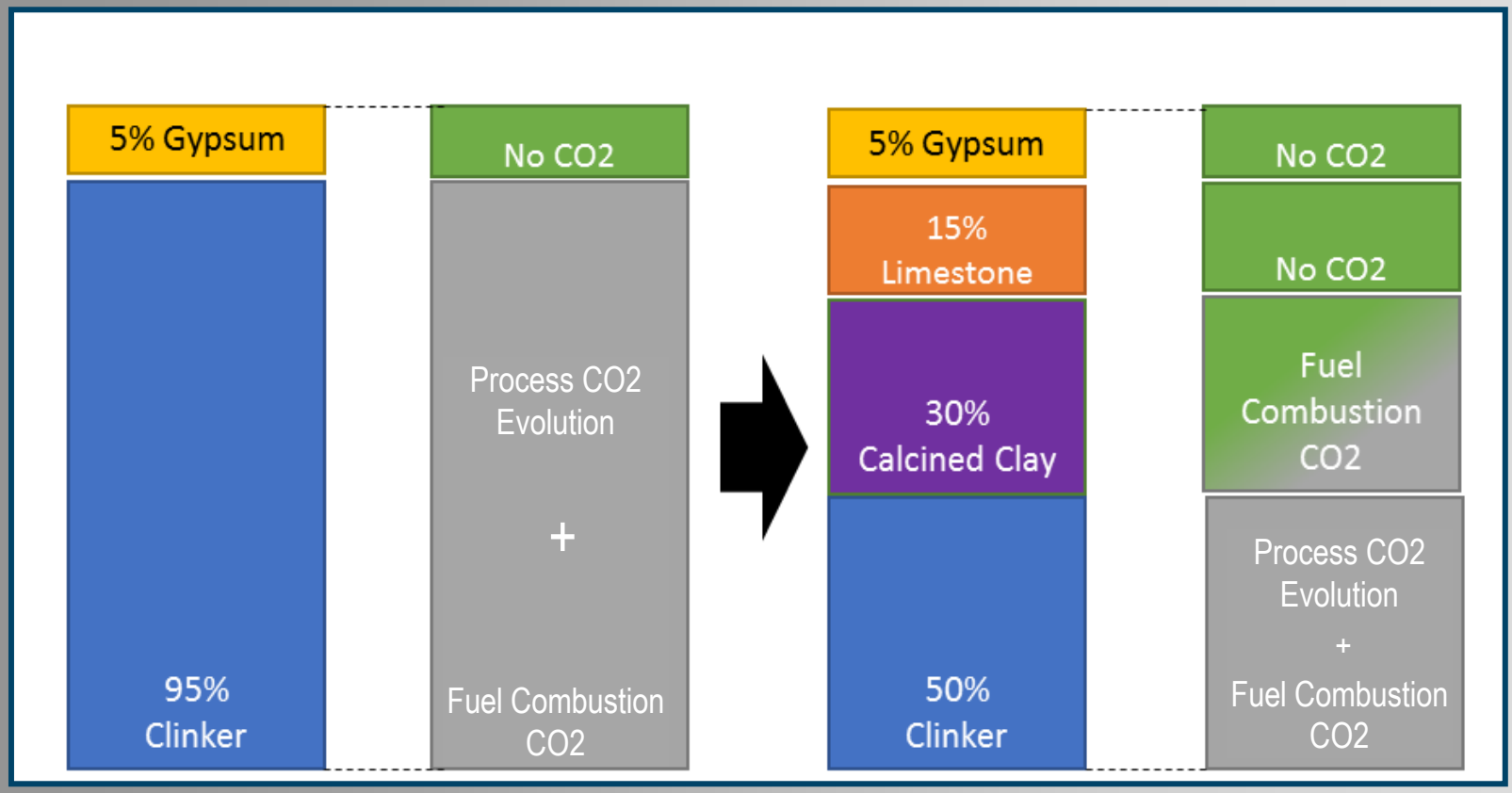
What are Calcined Clay (CC), Limestone Calcined Clay Cement (LC3)?

- Low Quality Kaolinitic Clay, Heated to ~ 750ºC and Becomes Reactive Pozzolan
- Replace Fly Ash, Slag as these Secondary Cementitious Materials are Exhausted
- Lower Kiln Temperature vs Cement Calciner/Kiln that Operate 1000 - 2000ºC
- No Process CO_2 Compared with Limestone Calcination and Less Fuel CO_2
- Added to OPC Yields a Good Cement, Less Embodied Energy and CO_2





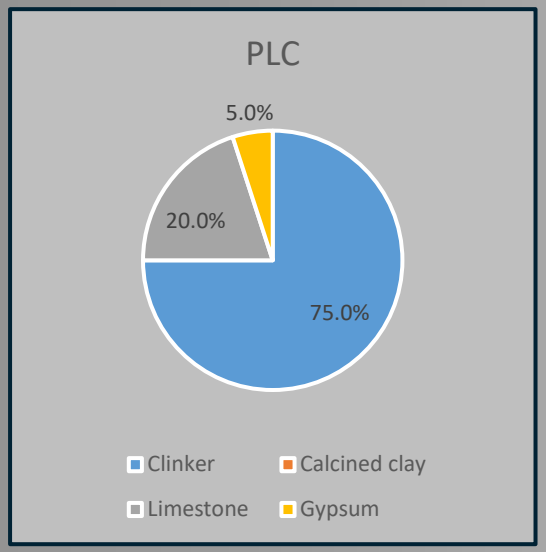
How PLC (OPC + Limestone + CC) Reduces CO_2

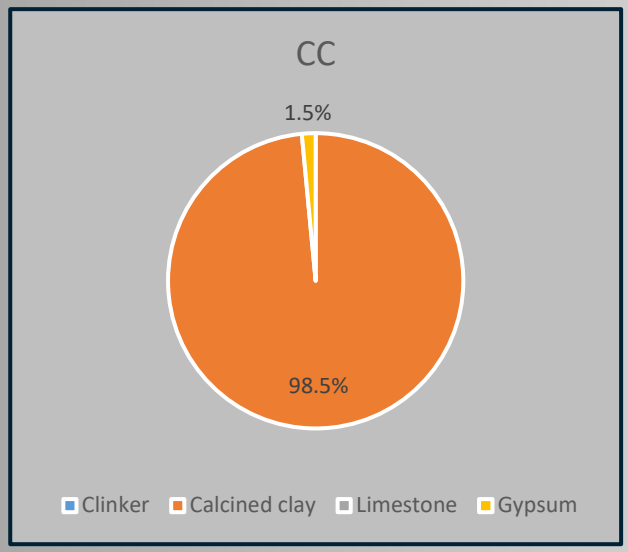


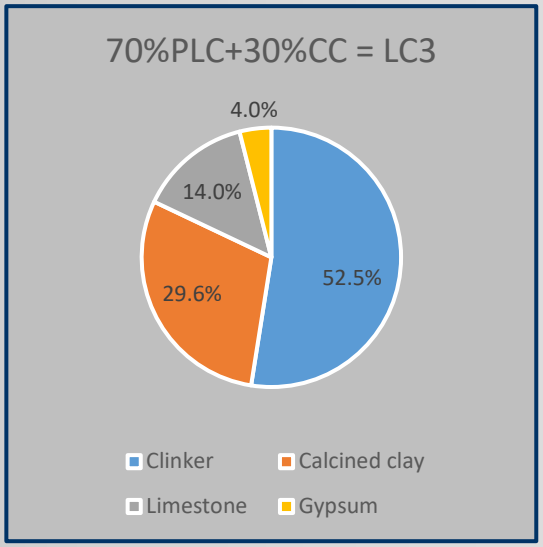
Slide F. Martirena, LC3 Project

- LC3 Contains Significantly less Embodied Energy and CO_2 Emissions than OPC
- Drying and Dehydroxylation of CC Emits no CO_2 and Less Fuel CO_2 due to Lower Temperature
- Limestone Addition Emits no CO_2 and No Fuel CO_2. Some Extra Grinding Electric Energy

Combining PLC with CC Yields LC3

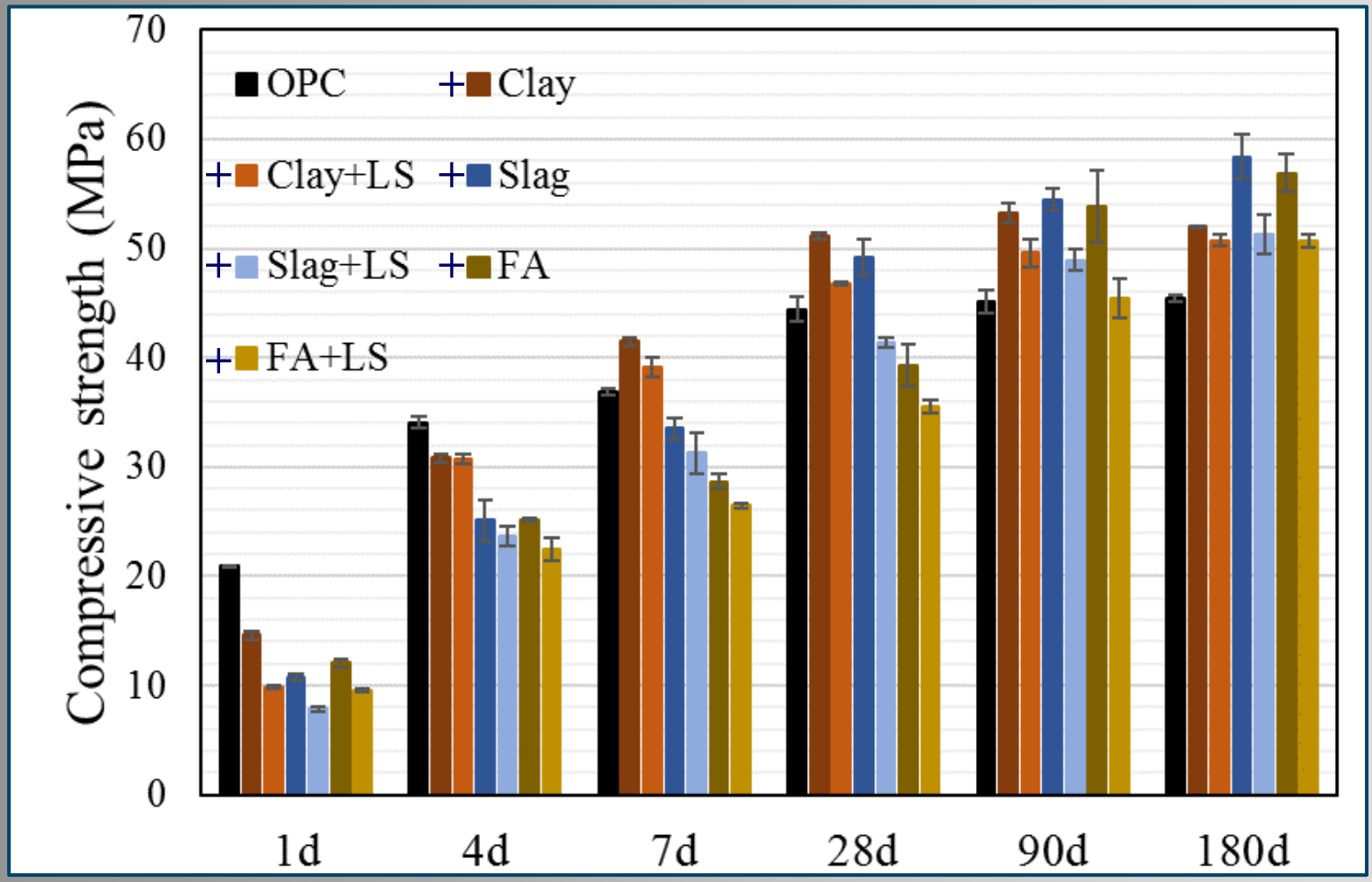






- Limestone Calcined Clay Cement (LC3) Can be made at an Existing Cement Plant
- Separately make Limestone Calcined Clay (LC2) and add to OPC to Make LC3
- More Practical Option in U.S. is to Mix CC as an SCM with PLC at Ready-Mix Plant
- Thus, CC Would be in Direct Competition with Fly Ash, Slag, Ground Glass, Etc.

Strength of OPC Plus Various SCM



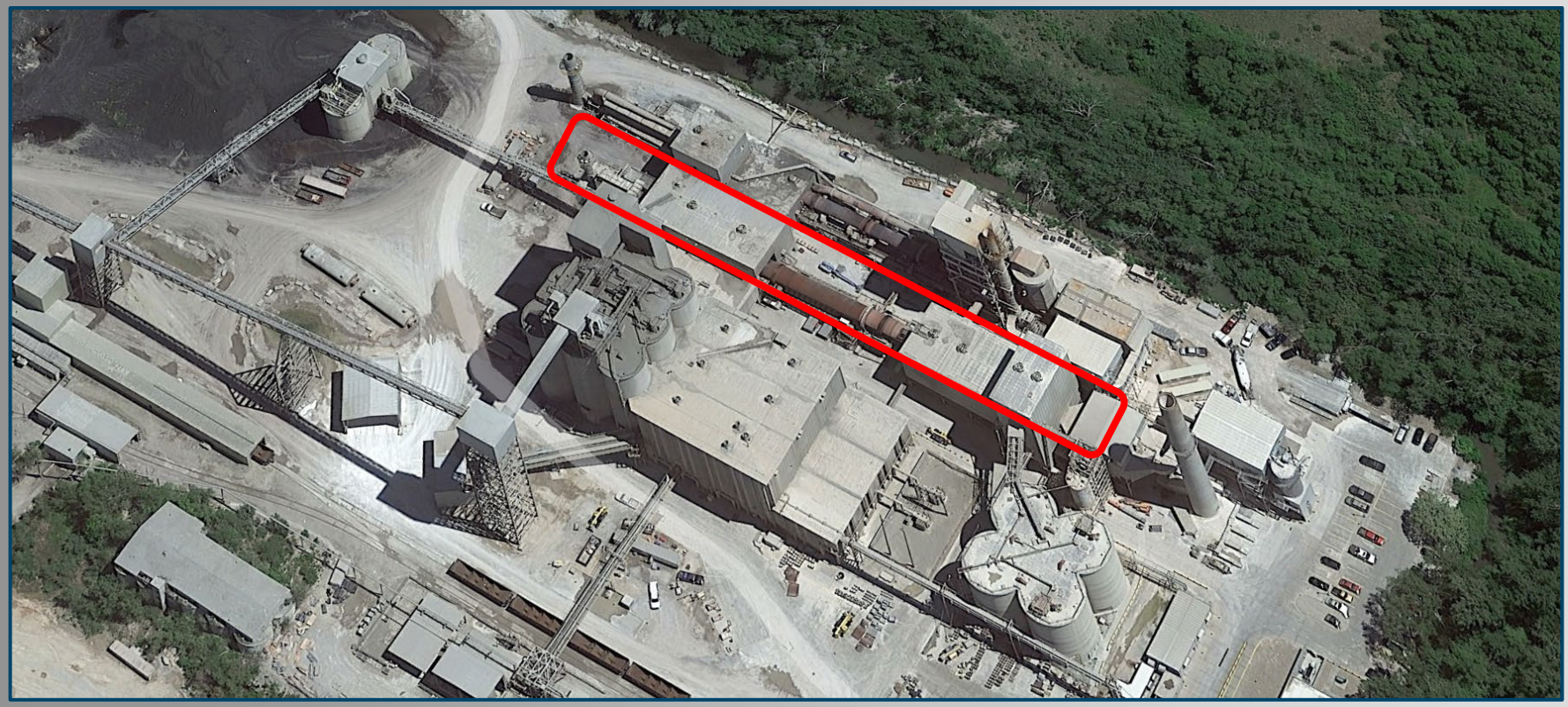
- OPC is Portland Cement Alone, Including 5% Gypsum
- Binary Systems (e.g., OPC plus an addition) are 70% OPC and 30% Clay, Slag or Fly Ash
- Ternary Systems (e.g., OPC plus 2 additions) are 50% OPC, 15% Limestone, 30% Clay, Slag or Fly Ash

Source: Slide from Dr. Karen Scrivener at École Polytechnique Fédérale de Lausanne/LC3 Project

Remember OPC Must Have SCM for SO_4, Cl, CO_2 Defense

Guess which Blocks Contain Calcined Clay

Air Permit for Repurposed Cement Kiln



RECEIVED

MAY 29 2020

NE Dept of Environment and Energy
By: ____DEE #171____

May 28, 2020

Department of Environment and Energy
Air Quality Division
P.O. Box 98922

RE: Ash Grove Cement Company
Louisville, Nebraska, NDEE ID #4129
Activated Clay Production - Source Trial

Dear Sir or Madam:

Ash Grove Cement Plant (AGC) in Louisville, NE (NDEE ID 4129) is planning to conduct a trial to determine if locally sourced clay can be processed on one of the existing kilns in order to manufacture activated clay for use as a pozzolanic additive in portland cement. Trial tests will be conducted in accordance with the NDEE Source Trial Policy (form # 18-010)

Construction Permit #CP21-042
Issued: **July 27, 2022**

Ash Grove Cement Company
FID #4129

SUMMARY OF REVISIONS

Although this permit completely supersedes permits CP18-015 (issued August 10, 2018) and CP21-040 (issued April 19, 2022), only the following permit conditions have been significantly revised or updated.

Permit Condition / Summary of Revision	Page
III.(A): Added condition that would require Ash Grove to include the amount of calcined clay produced when calculating emissions in pounds per ton of clinker produced. Also included condition to require records of the amount of calcined clay produced to be maintained at Ash Grove. Added permitted fuel types for the kiln systems to the table of permitted emission points.	A-1
III.(B) *(Originally Condition III.(A) from CP18-015)*: Added the new air flows from the most recent performance test as descriptions under the Dust Collector control equipment. Updated Condition III.(B)(3)(b) for an outlet loading concentration for the dust collectors, as the PTE was changed to be based off of the June 2021 performance test.	B-1

Air Permit for New Calcined Clay Kiln

- PSD Permit if Collocated at Cement Plant unless Very Big Emission Reductions
- Could Locate at an Existing Clinker Receiving and Grinding Facility and Maybe Avoid PSD
- Not on List of Major Sources Subject to 100 TPY Conventional PSD Pollutant Thresholds
- Doesn't Look like an NSPS or NESHAP Applies. Stay < 250 TPY, 10 TPY HAP Thresholds
- Maybe a 250k to 500k TPY kiln Could be Limited to < 250 TPY NOx (1-2 lb NOx/ton clinker)

Not a Summary, But a few Points

- All this stuff relates to Air, Waste, Water Resources and FDOT
- There is Still a Lot of Interest in Fly Ash and Maybe Bottom Ash
- Can't Make Good Cement and Concrete without SCM
- Fly Ash Becomes Scarce then Calcined Clay will Make More Sense
- Calcined Clay Better Economics if Sold as Cement
- Tougher if it competes with Fly Ash, Slag and other SCMs
- Calcined Clay Cement – A New Way to See the World!

Questions? Contact Information

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Linero Concrete Concepts
Tallahassee, Florida
aaalinero@gmail.com
850-591-7364

GUNSTER

FLORIDA'S LAW FIRM FOR BUSINESS

2023 Florida Section AWMA Annual Meeting Tallahassee, FL December 4-5, 2023

Robert A. Manning

GUNSTER

Air Quality
Case Law Update

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Suite 601
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GUNSTER

Robert A. Manning

A native Floridian, Robert Manning has been practicing environmental law for nearly three decades. He advises utilities and private businesses on issues involving air quality, including policy development, legislation, rulemaking, permitting and enforcement. Although his practice often focuses on issues affecting the electric utility industry, he also represents other industrial and municipal clients involved in phosphate, solid waste management, oil and gas, chemical, fuel distribution, and cement.

Robert is past Chair of the Florida Bar's Environmental and Land Use law Section and the Florida Section of the Air and Waste Management Association.

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Agenda

- NAAQS – Ozone, $PM_{2.5}$
- GHG Proposal for EGUs
- SSM SIP Call
- Regional Haze

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Ozone NAAQS

- **Reconsidering Ozone Standard**
  - Proposal ~4/ 24, final TBD
  - Staff – retain 70; CASAC – 55-60
- **6/ 5/ 23 Proposed Transport FIP for 2015 NAAQS**

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$PM_{2.5}$ NAAQS

- 1/ 27/ 23 FR Proposal
  - Lowers annual standard from 12μg/ m^3 to between 9.0 and 10.0
  - Retains 24-hr standard of 35μg/ m^3
- Final rule ~10/ 23 (at OMB 9/ 22/ 23)

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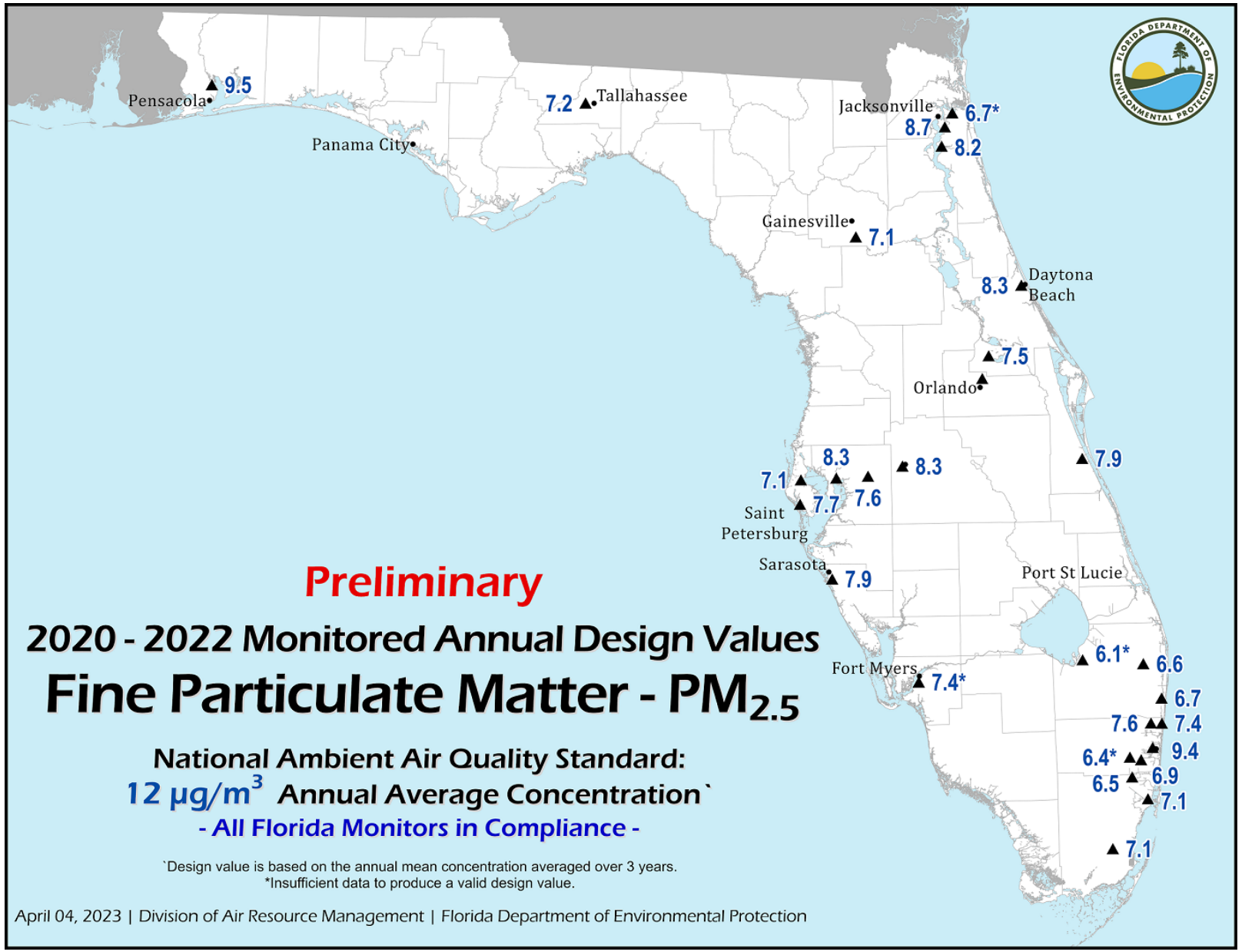
Pensacola
9.5
Panama City
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Tallahassee
Jacksonville
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6.7*
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Daytona Beach
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Orlando
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7.6
Saint Petersburg
Sarasota
7.9
Port St Lucie
6.1*
6.6
Fort Myers
7.4*
6.7
7.6
7.4
9.4
6.4*
6.9
6.5
7.1
7.1
Preliminary
2020 - 2022 Monitored Annual Design Values
Fine Particulate Matter - PM2.5
National Ambient Air Quality Standard:
12 µg/m3 Annual Average Concentration`
- All Florida Monitors in Compliance -
`Design value is based on the annual mean concentration averaged over 3 years.
*Insufficient data to produce a valid design value.
April 04, 2023 | Division of Air Resource Management | Florida Department of Environmental Protection

GUNSTER

GHG Proposal for EGUs

- **5/23/23 FR Proposal**
  - BSER = CCS, co-firing "green" Hydrogen
    - Depends on unit type, retirement date, capacity factor
    - Compliance dates of 2030, 2032, 2035, 2038
    - Applicability questions re baseload CTs

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GHG Proposal for EGUs

- **Comments submitted 8/ 8/ 23 by DEP, PSC, FL AG, FCG, FRCC and others**
- **11/ 20/ 23 Supplemental Proposal**
  - Limited to impacts on small entities, reliability
  - Comments due 12/ 20/ 23
- **Final ~4/ 24**

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GHG Proposal for EGUs

- **Key Issues**
  - Whether CCS and "green" Hydrogen are "adequately demonstrated"
  - Applicability re baseload CTs
  - Timing and cost
  - Reliability
- **11/ 20/ 23 Final 111(d) implementing rule**

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GHG Proposal for EGUs

- **11/ 17/ 23 Final 111(d) implementing rule**
  - Default timeline for state and EPA action
  - RULOF
  - "Meaningful engagement" with "pertinent stakeholders"
  - Trading and averaging

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SSM SIP Call

- FCG-EC v EPA, argued 3/ 8/ 22
  - Awaiting decision
- 2/ 24/ 23 FR Proposal to restate SIP Call; final ~12/ 23
- 8/ 4/ 23 EPA final approval of Florida's 2016 submission

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Regional Haze

- 10/ 8/ 21 DEP SIP for 2nd Implementation Period
  - Supplement expected soon
- 9/ 26/ 23 OCE deadline suit re EPA failure to act on FL's SIP

Federal Refrigerant Management Regulatory Updates

December 5, 2023

Alex Reeder

Trinity Consultants

trinityconsultants.com

Introduction

Alex Reeder, Consultant

- Joined Trinity Consultants in April 2023
- Previously spent 5 years working in industry (automotive and chemicals manufacturing) in operational and environmental roles
- Primarily air permitting expertise, but also experienced with multimedia environmental support, hazardous waste, and ODS/refrigerant management
- Industries served as a consultant: cement, shipbuilding/surface coating, power generation and transmission, chemicals, agriculture, aerospace, theme parks
- BS ChemE, The University of Alabama (ROLL TIDE)
- Office Location: Orlando, FL
- Contact Number: (689) 610-6224
- Alex.Reeder@trinityconsultants.com

Trinity Consultants

Trinity Consultants

Started in 1974 by **one consultant** in Dallas, Texas, serving clients' **air quality** regulatory compliance needs.

Today, we are **nearly 1,700 employees** in more than **70 locations** on **four continents.**

We help organizations overcome complex, mission-critical **EHS, engineering, and science** challenges through **consulting, technology, training, and staffing** support.

Trinity Consultants

Trinity Consultants International Presence

Environmental Health & Safety Consulting Services

AIR QUALITY

Air quality permitting and compliance support with federal and state/local regulatory requirements.

ESG, EJ AND SUSTAINABILITY

Comprehensive ESG and sustainability program support for companies across many industries.

EHS MANAGEMENT

Trinity's EHS Performance & Risk Management team assists in addressing EHS challenges from various perspectives - strategic planning, program evaluation, and systems development.

WASTE MANAGEMENT

Provides regulatory waste management support for industrial facilities.

CHEMICAL COMPLIANCE

Compliance support for chemical-related compliance and reporting requirements.

EHS LITIGATION SUPPORT

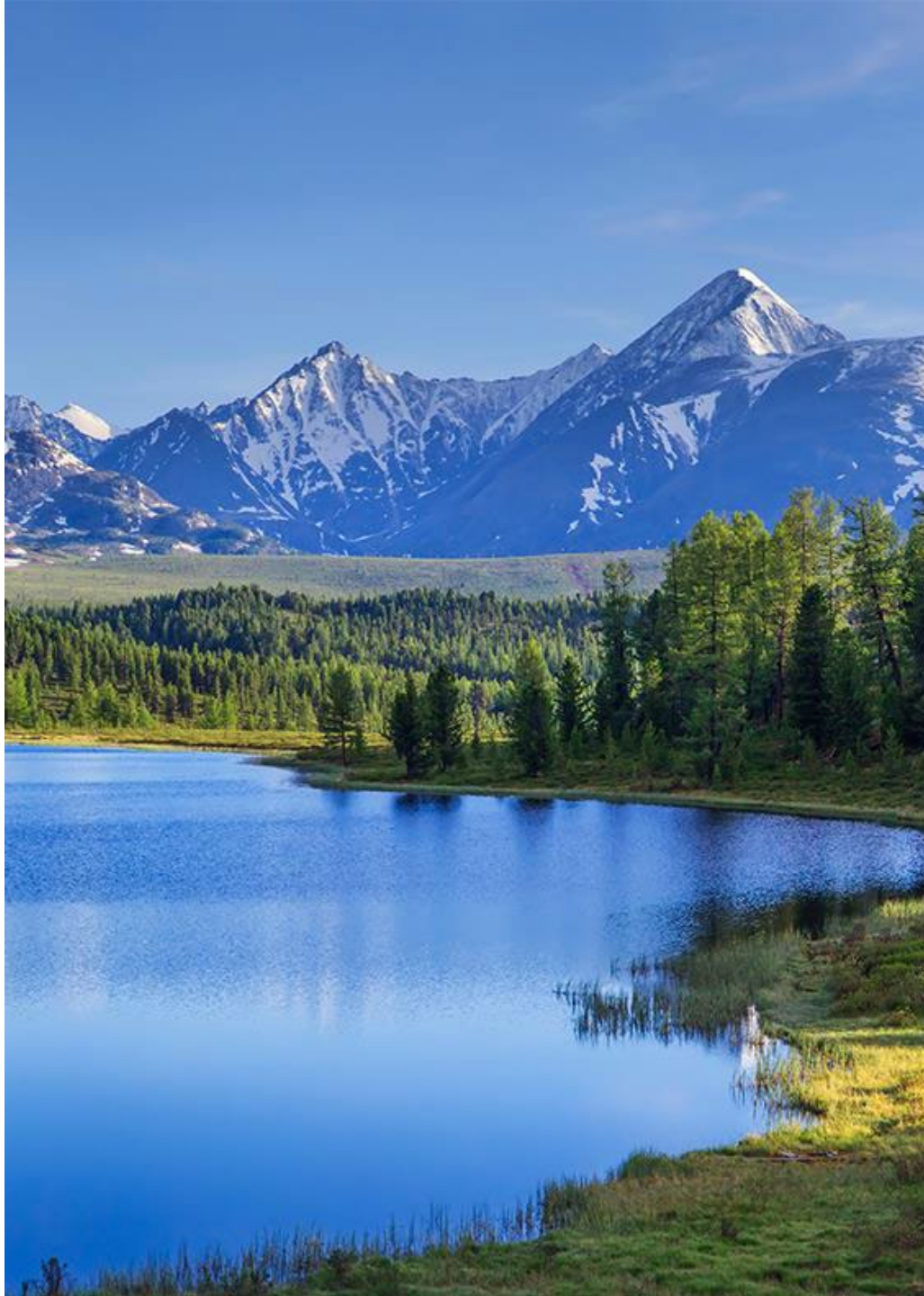
Provides technical support and expert testimony for legal issues regarding air quality, noise impact, industrial air quality and weather-related litigation.

HEALTH AND SAFETY

Support with OSHA, EPA, and local/state agencies regulations that protect the health and safety of workers and surrounding communities.

WATER QUALITY

Water quality permitting, compliance, and sampling.



Agenda

1. Background on refrigerants and existing regulations
2. Targeting of HFCs via:
   a. Significant New Alternatives Policy (SNAP)
   b. Technology Transitions Rule
   c. Proposed HFC Management Rule
3. What's next? How do we prepare?

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Background on Refrigerants and Existing Regulations

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Basic Refrigerant Types

- **CFCs – chlorofluorocarbons** (e.g., R-11, R-12)
  - 1st generation; Class I ODS with ODP > 0.2
  - Production phased out since 1996
- **HCFCs – hydrochlorofluorocarbons** (e.g., R-22, R-141b, R-142b)
  - 2nd generation; Class II ODS with ODP < 0.2
  - Production being phased out by 2020 (R-22 phase out started in 2010)
- **HFCs – hydrofluorocarbons** (e.g., R-134a,R-407C, R-410A)
  - 3rd generation; non-ODS, but several have high global warming potential (GWP)
  - Production targeted for future phase down
- **Next generation refrigerants –** non-ODS and low GWP
  - Hydrocarbons - e.g., R-290 (propane), R-600a (isobutane)
  - Hydrofluoroolefins (HFOs) – e.g., R-1234yf
  - HFC/HFO blends - e.g., R-448A, R-449A

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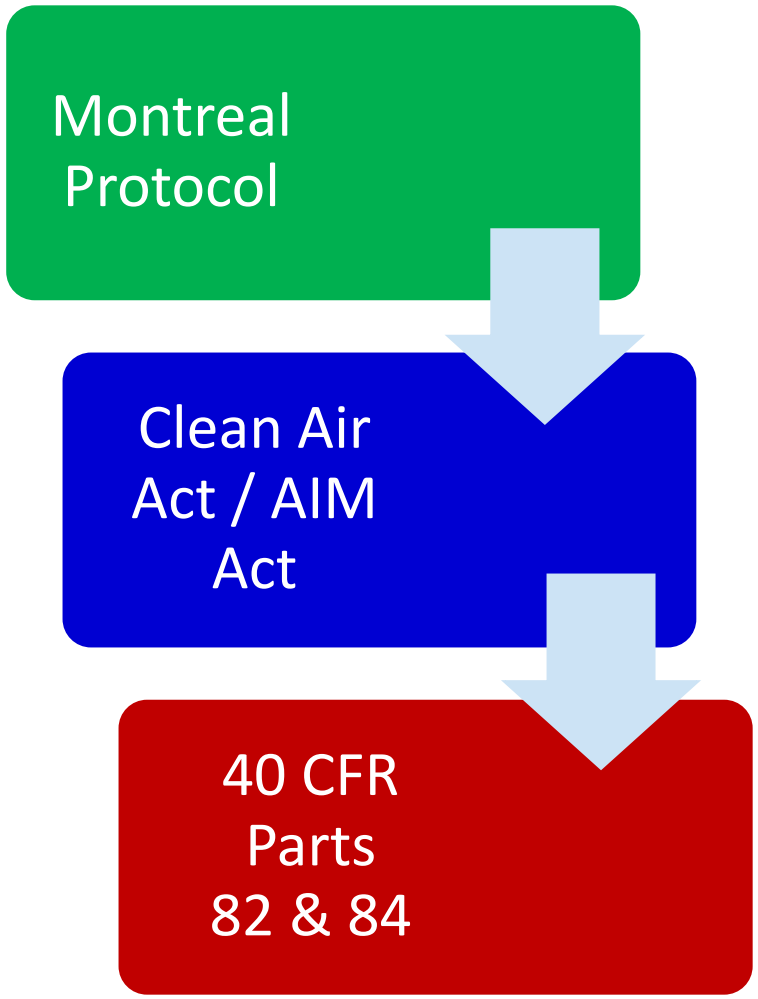
Basis of EPA Action on Refrigerants



- **International treaty** – established in 1987 in response to hole in ozone layer that forms over Antarctica each year
  - Targets ozone depleting substances (ODS), including **CFCs and HCFCs**
  - Amended several times using "worst first" approach; **recently amended to target HFCs**
- **U.S. laws or statutes** – give EPA authority to develop rules to implement requirements in Montreal Protocol
- **EPA rules** – what you have to comply with on day-to-day basis

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AIM Act Provisions

- American Innovation and Manufacturing (AIM) Act of 2020

- 40 CFR 84 – Implementing Regulations
  - Subpart A – Production and Consumption Controls
  - Subpart B – Phasedown of Hydrofluorocarbons (finalized 10/24/2023)
  - Subpart C – Management of Regulated Substances (proposed 10/19/2023)

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Targeting of HFCs

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HFCs are the New Target

- HFCs (e.g., R-134a, R-410A), which are the most common replacement for HCFCs, are the new target since they are potent GHGs
- **HFC targeting mechanisms**
  - EPA's SNAP Program
  - Kigali Amendment to Montreal Protocol
  - Expansion of 40 CFR 82, Subpart F (i.e., CAA Section 608) provisions to non-ODS substitutes
  - AIM Act of 2020, 40 CFR 84 – Final Technology Transition Rule, and proposed HFC Management Rule
  - State level initiatives

Significant New Alternatives Policy (SNAP)

- Introduced in 1994 per Section 612 of the CAA to identify & list alternatives to ODS
- Stems from former **President Obama's Climate Action Plan**, 06/2013
  - Obtained significant private sector commitments to reduce reliance on HFCs from HFC producers, appliance manufacturers, and other end-users
  - Avoids >700MM metric tons of CO_2e emissions

Reference: https://obamawhitehouse.archives.gov/president-obama-climate-action-plan.

Final Technology Transitions Rule

- Final rule published in Federal Register 10/24/2023
- Establishes restrictions on the use of regulated substances by GWP in sectors or subsectors with dates of 1/1/2025, 1/1/2026, 1/1/2027, and 1/1/2028:
  - Includes aerosol products, foam products, and refrigeration, air conditioning, and heat pump systems/products (RACHP)
- Does not restrict the continued use of any existing products or systems, but defines distinction between maintenance and installation of new system
- Requires labeling of all new products and components using HFCs
- Includes reporting, import, and export provisions

https://www.epa.gov/climate-hfcs-reduction/regulatory-actions-technology-transitions

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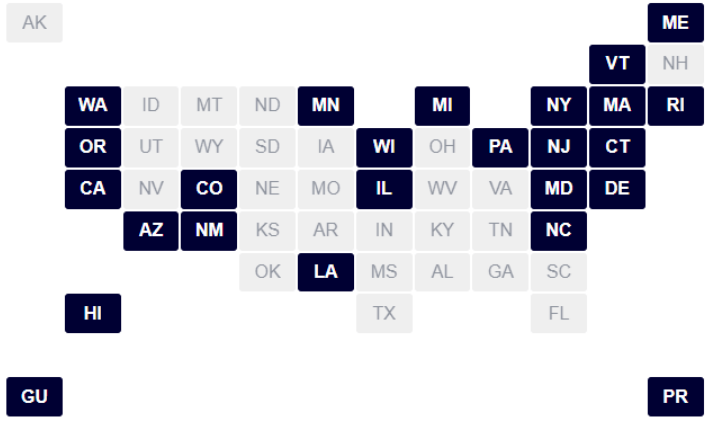
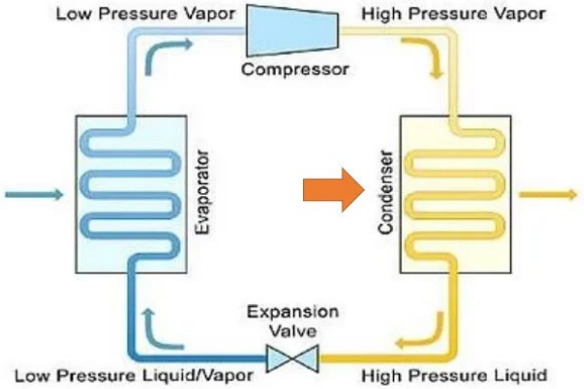
State Initiatives

- 23 states (w/PR and Guam) covered under United States Climate Alliance have or are in the process of enacting laws/rules to phase out HFCs
- Formed after President Trump announced withdrawal from Paris Agreement
- Most states are initially adopting EPA SNAP Rules 20 and 21 as originally intended
  - Some states expected to abandon efforts now that EPA taking back the lead role (e.g., PA)
- Many of the laws establish general framework for additional, more stringent rules
  - CA has finalized phase 2 rules that limit GWP of refrigerants used in large (≥ 50 lb) appliances in the retail food/commercial refrigeration, industrial process refrigeration, and cold storage end-use categories
  - NJ has finalized a registration/reporting rule for large refrigeration appliances with refrigerants that have GWP ≥ 150



Proposed HFC Management Rule



- Published in Federal Register on 10/19/2023
- Applies to systems with refrigerant GWP > 53
- 15 lb full charge capacity limit for leak repair requirements except for residential and light commercial HVAC
- Most requirements similar to 40 CFR 82 (ODS) leak repair except:
  - Lower full charge threshold for required repair
  - Automatic Leak Detection Systems (ALDS) required for systems with full charge ≥ 1,500 lb
  - More information required to be included on chronic leaker report
- Cylinder tracking via QR codes and heel recovery

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How to Prepare

Projected Compliance Dates for HFC Management Rule

- ≥ 50 lb appliances – within 60 days of final rule promulgation
- ≥ 15 lb to 50 lb appliances – within 1 year of final rule promulgation
- Comments due 12/18/2023, so final rule could be promulgated in summer 2024
- Update appliance inventory in 2024 to assess exposure, especially for 15-50 lb appliances (circuit-by-circuit basis)

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How Should Facilities Prepare for Impending Refrigerant Phase Out/Down?

- **Facility managers must develop inventory of appliances (age, size, refrigerant type) to quantify exposure to expected rise in refrigerant costs**
  - Can also be driver for meeting overall sustainability goals
- **Watch for availability of next generation refrigerants (e.g., HCs, HFOs, HFO/HFC blends)**
  - Obtain input from appliance manufacturers and HVAC/R contractors
- **Analyze new AC/R unit installations and retrofits based on available cost data and unit lifetimes**
  - If R-410A is facing an impending phase down, does it make sense to switch your R-22 unit to R-410A?

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Questions?

EPA Resources

EPA's ODS website:

http://www.epa.gov/ozone-layer-protection

Comments/Questions website:

http://www.epa.gov/section608/forms/contact-us-about-stationary-refrigeration-and-air-conditioning

EPA's HFC website:

https://www.epa.gov/climate-hfcs-reduction

Trinity Consultants

Contact Us

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Trinity Consultants

STEARNS WEAVER MILLER

Waters of the United States
Case Updates (Dec. 2023)

STEARNS WEAVER MILLER

DISCLAIMER

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PANELIST

AMELIA SAVAGE
Shareholder
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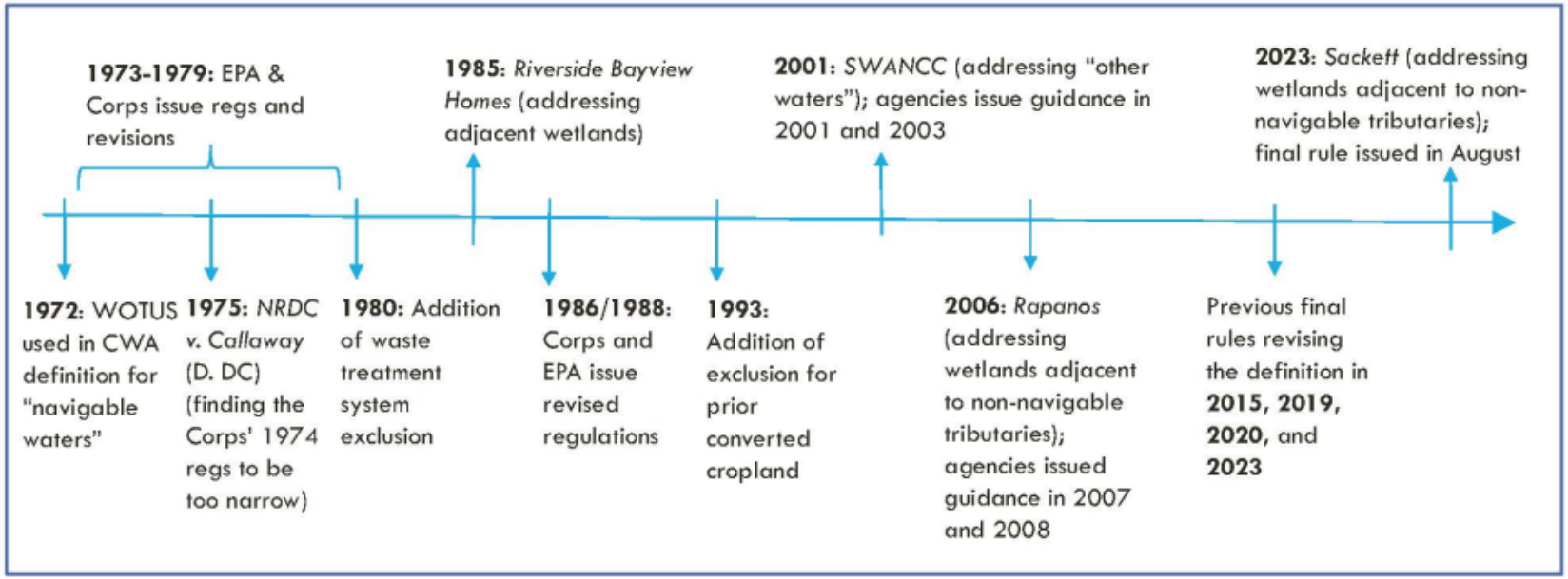
BACKGROUND: WOTUS OVER TIME

The definition of "waters of the United States" has been a subject of dispute and addressed in several major Supreme Court cases.



RECENT STRUGGLE TO DEFINE "WOTUS"

Rapanos (Pre-2015) → Clean Water Rule (2015) → Repeal Rule (2019) → Navigable Waters Protection Rule (2020) → 2023 Rule January 2023 → *Sackett v EPA* Decision May 2023 → Revised 2023 Rule September 2023

SACKETT v. EPA

- Idaho couple - Fighting Corps/EPA since 2007

SACKETT HOLDING: TWO MAIN POINTS

1. Significant Nexus Test

   DELETED

2. Adjacent Wetlands

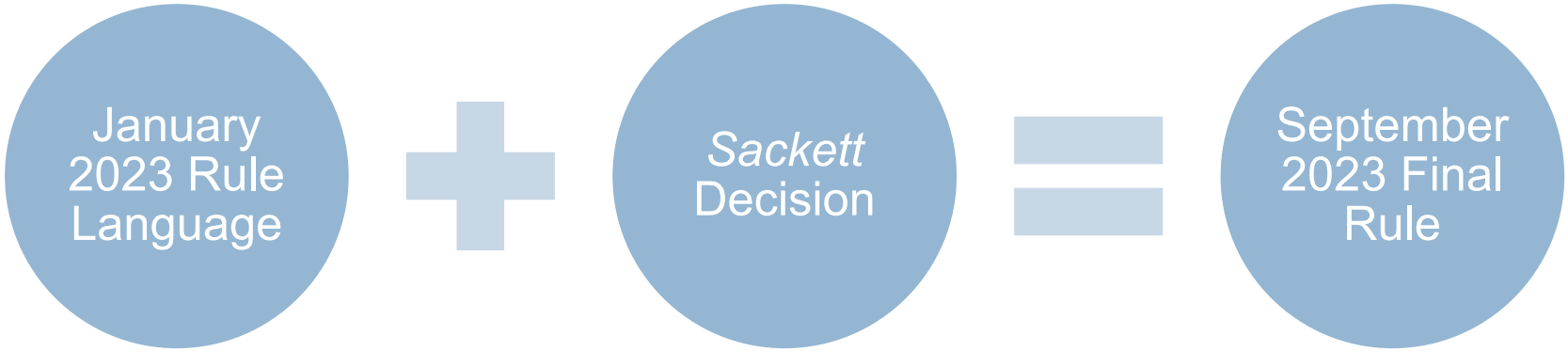
   ONLY WHEN INDISTINGUISHABLE

THE SACKETT HOLDING (QUOTING RAPANOS)

CWA extends only to wetlands that are "as a practical matter indistinguishable from waters of the United States." …. This 1. Waterbody adjacent to wetland must itself be a WOTUS, i.e., a relatively permanent body of water connected to traditional interstate navigable waters

2. Wetland must have "a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins." Slip Op 21-22.

EPA & USACE FINAL RULE



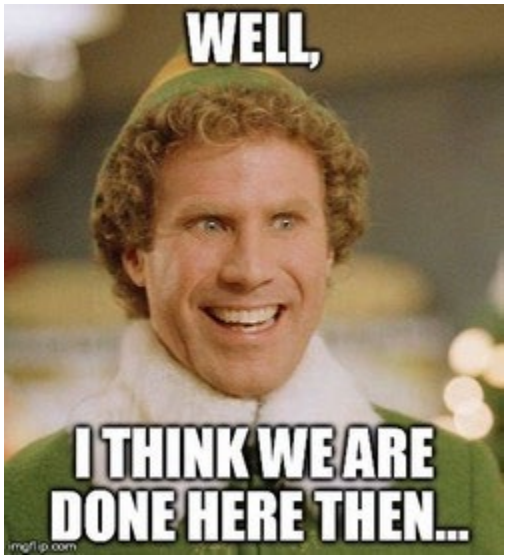
EPA & USACE FINAL RULE

January 2023 Rule Language

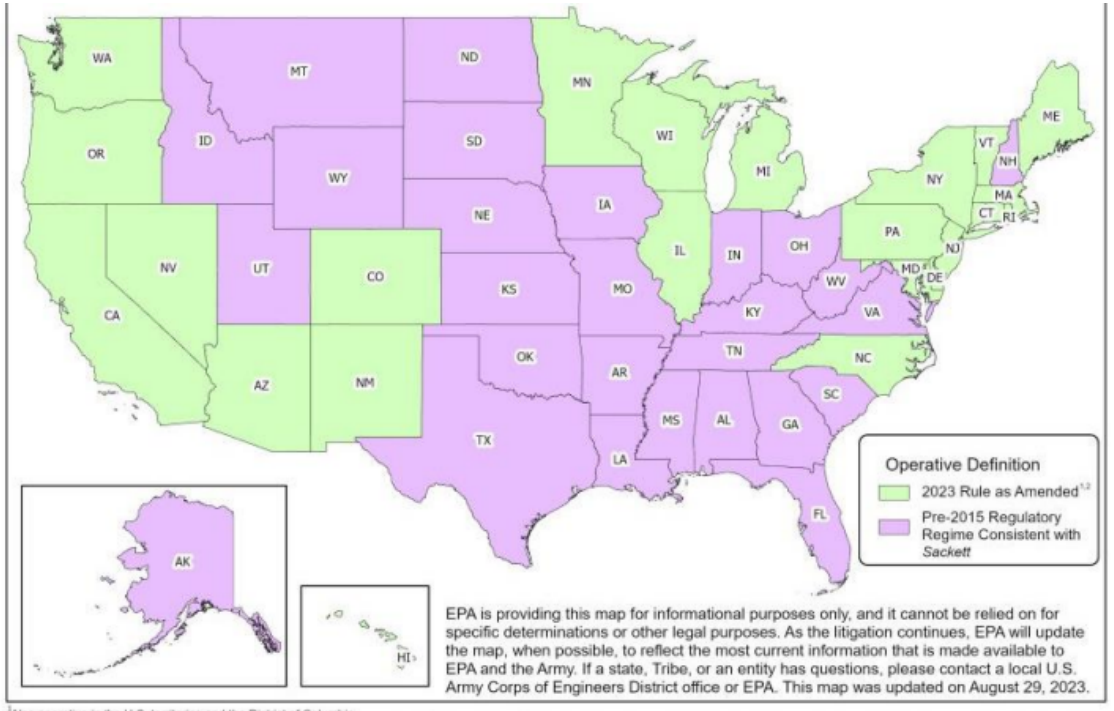
+

Sackett Decision

September 2023 Final Rule



CURRENT STATUS PER EPA



[1]Also operative in the U.S. territories and the District of Columbia
[2]The pre-2015 regulatory regime implemented consistent with *Sackett* is operative for the Commonwealth of Kentucky and Plaintiff-Appellants in Kentucky Chamber of Commerce, et al. v. EPA (No. 23-5345) and their members (Kentucky Chamber of Commerce, U.S. Chamber of Commerce, Associated General Contractors of Kentucky, Home Builders Association of Kentucky, Portland Cement Association, and Georgia Chamber of Commerce).

https://www.epa.gov/wotus/definition-waters-united-states-rule-status-and-litigation-update

The information provided in this presentation is generally relevant to implementing either the 2023 rule, as amended, or the pre-2015 regulatory regime. Determinations of jurisdiction are case-specific determinations based on the record, and factual concerns or questions about the application of Sackett v. EPA *may be addressed in the context of a particular determination. In addition, the agencies may in the future provide revised or additional administrative guidance to address implementation of the 2023 Rule, as amended, or the pre-2015 regulatory regime, consistent with* Sackett.

MORE LITIGATION?!?!?

Additional Litigation Expected

- **Procedurally – no chance to comment on post-*Sackett revisions***

- **Substantively:**
  - Ditches
  - "Indistinguishable from"

WHAT ABOUT FLORIDA?

'Cause I gonna make you see
There's nobody else here, no one like me
I'm special (special)
So special (special)
I gotta have some of your attention, give it to me

- Brass in Pocket, chorus

FDEP ASSUMPTION OF 404 PERMITTING

Rapanos (Pre-2015) → Clean Water Rule (2015) → Repeal Rule (2019) → Navigable Waters Protection Rule (2020) → 2023 Rule January 2023 → *Sackett v EPA* Decision May 2023 → Revised 2023 Rule September 2023

EPA approved Florida's request to assume administration of the Section 404 program on December 17, 2020.

CURRENT WOTUS TEST IN FLORIDA

Per DEP: "NWPR with a sprinkling of *Sackett*"

WHAT AM I SUPPOSED TO DO?

- Agree all areas subject to state jurisdiction are also subject to federal jurisdiction.

- Show areas in question are not jurisdictional under NWPR nor *Sackett*.

A WOTUS INCLUDES ONLY:

Sackett

- Traditional navigable waters (TNW) AND
- Relatively permanent bodies of water (RPW) connected to the TNW AND
- Wetlands that are adjacent to either the TNW or the RPW

--Slip. Op at p. 22

NWPR

- Traditional navigable waters (TNW) AND
- "Tributary" to, through, or of TNWs. Must be perennial or intermittent in a typical year.
- Adjacent wetlands

--40 CFR s. 120.2(1)

RPW v. TRIBUTARY – FLOW REGIME

Sackett

- Must be "relatively permanent, standing, or continuously flowing" (Slip.Op at 14) – originally from Rapanos case
- Specific flow regime not mentioned
- 2008 Rapanos guidance:
  - Flow year round or continuous flow at least seasonally (typically 3 months)

NWPR

- Must contribute surface water flow to a TNW in a typical year, either directly or indirectly
- A tributary must be perennial or intermittent in a typical year.
- Ditches included ***only if*** ditch is (1) a TNW or (2) in or relocates a tributary or (3) in an "adjacent wetland"

DITCHES

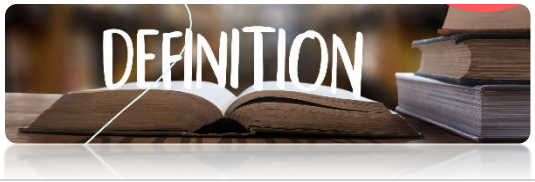
Sackett

- "Waters" "conventionally refers to 'hydrographic features' like 'rivers' and 'streams'" (Slip. Op. at 16)
- 2008 Rapanos Guidance:
  - Ditches excavated in and draining only uplands without relatively permanent flow are generally excluded

NWPR

- Tributary is a "river, stream, or similar naturally occurring surface water channel"
- Ditches included ***only if*** ditch is (1) a TNW *or* (2) in or relocates a tributary *or* (3) in an "adjacent wetland"
- Ditches are normally excluded, including ditches constructed in non-adjacent wetlands 40 CFR 120.2(2)(v)

Definition of "Adjacent"



Sackett

- A wetland must have "a continuous surface connection with [the TNW or RPW], **making it difficult to determine where the 'water' ends and the 'wetland' begins."**
- This continuous connection must be to "bodies that are WOTUS in their own right"
- The Court rejected EPA's definition of "adjacent" to include neighboring wetlands separated by dry land or other barriers

-Slip Op. at 22.

NWPR

- abut, meaning **to touch at least at one point or side** of, a (1)(i) through (1)(iii) water; **or**
- are inundated **by flooding from** a (1)(i) through (1)(iii) water **in a typical year**; **or**
- are **physically separated** from a (1)(i) through (1)(iii) water **only by** a **natural** berm, bank, dune, or **similar natural feature**; **or**
- are **physically separated** from a (1)(i) through (1)(iii) water **only by** an artificial dike, barrier, or **similar artificial structure so long as** that structure allows for a **direct hydrologic surface connection** between the wetlands and the jurisdictional water **in a typical year**, **such as through a culvert, flood or tide gate, pump, or similar artificial feature.**

SOME QUESTIONS THAT REMAIN

- **What flow regime is "relatively permanent"?**
- **What does "indistinguishable" mean?**

  *Floodplain wetlands? *How dry must the "dry land" be?

- **Treatment of man-made ditches that are "RPWs"?**
- **Does Sackett cover *tidal* wetlands?**
- **What is DEP doing about State 404 jurisdiction?**

STEARNS WEAVER MILLER

QUESTIONS?

TECO
TAMPA ELECTRIC
AN EMERA COMPANY

Carbon Capture & Sequestration Innovations

Byron T. Burrows, PE, BCEE

Air & Waste Management – Florida Section

December 5, 2023

Tampa Electric at a Glance

Regulated electric utility serving Hillsborough county and parts of Pasco and Polk counties.

$7.8B
2020 Rate Base

$372M
2020 Net Income

10.7%
Earned ROE

800K
Customers

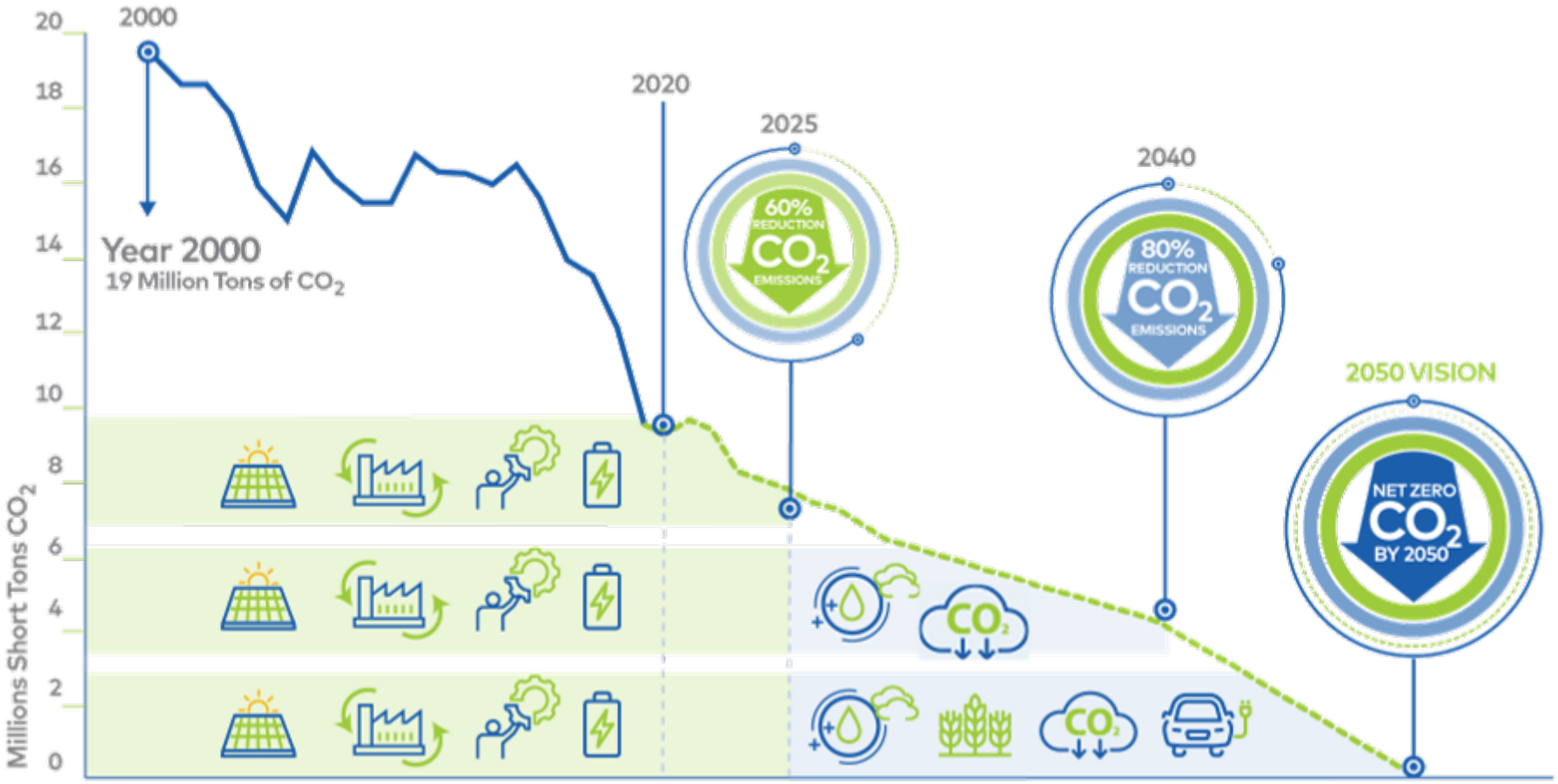
54%
Equity

2.4K
Employees

Note: All values as of December 31, 2020, and in US dollars.

TECO TAMPA ELECTRIC AN EMERA COMPANY

HISTORICAL AND PROSPECTIVE EMISSIONS TREND TO ACHIEVE A NET-ZERO CARBON VISION



RETOOL FOSSIL FLEET
- Plant Efficiency Improvements
- Coal to Gas

CLEAN FUEL
- Hydrogen
- Small Modular Nuclear Reactors
- Biofuels

ENERGY STORAGE
- Battery Storage
- Advanced Batteries
- Flywheels

CARBON CAPTURE
- Carbon Capture, Utilization and Sequestration

REFORESTATION & AGRICULTURAL OFFSETS
- Reforestation and Preservation
- Regenerative Agricultural Practices

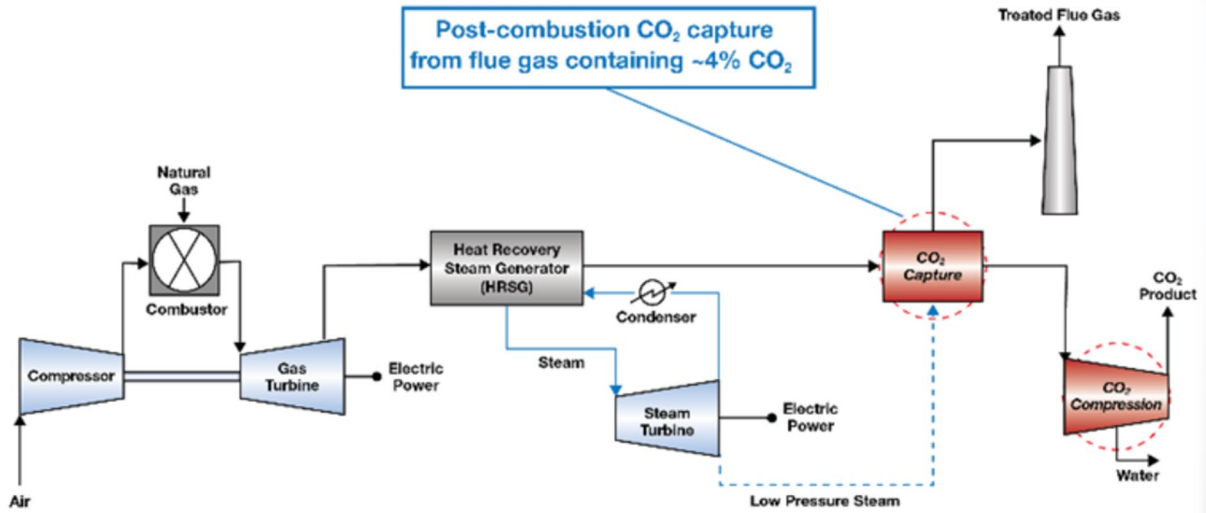
RENEWABLES
- Utility Scale Solar
- Community Solar
- Tampa Electric Owned, Customer Sited
- Floating Solar

OTHER TECHNOLOGIES
- Electric Vehicles to Grid

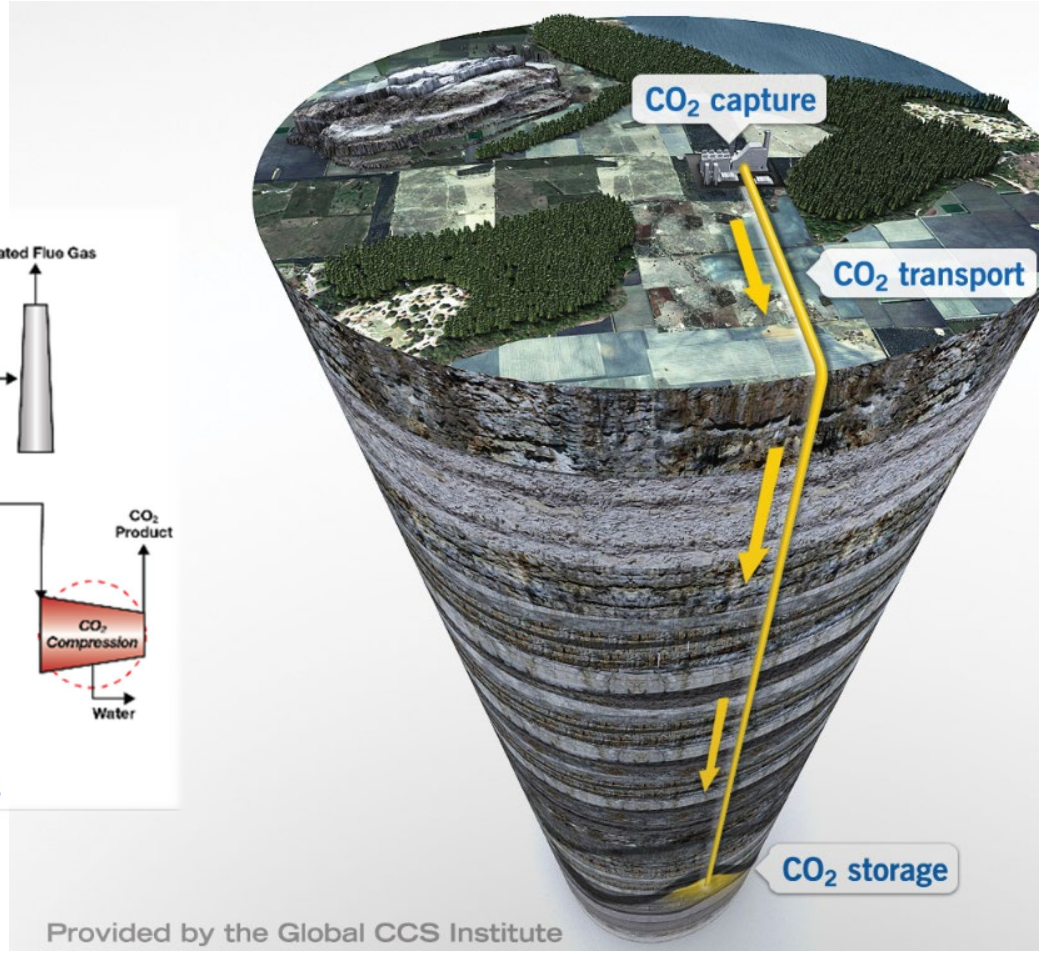
CUSTOMER
- Energy Efficiency and Demand Side Management
- Rooftop Solar/Storage

TECO TAMPA ELECTRIC AN EMERA COMPANY

CCS Overview



Process diagram of carbon capture and compression in an NGCC plant.



Why CCUS?

- ❑ Wide acceptance that global reductions in GHG will require significant CCUS
- ❑ EPA Proposed Rule Best System of Emissions Reduction
- ❑ Investment community interest and ESG drivers
- ❑ Financial incentives like 45Q

IPCC — Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change has noted that limiting temperature rise to less than 1.5 degrees Celsius above pre-industrial levels may **require geologic sequestration at a scale of 350 billion metric tons to one trillion metric tons of CO_2 cumulatively by 2050**.

The National Academies of SCIENCES ENGINEERING MEDICINE

To reach net-zero emissions by 2050, United States should build out a national CO_2 capture, transport and disposal network, and in the **next decade**, carbon capture and storage should **increase by a factor of ten above current levels**.

U.S. DEPARTMENT OF ENERGY

Energy Secretary Jennifer M. Granholm has said:
*"Large-scale carbon capture efforts are vital to getting America emissions free by 2050 and **how we store this CO2 must be safe, secure and permanent**."*

Council on Environmental Quality

Published guidance this month in the *Federal Register* to ensure that carbon capture, utilization and storage is **responsibly scaled in a timely manner, while maintaining the integrity of public health, the environment, and the economy.**

2021 — **Biden Administration Executive Order 14008** Tackling the Climate Crisis at Home and Abroad

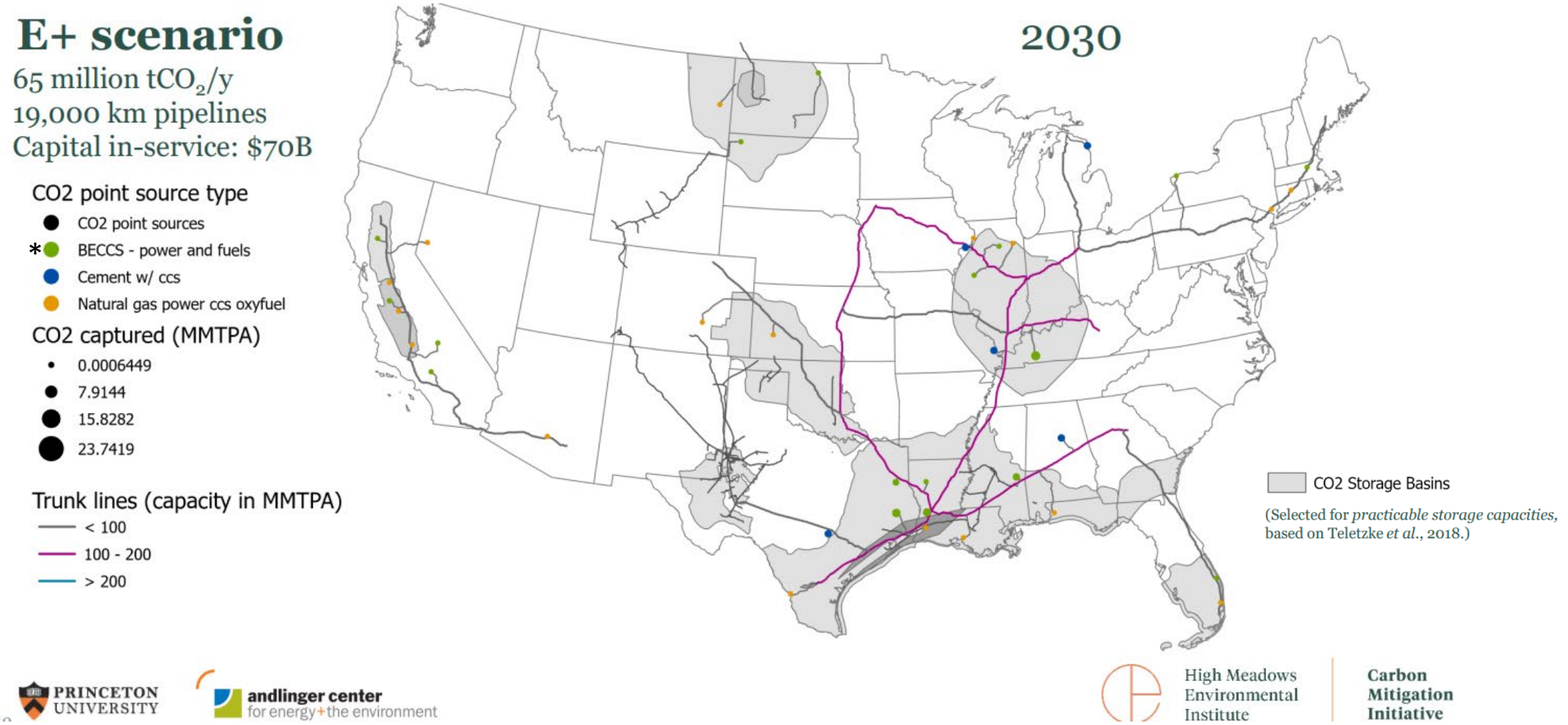
2030 — **50-52 percent reduction in economy-wide net greenhouse gas pollution** in 2030 from 2005 levels

2035 — **Net-zero emissions from the power sector** by 2035

2050 — **Net-zero emission economy** by 2050

TECO TAMPA ELECTRIC AN EMERA COMPANY

2030 Princeton CCS Scenario



PRINCETON UNIVERSITY

andlinger center for energy+the environment

High Meadows Environmental Institute

Carbon Mitigation Initiative

*BECCS = biomass electricity with CCS (negative net emissions).

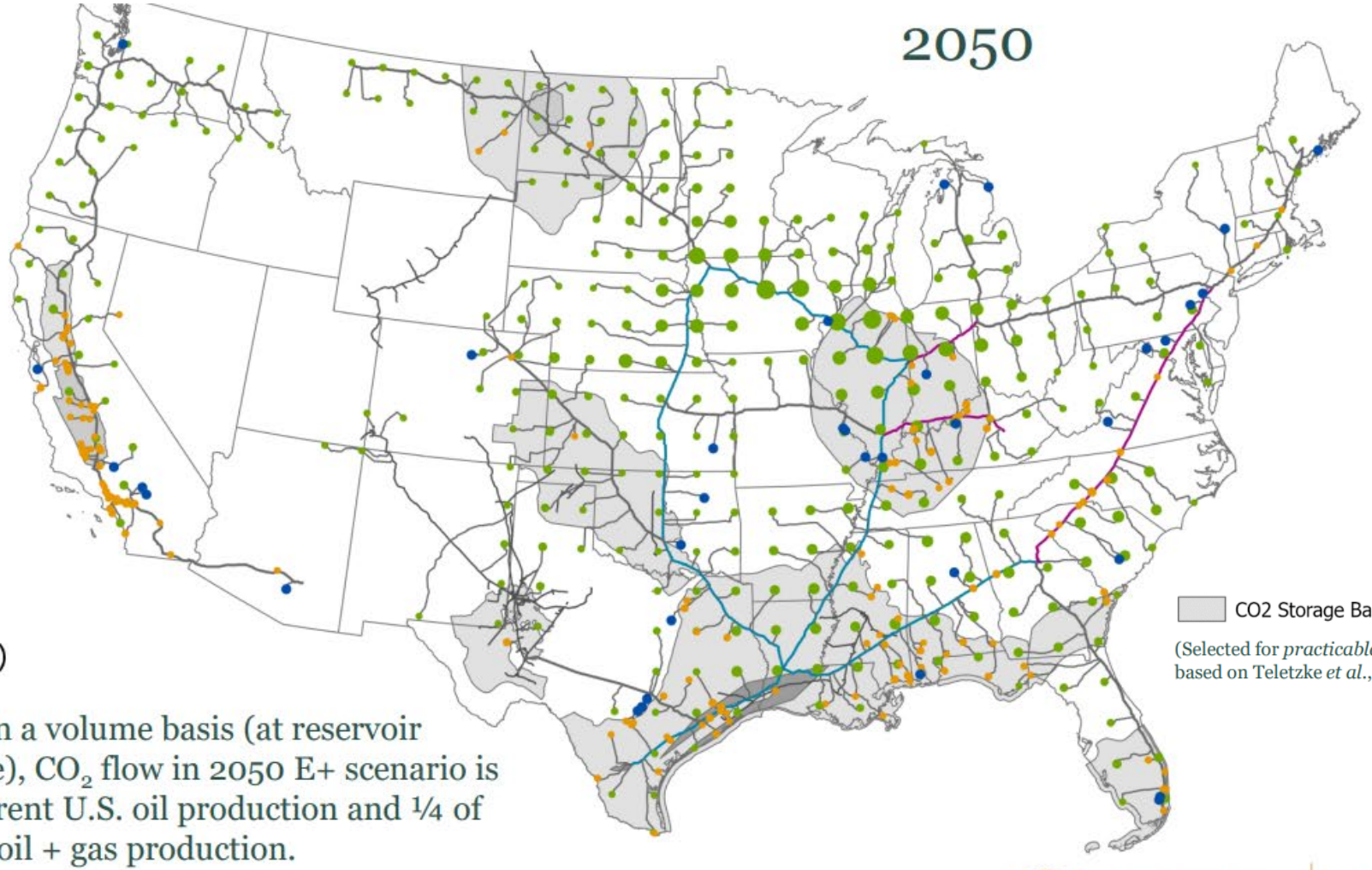
https://netzeroamerica.princeton.edu/

TECO TAMPA ELECTRIC AN EMERA COMPANY

2050 Princeton CCS Scenario

E+ scenario

929 million tCO_2/y
106,000 km pipelines
Capital in service: $170B



Note: On a volume basis (at reservoir pressure), CO_2 flow in 2050 E+ scenario is 1.3x current U.S. oil production and ¼ of current oil + gas production.

PRINCETON UNIVERSITY

andlinger center for energy+the environment

High Meadows Environmental Institute

Carbon Mitigation Initiative

TECO TAMPA ELECTRIC AN EMERA COMPANY

* BECCS = biomass electricity with CCS (negative net emissions)

https://netzeroamerica.princeton.edu/

From Lab to Large Scale Demonstration

Invention (2001)
- Proprietary RTI sorbent
- R&D 100 Award (2004)

RTI INTERNATIONAL

Lab/bench testing (2001-2003)
- RTI, NC
- Concept proven & modeled

Pilot testing (2006-2008)
- Eastman Chemical Co., TN
- 3000 hr, coal-derived syngas

Demonstration (2010-2015): Syngas cleanup / carbon capture
- Tampa Electric Co., Polk 1 IGCC Plant, FL
- 50 MW_e equivalent scale, coal/petcoke-derived syngas

TECO TAMPA ELECTRIC AN EMERA COMPANY

Key Technology Areas

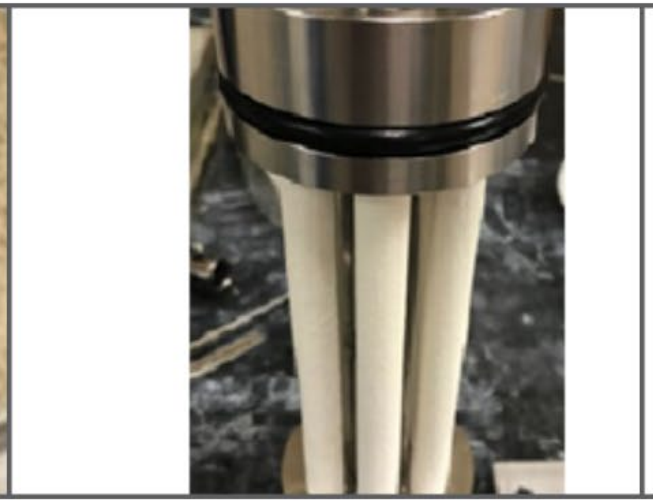
Solvents

Solvent-based CO_2 capture involves chemical or physical absorption of CO_2 from air or gas into a liquid carrier.

Sorbents

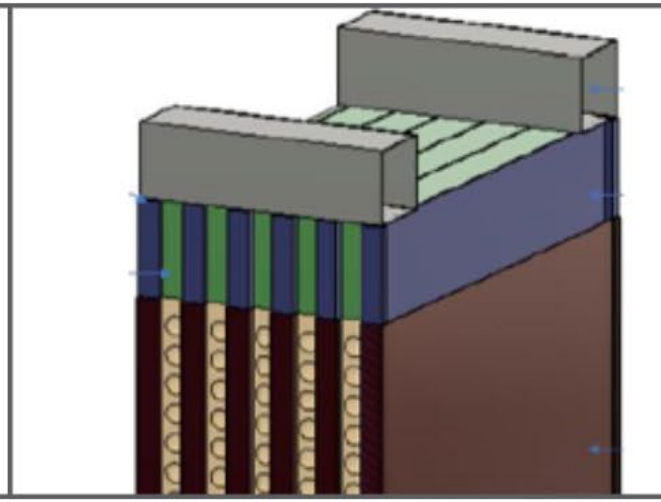
Sorbent-based CO_2 capture involves the chemical or physical adsorption of CO_2 using a solid sorbent.

Membranes



Membrane-based CO_2 capture uses permeable or semi-permeable materials that allow for the selective transport and separation of CO_2 from air or gas

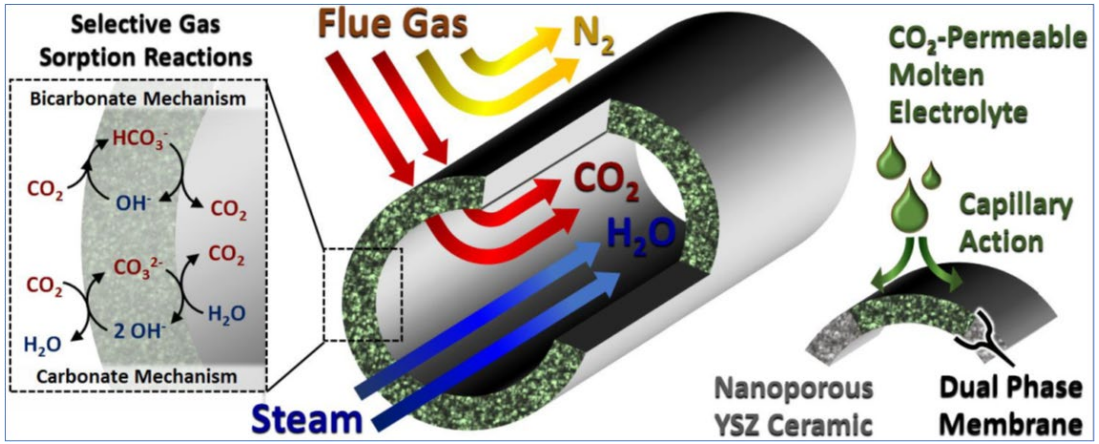
Electrochemical



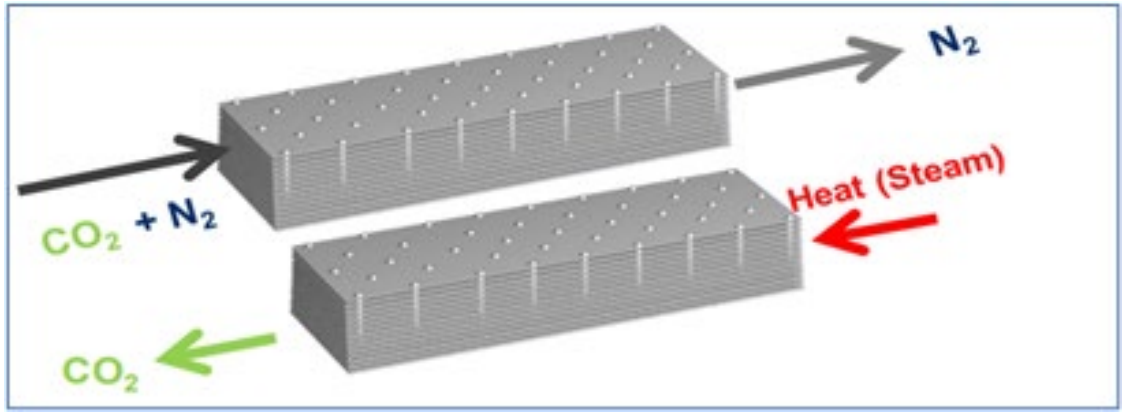
Electrochemical-based CO_2 capture uses pH swing cycle that changes conditions between basic and acidic to capture and release CO_2

Carbon Dioxide Removal Program | netl.doe.gov

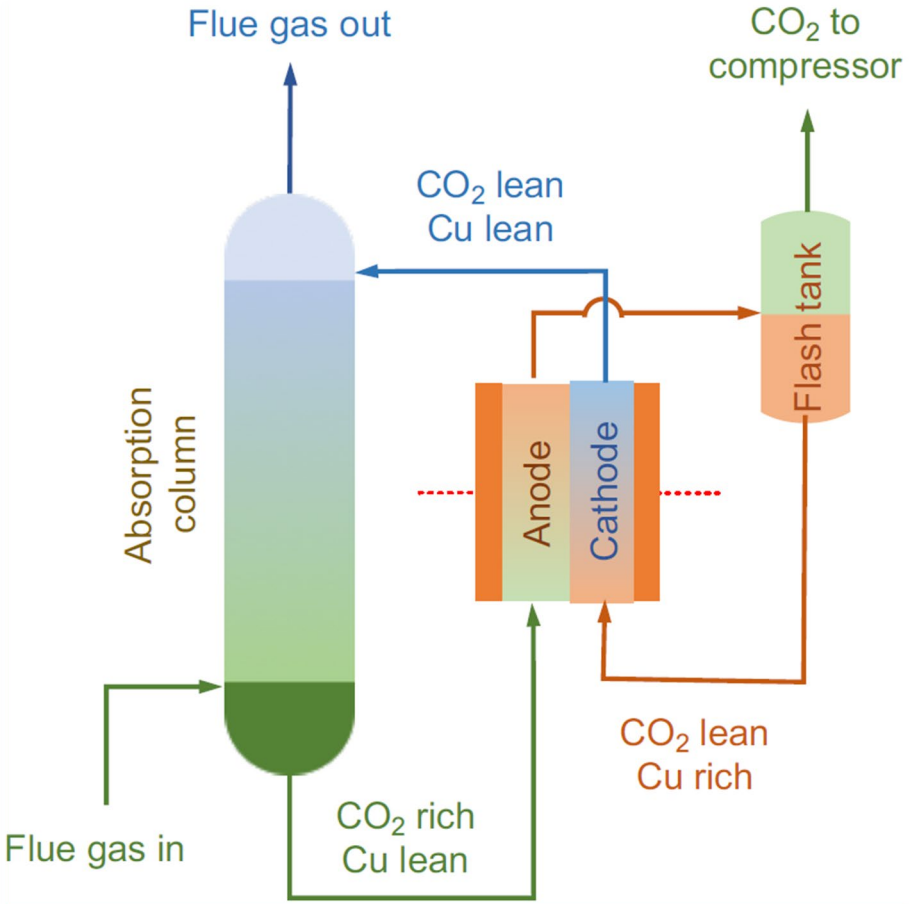
R&D of Advanced Materials & Highly Efficient Components is Critical



Dual phase membranes for post-combustion CO2 capture



Advanced structured adsorbents for CO2 capture

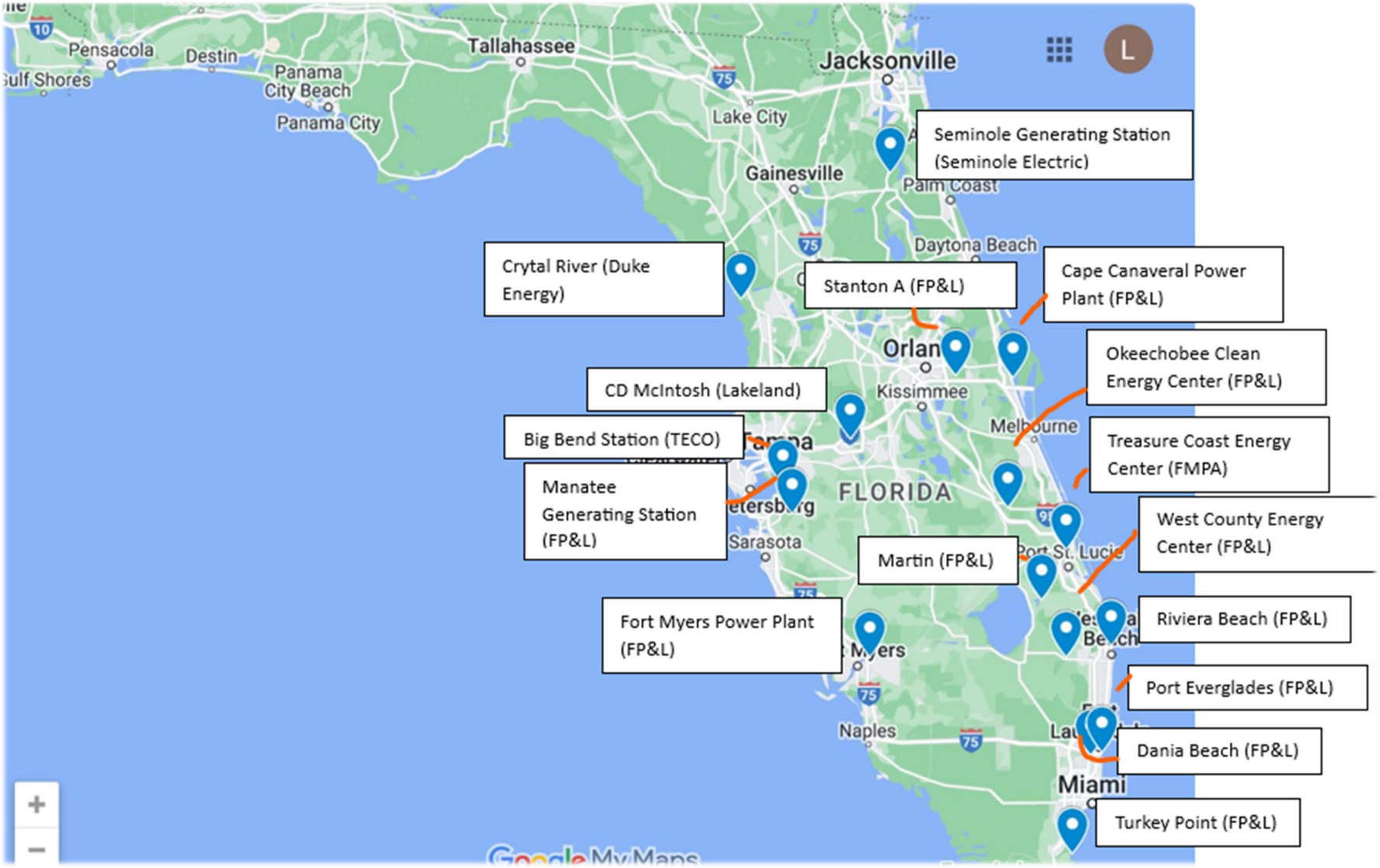


Electrochemically mediated amine regeneration process

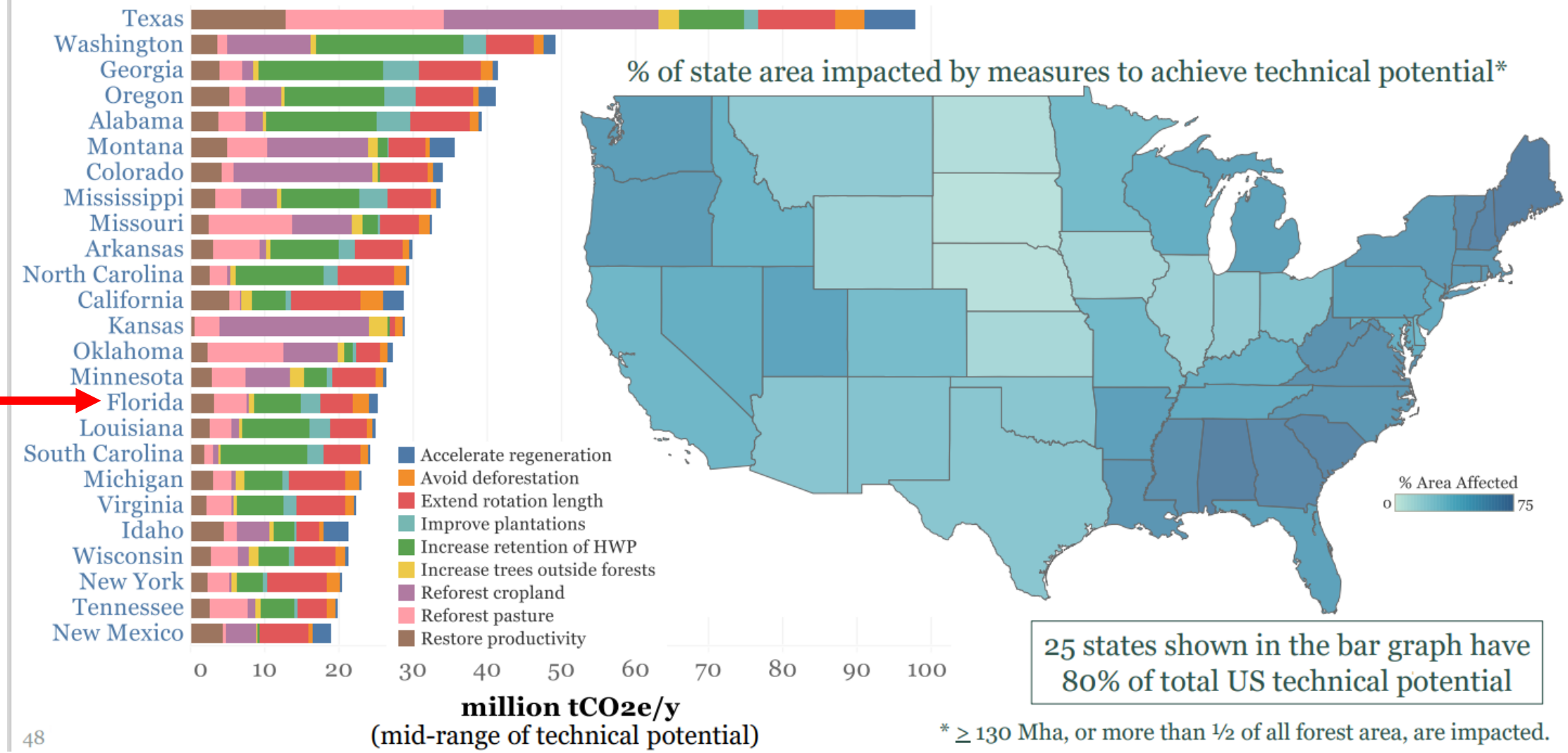
[Point Source Carbon Capture from Power Generation Sources | netl.doe.gov]

TECO TAMPA ELECTRIC AN EMERA COMPANY

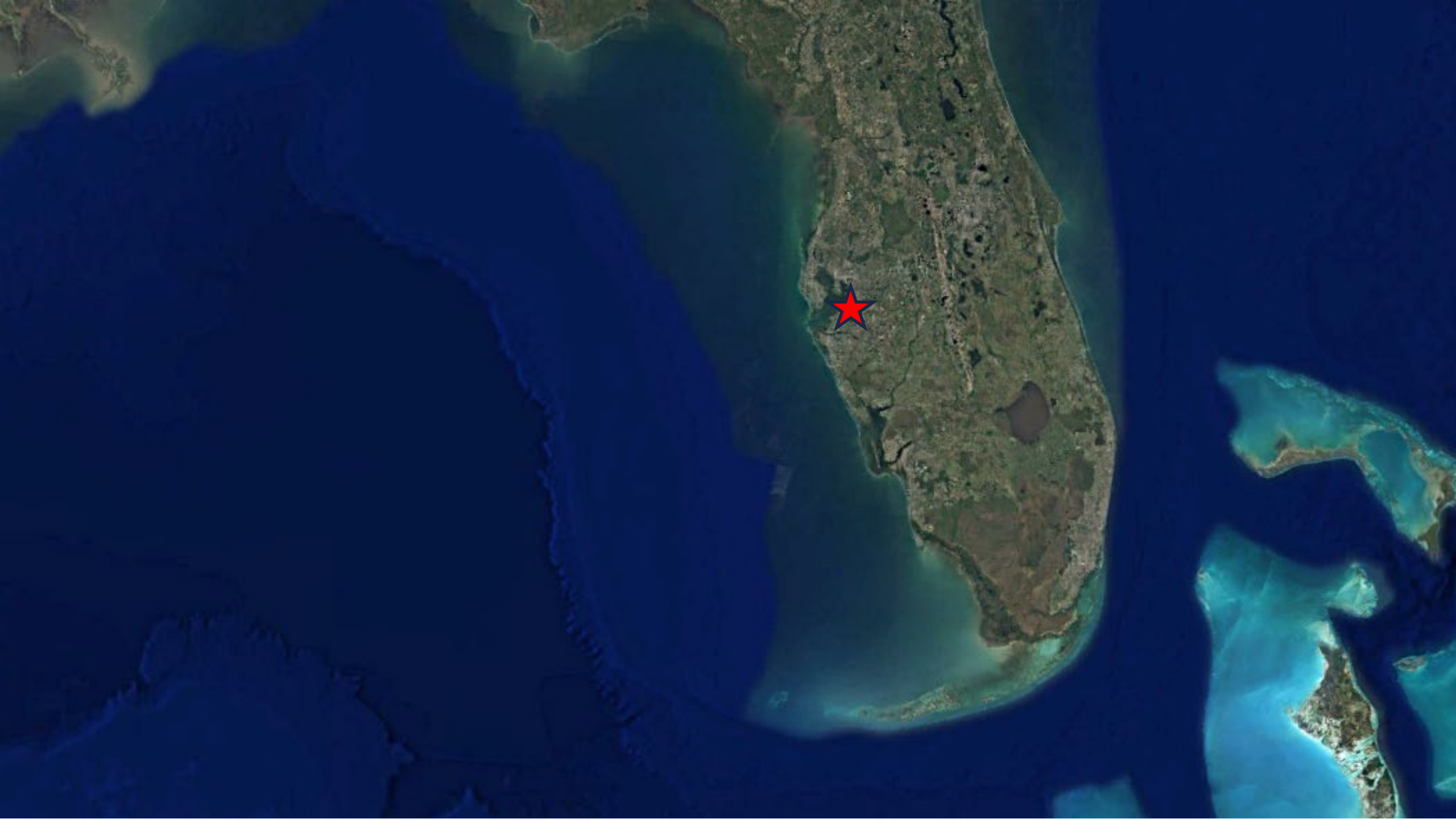
EPA GHG Rule Anticipated Applicability

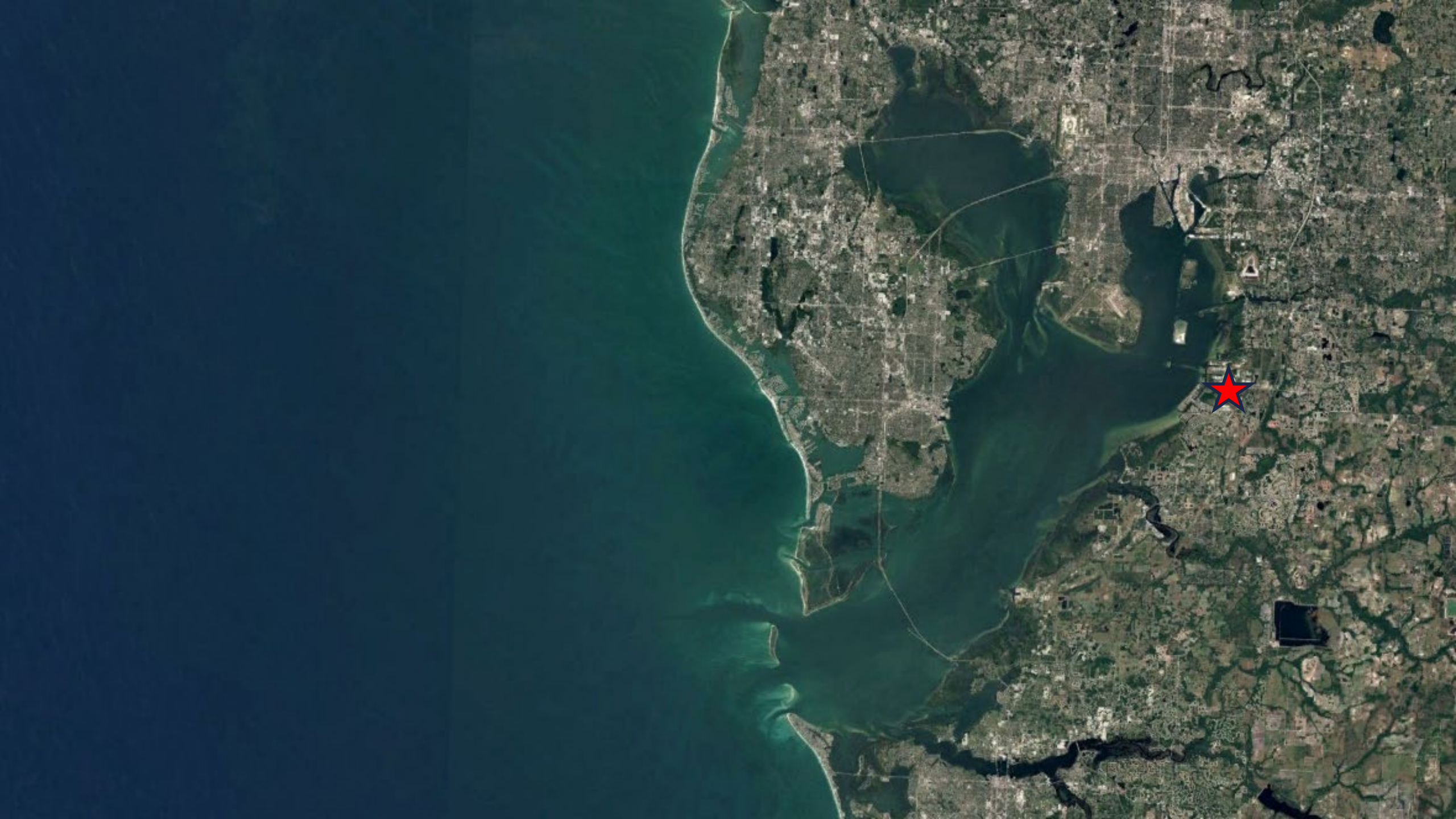


Enhanced Land Sinks



https://netzeroamerica.princeton.edu/






Fred and Idah Schultz Nature Preserve
Warehouse 21
American Water Pridesa
Hillsborough So
Tampa Electric's Clean Energy Center
Teco Big Bend Station
Big Bend No Entry Zone
Manatee Viewing Center
Maschmeyer Concrete - Apollo Beach Ready...
Apollo Beach Preserve
Newman Creek
The Florida Aquarium Turtle...
Apollo's Bistro

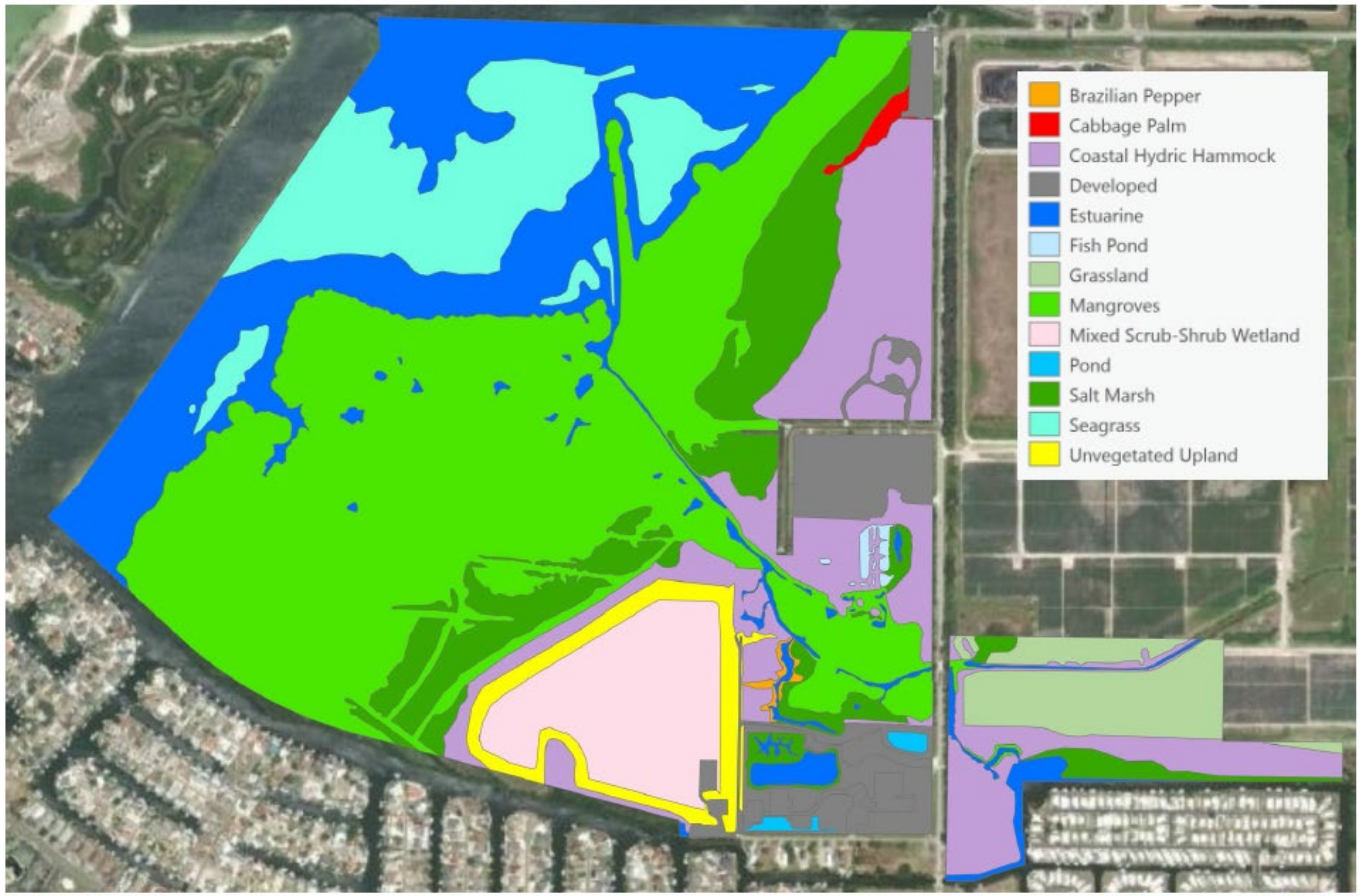
FCTC Existing Carbon Pool (584 acres)

Habitat	Existing Carbon Pool (tonnes CO_2e)	Sequestration Rate (tonnes CO_2e/yr)	Emission Rate (tonnes/yr)	Net Sequestration Rate (tonnes CO_2e/yr)
Upland (151 acres)	15,465	6	0.02 N_2O (5.5 CO_2e)	-5.5
Mixed Scrub-Shrub Wetland (31 acres)	3,286	92	24 CH_4 (672 CO_2e)	-672
Salt Marsh (50 acres)	4,602	163		163
Mangrove (200 acres)	60,986	673		673
Seagrass (55 acres)	10,742	67		67
Estuarine (97 acres)	0	0		0
TOTAL	***95,031***	***1,002***		***324***

Emissions = -Sequestration + Activity Data * Emissions Factor

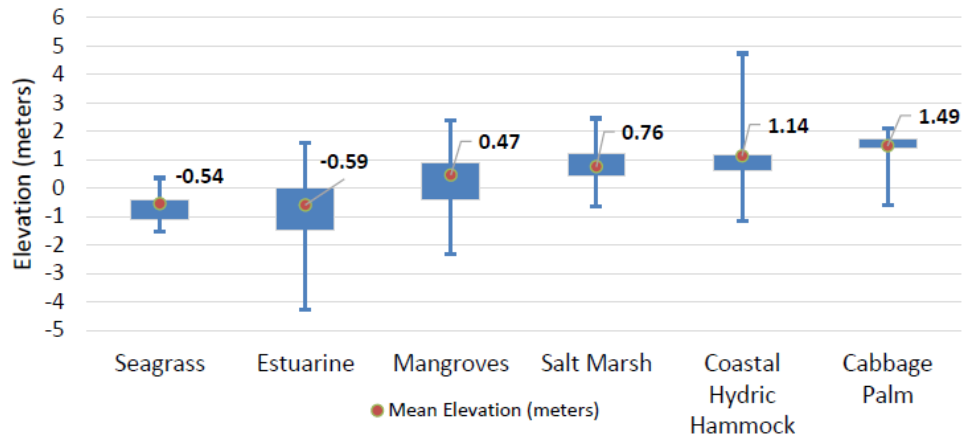
TECO TAMPA ELECTRIC AN EMERA COMPANY

Existing Habitat Map & Elevations



SOURCE: ESA 2023

TECO Blue Carbon Assessment

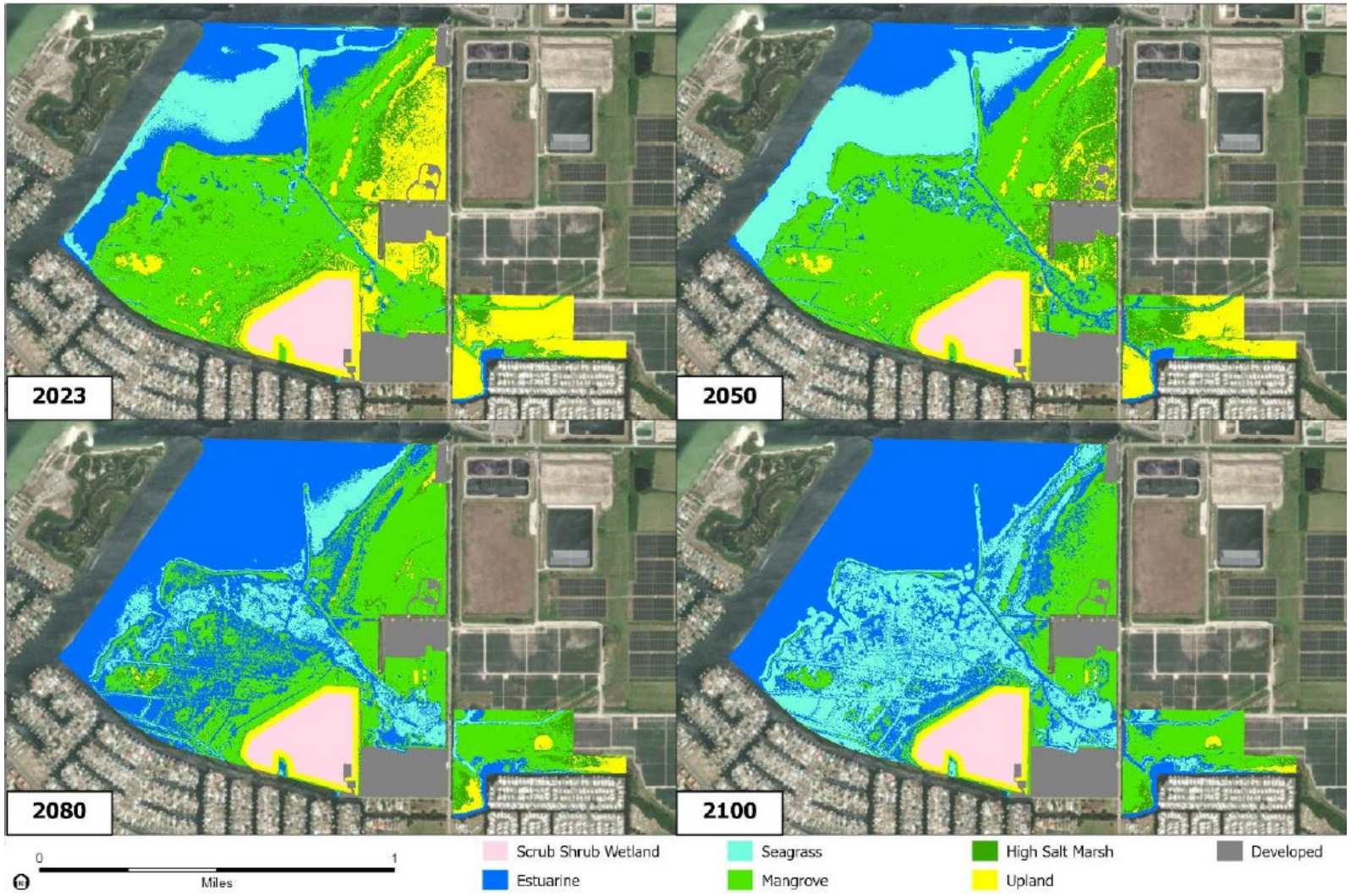


SOURCE: ESA 2023

TECO Blue Carbon Assessment

TECO TAMPA ELECTRIC AN EMERA COMPANY

Habitat Evolution



SOURCE: Bathymetry: NOAA 2021; ESA 2023

TECO Blue Carbon Assessment

All habitats besides estuarine and seagrass are shown to decrease acreages over time, while estuarine and seagrass increase by approximately 155 acres and 85 acres, respectively, by 2100.

TECO TAMPA ELECTRIC AN EMERA COMPANY

Opportunities

Restoration Activities Already Completed

- Restored 50 acres of salt marsh habitat and placed 100 acres of other tidal wetlands under a conservation easement

Fish Pond Restoration

- existing coastal hydric hammock provides a good amount of biomass but does not provide as much soil sequestration as mangroves or high salt marsh

Manatee Trail Area Restoration

- enhancement of hydrologic flows, both freshwater drainage and tidal inundation, & removal of tidal flow barriers

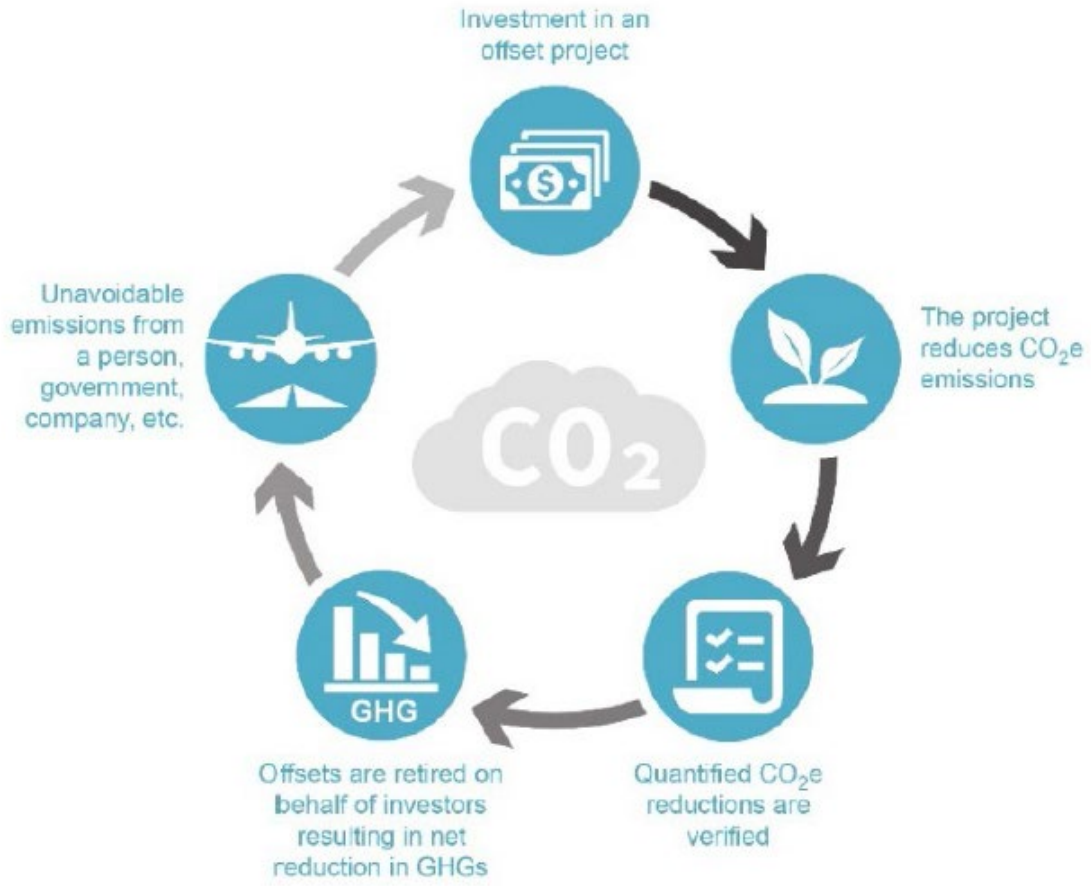
Bermed Spoil Disposal Area Restoration

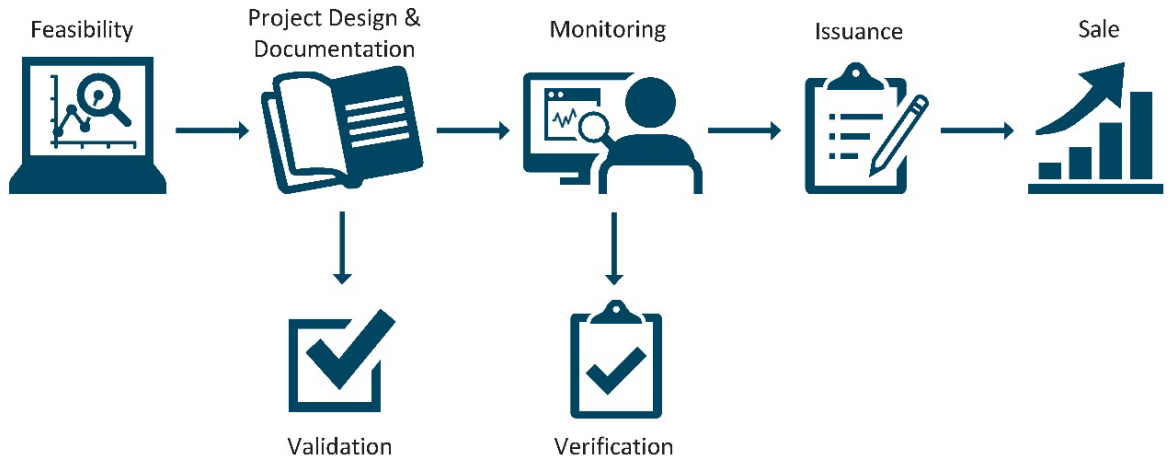
- produces most of the methane emissions; would result in the greatest improvement to sequestration

Thin-layer Placement in Existing Wetlands

- thin layer placement of clean dredged material in the mangroves and high salt marsh would help maintain these habitats

Voluntary Carbon Market Opportunities





Key Take-Aways

- Carbon Capture & Storage (CCS) is a key technology for the next phase of GHG reductions
- Tax Credits could make CCS economic (favorable) regardless of policy
- Leverage and optimize existing natural systems to enhance affordability

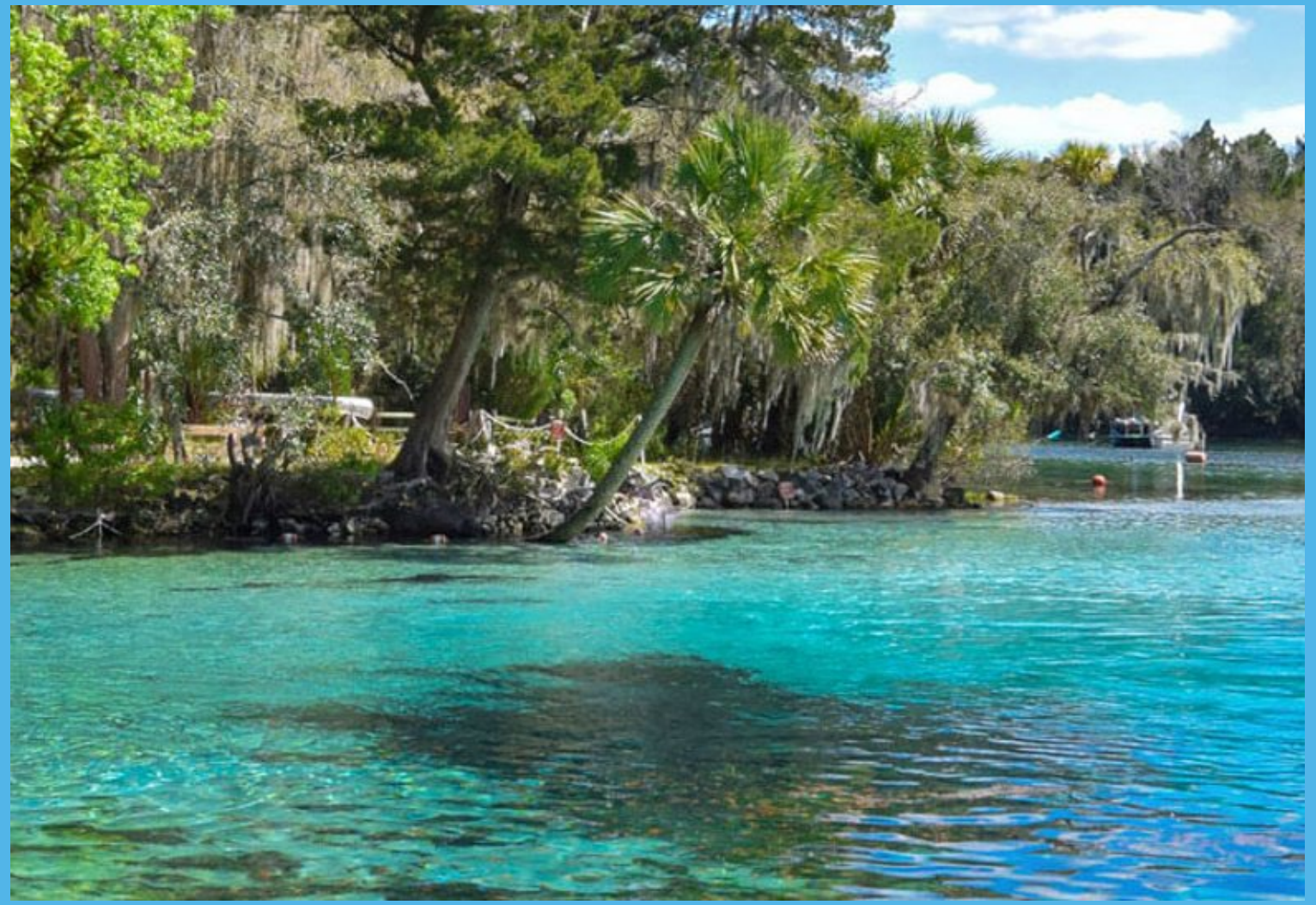
AC PERMIT APPLICATION CONTENT

David Lyle Read, P.E.
Division of Air Resource Management / Permit Review Section
Florida Department of Environmental Protection

AWMA Florida Chapter Annual Meeting| December 4, 2023

AGENDA

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION



Presentation Agenda:

- Application Types.
- Application Submittal Process:
  - EPSAP.
  - Hardcopy.
  - Attached to and email (receipt request strongly recommended).
  - Submittal time (after business hours and weekends).
- Pre-Application Meeting.
- Application Structure.
- Federal and State Rules and Regulations.
- Emission Calculations.
- Suggestions.
- Processing Applications.
- Avoiding Requests for Additional Information (RAIs).

APPLICATION TYPES

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- Air Construction Permits (addressed here)*
  - Minor Permit
  - Major Permit
- Title V Air Operation Permit
- Air Operation Permit
- Federal Enforceable State Operation Permit (FESOP)
- Air General Permit

*Presentation is structed for projects at existing facilities, however, most information still applicable to greenfield projects

APPLICATION PROCESS (SUBMITTAL)
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Application Submittal Process:

- Fill out a department approved form http://www.dep.state.fl.us/air/rules/forms/application.htm or an EPSAP form.
- It is recommended to include any reports that support the application regardless of submittal method.
- Pre-application meeting is usually helpful but is not required.
- For simple projects, such as a permit extension, fill out the first seven to 10 forms along with a cover letter describing the request.
- Applications should be submitted during normal business hours.
- Submit confidential business information separately.
- Receipt Request for non-EPSAP applications.

PRE-APPLICATION MEETING
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Useful for most Projects, especially for:

- *RMRR.
- Controversial Projects.
- Emission Increase/PSD Applicability Issues.
- Adding an Emission Unit.
- New NSPS/NESHAP requirements.

Application Expectations:

- Clear description of project with timelines.
- Federal and state rule applicability analysis.
- PSD avoidance analysis, if needed.
- Project splitting, if needed.
- Contemporaneous emission increases/decreases.
- Timeline for submittal.
- Expectation of permit issuance.

Discussion might be warranted even when no project is involved.

APPLICATION STRUCTURE

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

In general, an application should contain the following information:

- Executive summary.
- Project description to include affected emission units.
- Emission calculations.
  - PSD applicability analysis (if needed).
- Regulatory analysis.
- PSD analysis (if needed).
- BACT determinations (technically feasible and cost, if needed).
- Air dispersion modeling (if needed).

EXECUTIVE SUMMARY
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Executive Summary may include overviews of:

- Proposed project.
- Air permitting rule applicability.
- Application content and structure.
- Project schedule.

PROJECT DESCRIPTION
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The project description may include:

- Purpose and scope
- Affect emission unit(s)
- For each emission units
  - Detailed description of changes
  - Affect on emissions
- Process flow diagram(s)
- Pollution Control Equipment
  - Parameters
  - Maintenance
- Previous projects, if any, in contemporaneous period

EMISSIONS SUMMARY AND CALCULATIONS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The emission summary and calculations may include:

- Approach for each affected emission unit
- Derived emission factors for each emission units
- Calculated emission increases (if applicable)
  - For each affected emission unit
  - Overall increase from project
  - BAE vs PAE
  - Could have accommodated
  - New emission units (increase = PTE)
  - Netting
- Emission Calculation Tables

REGULATORY APPLICABILITY ANALYSIS
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The emission unit regulatory applicability analysis may include:

- New source performance standards.
- National emission standards for hazardous pollutants.
- State Rules.

For each applicable regulation, the following should be included in the application, if applicable:

- Emission limits and work practice standards.
- Compliance provisions/requirements.
- Testing requirements, such as fuel monitoring.
- Notifications, records and reporting.
- Alternative standards (if applicable).
- Other requirements.

BACT ANALYSIS, IF NEEDED

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- BACT Approach.
- Case-by-Case analysis.
- Top-Down approach.
- Cost effectiveness.
- Propose BACT based on cost and technical feasibility for each triggered pollutant such as:
  - NO_X.
  - SO_2.
  - CO.
  - $PM/PM_{10}/PM_{2.5}$.
  - VOC.
  - GHG, etc.

AIR DISPERSION MODELING, IF NEEDED

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Modeling Methodology:

- Class II area analysis.
- Class I area analysis.

Source Impact Analysis:

- Class II area modeling results.
- Significance impact analysis.
- NAAQS analysis.
- Increment analysis.

Class I Area Modeling Results:

- Significant impact analysis.
- Increment analysis.
- AQRV visibility and deposition analysis (if not screened out).

AIR DISPERSION MODELING, IF NEEDED (2)
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Other Modeling Results:

- Ozone analysis.
- Secondary $PM_{2.5}$ analysis.
- Additional impacts analysis.
  - Growth.
  - Soil, vegetation and wildlife.

SUGGESTIONS FOR SMOOTH SAILING

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- A clear and concise regulatory analysis will allow only applicable requirements to be included in a permit, which limits confusion with respect to compliance issues.
- Applicants are encouraged to consult with DEP's Division of Air Resource Management (DARM) in respect to a New Source Review (BAE vs PAE) analysis prior to application submittal.
- Applicants are strongly encouraged to consult with DARM, with regards to netting analysis, prior to application submittal.

SUGGESTIONS FOR SMOOTH SAILING (2)

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- Realistic could have been accommodated calculations, e.g., highest monthly boiler heat rate annualized not highest day or hour.
- Clear emission calculations (tables, emission factors, baseline period, etc.) are critical along with realistic emission scenarios, e.g, 39 TPY of NO_X, when little actual increase is expected.
- If unsure, consult with DARM on engine issues.
- Be careful in claiming RMRR.

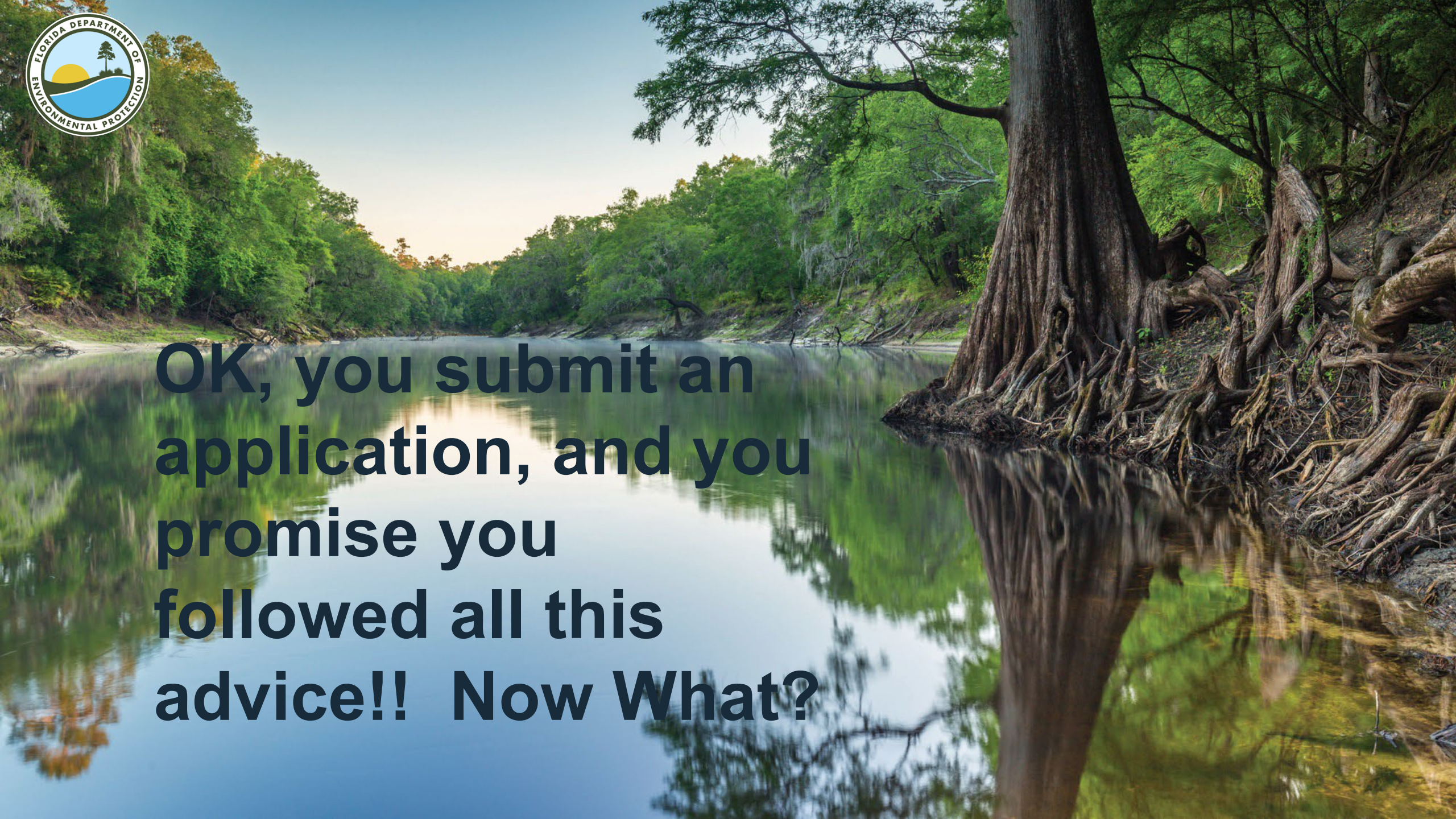
SUGGESTIONS FOR SMOOTH SAILING (3)
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- For all but the simplest projects, a pre-application meeting is encouraged to ensure a good application and to minimize the chance of a RAI.
- Remember permitting time clocks and comment/petition periods.
  Allow adequate time for issuance of a final permit.
  - For example, don't submit an application three weeks before a final permit is required.

SUGGESTIONS FOR SMOOTH SAILING (CONCLUDED)
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Keep in mind Time To Process (TTP):

- By statute issuance or denial is received within 90 days of a complete application.
- Department internal goals strive to reduce TTP.
- Provide realistic project timeline in application. The department wants to minimize TTP for every project, but not at the expense of more time critical projects or permit quality.


OK, you submit an application, and you promise you followed all this advice!! Now What?

APPLICATION REVIEW
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Basis: Rule 62-4.055, F.A.C. & 403.0876, F.S.

- Within 30 days, the department shall review the application and request submittal of all additional information that the department is permitted by law to require.
- Applicant have 90 days to submit a RAI Response. Applicants can request another 90 days, but it shall be granted based on good cause.
- Within 30 days after receipt of the RAI response, the department shall review and may request only the information needed to clarify such additional information or to answer new questions raised by the RAI response.
- If the applicant believes the RAI is not authorized by law or rule, the department, at the applicant's request, shall proceed to process the permit application. (Issue or Deny).

AVOIDING A REQUEST FOR ADDITIONAL INFORMATION
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- Effective communication is the key to the department receiving required information.
- Ask to schedule a pre-application meeting.
  - Helps identify important project details, applicable rules, issues, etc.
- Provide a Person Of Contact (POC) to the department for answers to your questions.

AVOIDING A REQUEST FOR ADDITIONAL INFORMATION- RED FLAGS

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

- No detailed description of the project.
- No PSD applicability analysis for projects involving:
  - Production increase.
  - Heat input increase.
  - Efficiency upgrades.
- 39 TPY increase in NO_X, SO_2, etc.
- Heat input increase or production increase with no emission increase.
- Several projects ongoing.
- Could have accommodated/demand growth exclusion with no supporting information.
- No de-bottlenecking analysis (project-specific).


In general, work with us and we will get you an AC permit quickly and with minimal aggravation☺

THANK YOU

David Lyle Read, P.E.
Environmental Administrator SES
Permit Review Section
Division of Air Resource Management
Florida Department of Environmental Protection

Contact Information:
850-717-9075
David.Read@FloridaDEP.gov

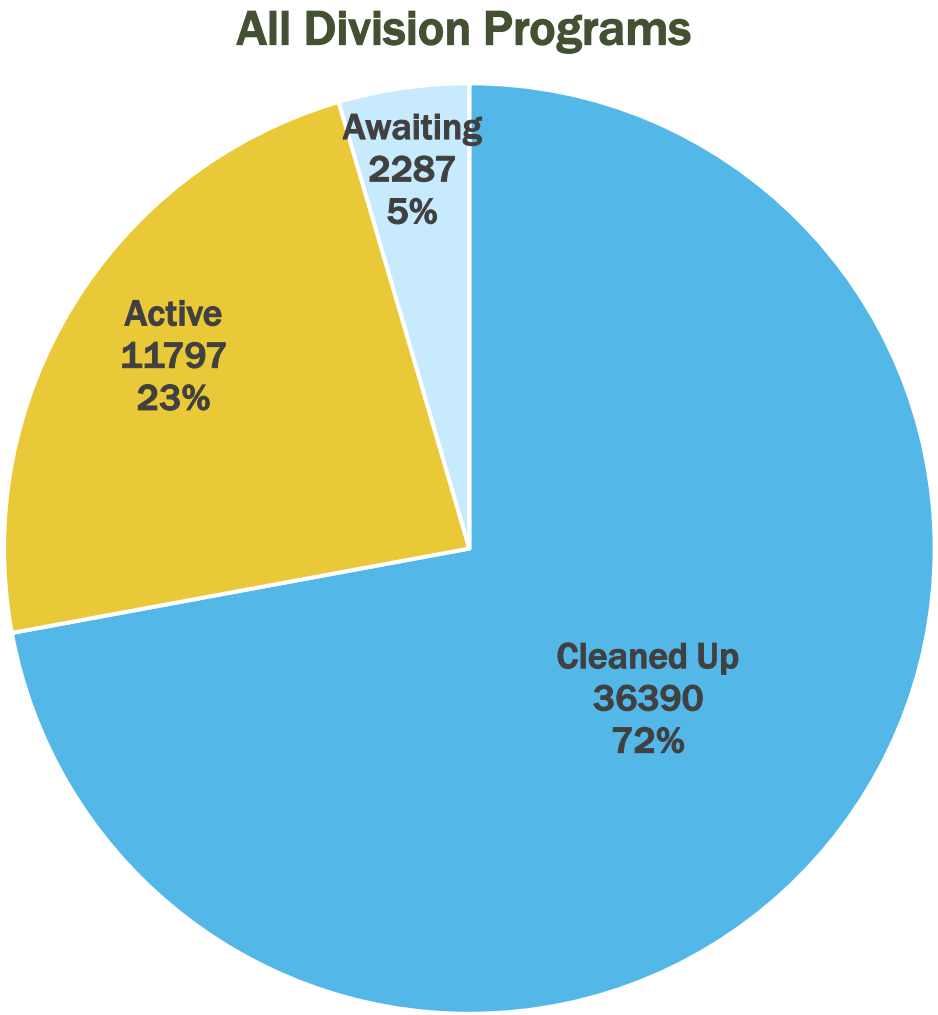
Waste Management Update

Tim J. Bahr
Division of Waste Management
Florida Department of Environmental Protection

December 2023

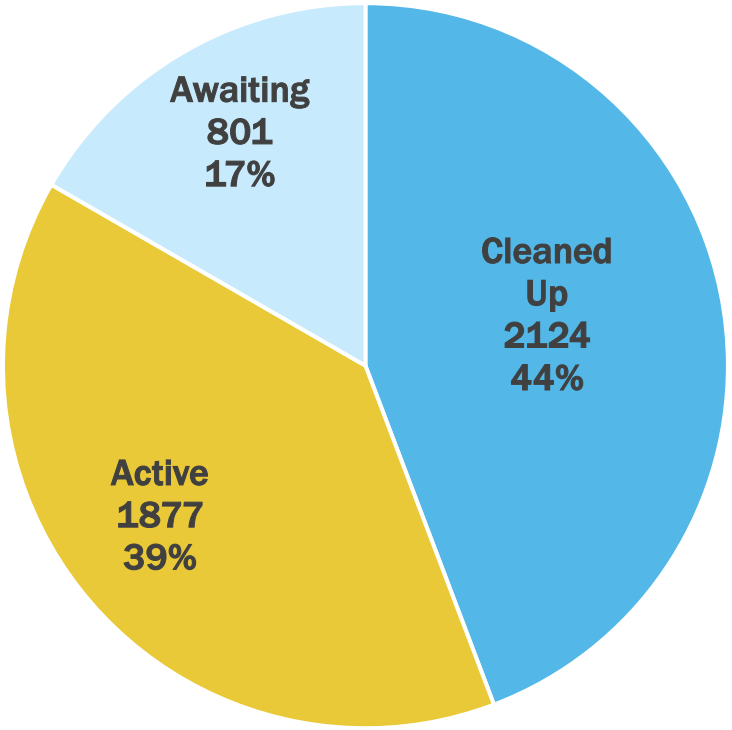
All Cleanup Programs and Progress

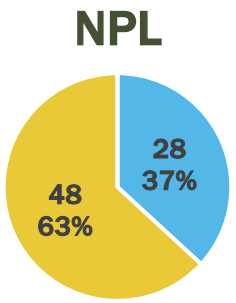
- Waste Cleanup Programs
  - NPL
  - State Cleanup
  - Drycleaning
  - Brownfields State
  - Brownfields EPA
  - State Owned Land
  - Department of Defense
  - FUDS
- RCRA Corrective Action
- Petroleum
  - Program
  - Non-program
- District Responsible Party

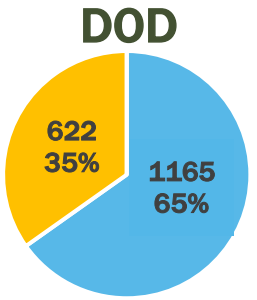


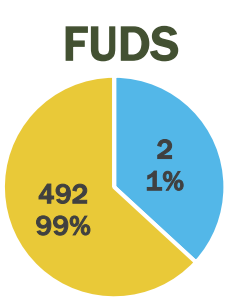
Waste Cleanup Programs and Progress

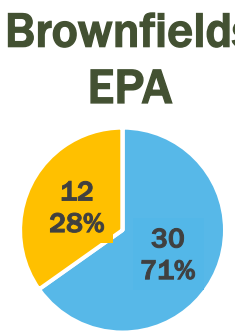
Waste Cleanup Programs

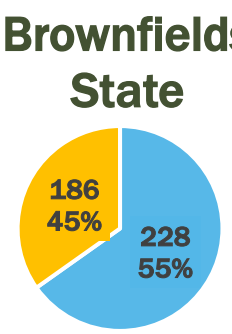


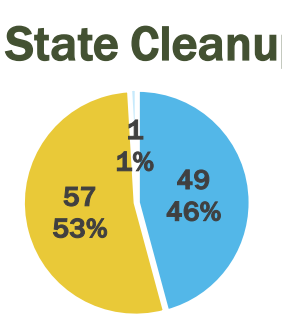


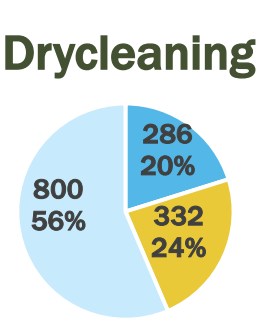


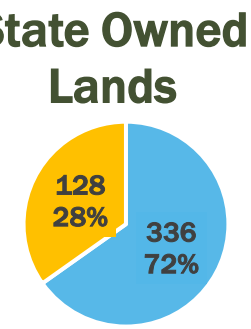




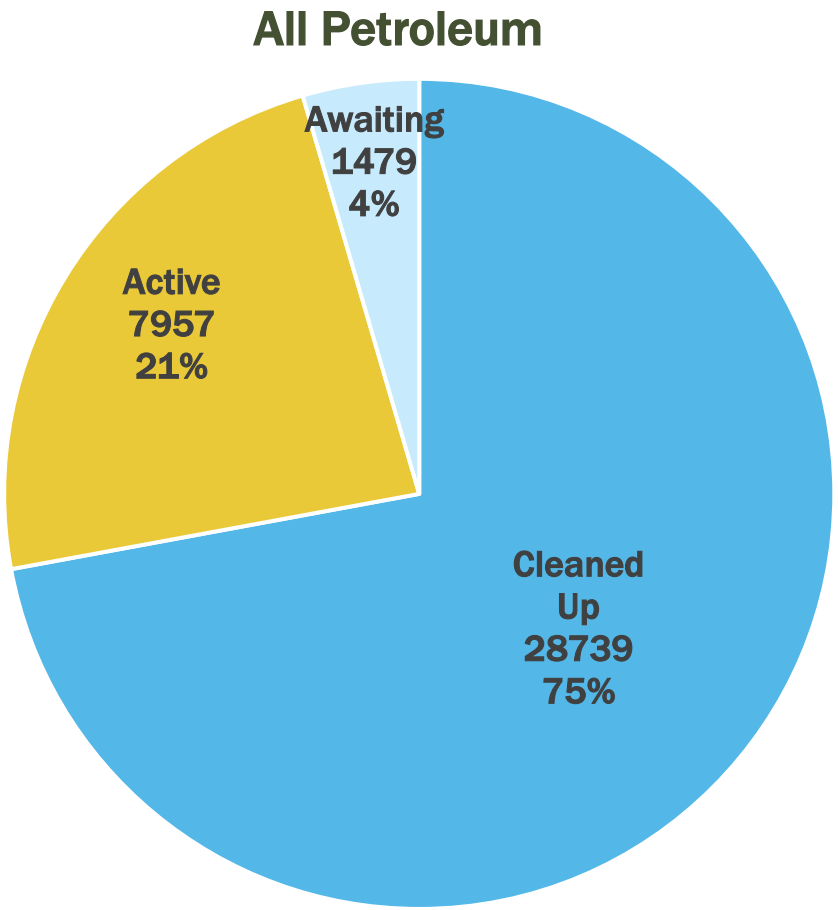


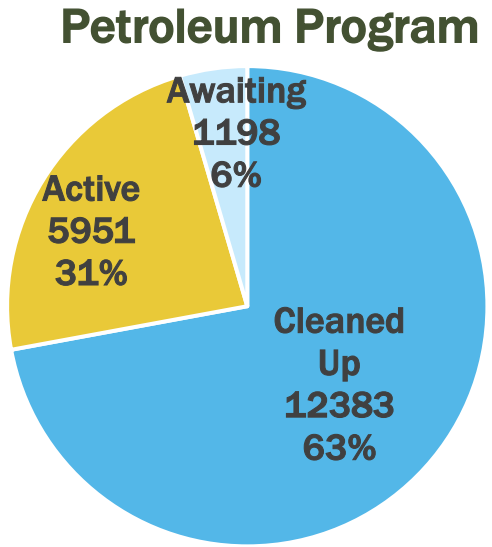


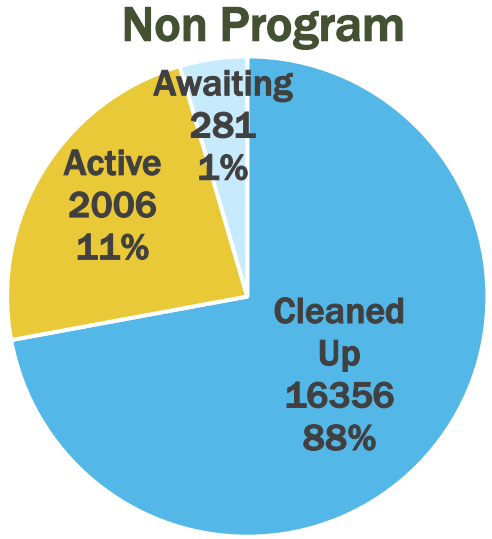




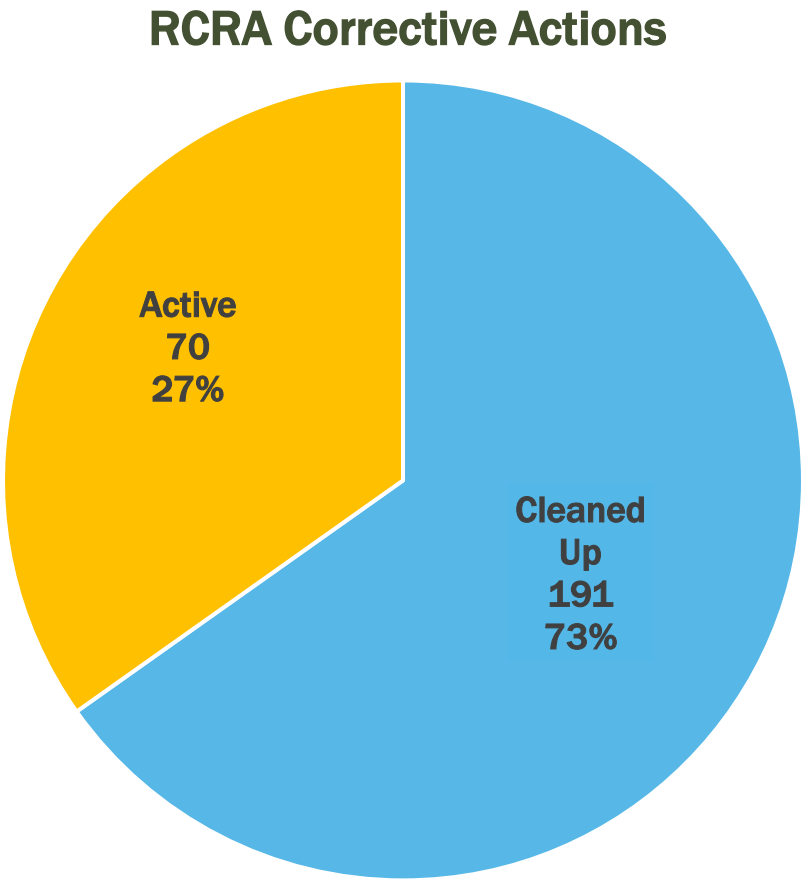
Petroleum Cleanup Programs and Progress

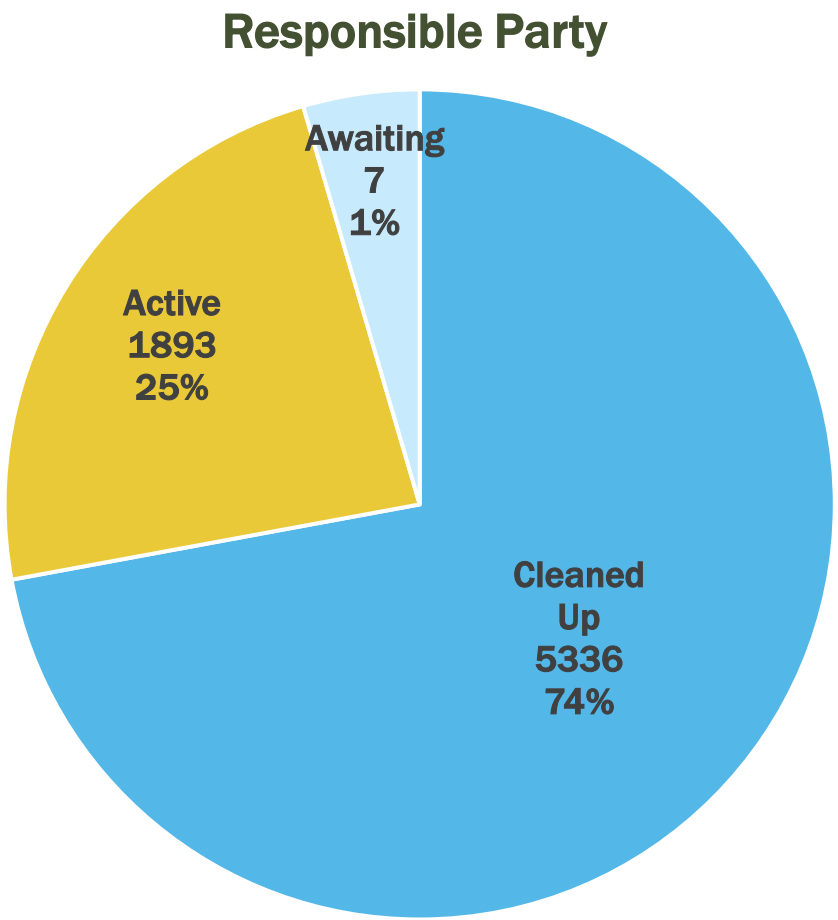






RCRA and RP Cleanup Programs and Progress



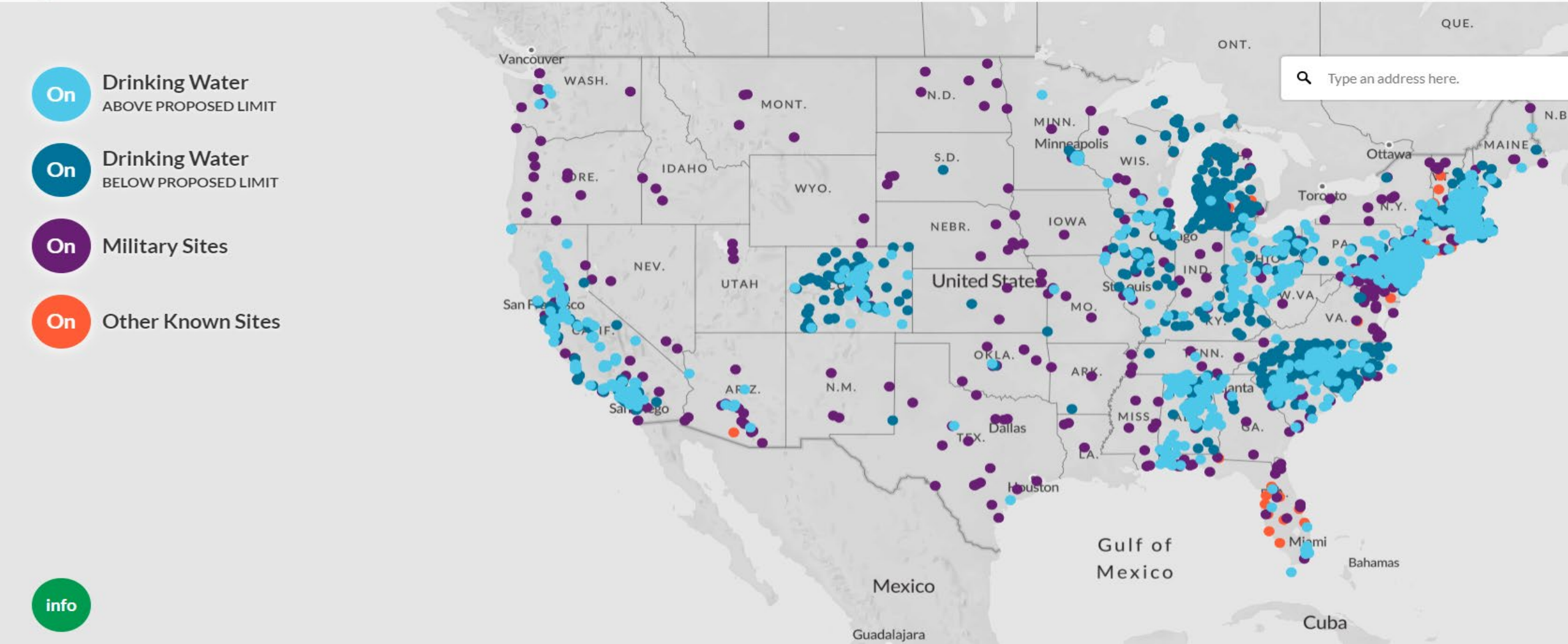


PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

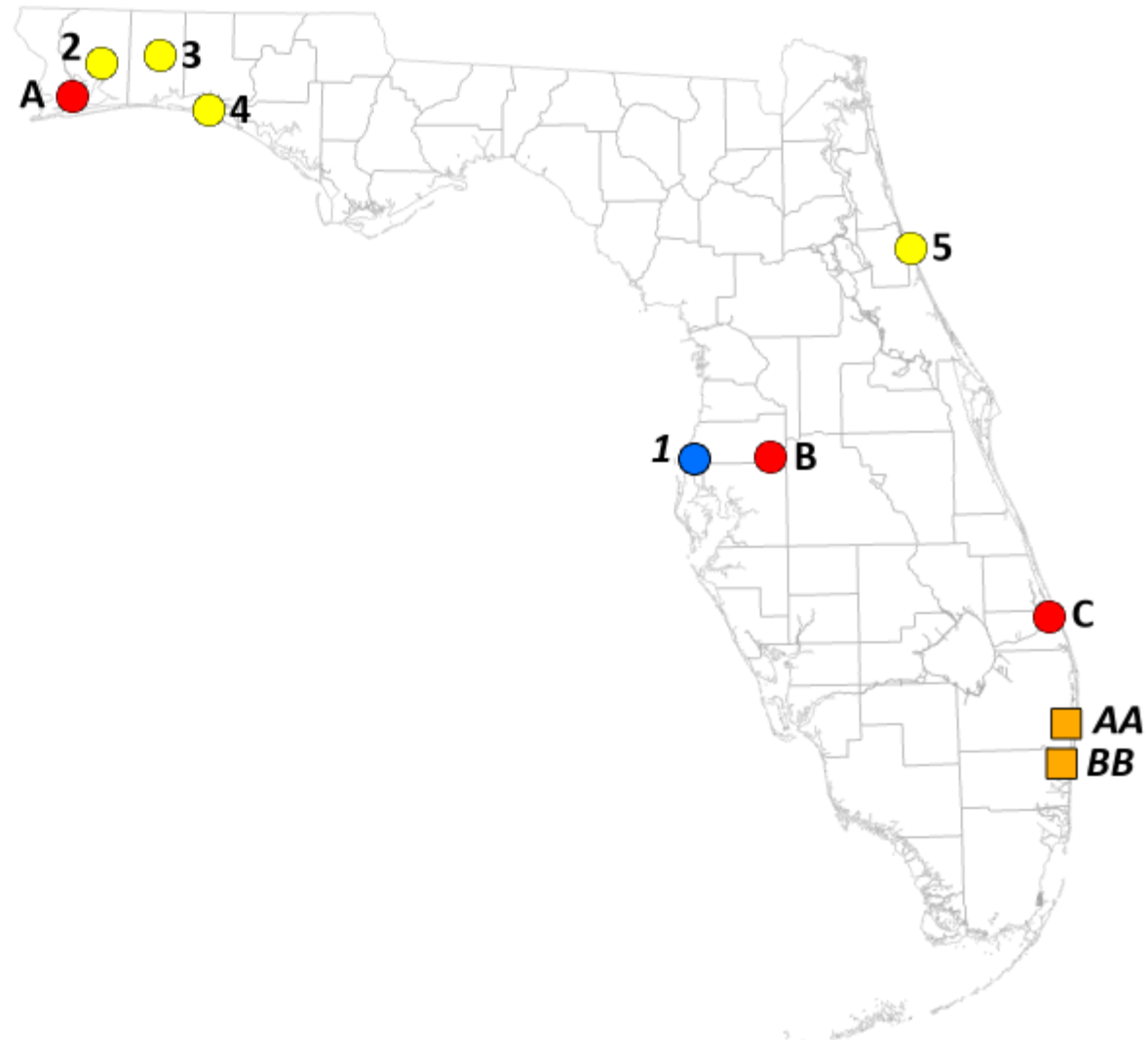
MAPPING PFAS CONTAMINATION SITES NATIONWIDE

ewg

PFAS Contamination in the U.S. (June 8, 2022)



Field ID	UCMR 3 PFAS Project Site
A	Emerald Coast Utilities Authority
B	Zephyrhills Fire Department
C	City of Stuart
Field ID	**UCMR 5 Project Site**
1	Orangewood Water System (PFAS)
2	East Milton Water System (Lithium)
3	Okaloosa County Mid System (Lithium)
4	South Walton Utility Company (Lithium)
5	Dunes Community (Lithium)
Field ID	**DWSRF Project Site**
AA	City of Delray Beach (PFAS)
BB	City of Pompano Beach (PFAS)



DWSRF, Florida UCMR 3 PFAS and UCMR 5 PFAS / Lithium Project Sites List
As of August 22, 2023

UCMR: Unregulated Contaminant Monitoring Rule
PFAS: Per- and polyfluoroalkyl substances
PFOA: Perfluorooctanoic acid
PFOS: Perfluorooctane sulfonate
HAL: Health Advisory Level
FDOH: Florida Department of Health
DWSRF: Drinking Water State Revolving Fund

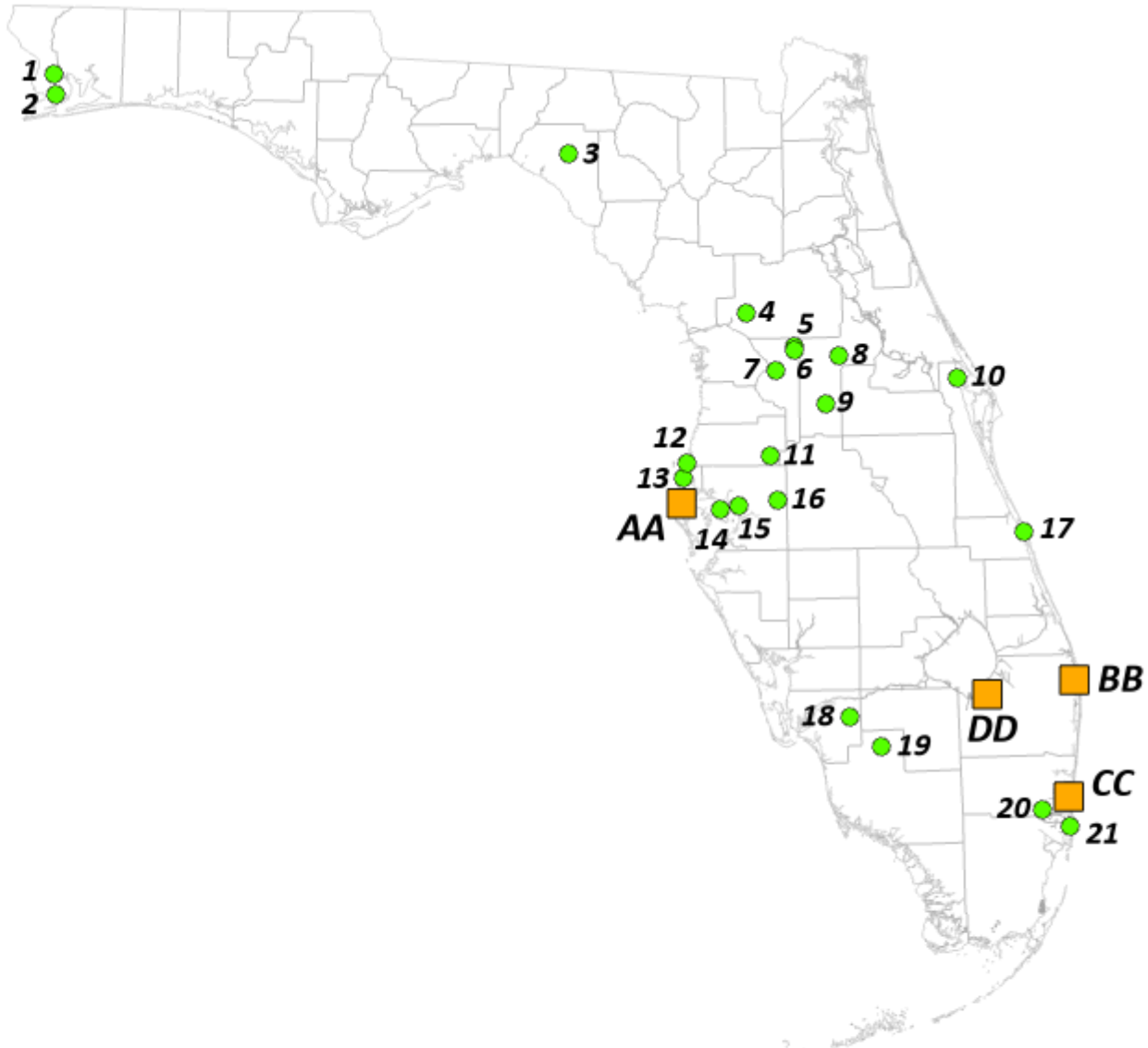
UCMR 3 PFAS Site
UCMR 5 PFAS Site
UCMR 5 Lithium Site
DWSRF PFAS Project Site

N

50 Miles

Field ID	UCMR 5 PFAS Project Site
1	Gonzalez Utilities
2	Emerald Coast Utilities Authority
3	Perry Water System
4	City of Belleview
5	Villages of Lake Sumter
6	Little Sumter Utilities
7	Lake Panasoffkee Water Association
8	City of Eustis
9	Southlake Utilities
10	Mims Water Treatment
11	City of Zephyrhills
12	Aloha Gardens Utilities
13	Tarpon Springs Water System
14	City of Tampa
15	HCPUD/Seaboard Utilities
16	Hawkins Road Camp
17	North Hutchinson Island
18	FGUA (Lehigh Acres)
19	Immokalee Water
20	City of Pembroke Pines
21	Bar Harbour Islands

Field ID	DWSRF PFAS Project Site
AA	Town of Belleair
BB	City of Riviera Beach
CC	City of Hollywood
DD	Palm Beach County



Potential Future Investigations
UCMR 5 and DWSRF PFAS Projects
As of August 22, 2023

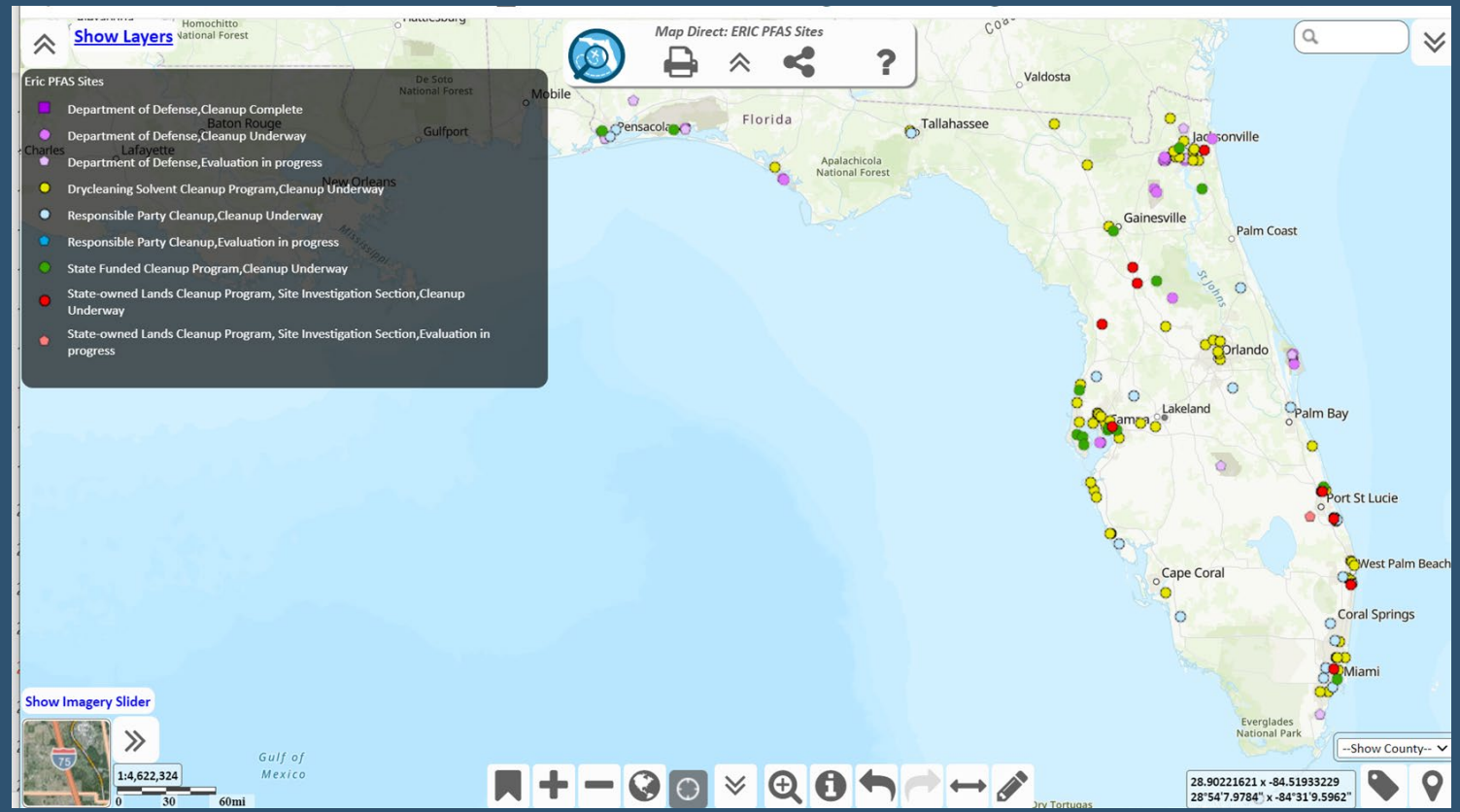
UCMR: Unregulated Contaminant Monitoring Rule
PFAS: Per- and polyfluoroalkyl substances
PWS: Public Water Supply with PFAS impact identified by UCMR 5

Drinking Water State Revolving Fund (DWSRF) Project Site Location

N

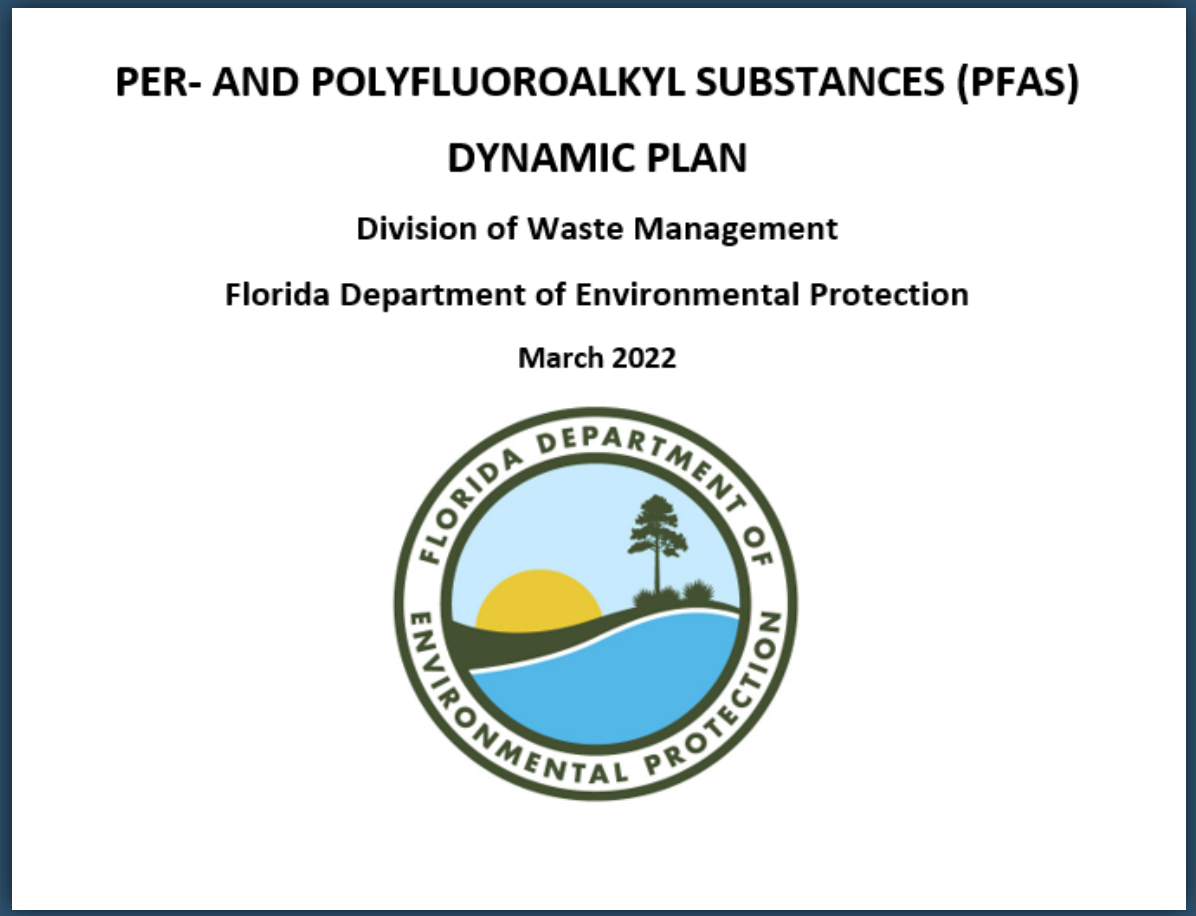
40 Miles

DEP RESOURCES



Map Direct: Maintain tracking and GIS mapping of PFAS Impacted sites. https://ca.dep.state.fl.us/mapdirect/

DEP EFFORTS TO ADDRESS PFAS IN THE ENVIRONMENT


PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

DYNAMIC PLAN

Division of Waste Management

Florida Department of Environmental Protection

March 2022

DEP's PFAS website:
FloridaDEP.gov/waste/waste-cleanup/content/dep-efforts-address-pfas-environment

- Areas of Investigation.
- Technical Developments.
- Resources.

Dynamic Plan:
FloridaDEP.gov/waste/waste-cleanup/documents/dwm-pfas-dynamic-plan

CLEANUP UPDATES

WASTE CLEANUP PROGARM

Fire Training Facilities:	**30** FTFs (current and former) have been sampled, and **27** exceeded the P-GCTL and are undergoing additional PFAS monitoring/assessment: • Of the **3** FTFs that did not exceed the P-GCTL, **2** had detections above the proposed MCL.
State-Funded Cleanup:	**38** sites have been sampled, and **19** sites exceeded the P-GCTL and are undergoing additional PFAS monitoring / assessment: • Of the **19** sites that did not exceed the P-GCTL, **18** had detections above the proposed MCL.
DSCP:	Actively screening drycleaning sites for PFAS: • Total of **243** sites have sampled, **152** sites have exceeded the P-GCTL. • **241** of the 243 sites sampled had detections above the proposed MCL.
Superfund Sites:	At DEP's request, EPA has sampled **3** Superfund sites that were former drycleaners: • All 3 were above the P-GCTL.
Brownfield and CERCLA Site Screening Sites:	**7** sites have been screened and have exceeded the P-GCTL. Sites have included former landfills, dumps and plating facilities.

LANDFILL CLOSURE FUND

2015 thru 2022 Legislature provided closure fund

DEP working on (almost finished)

- Coyote Navarre.

DEP completed closures

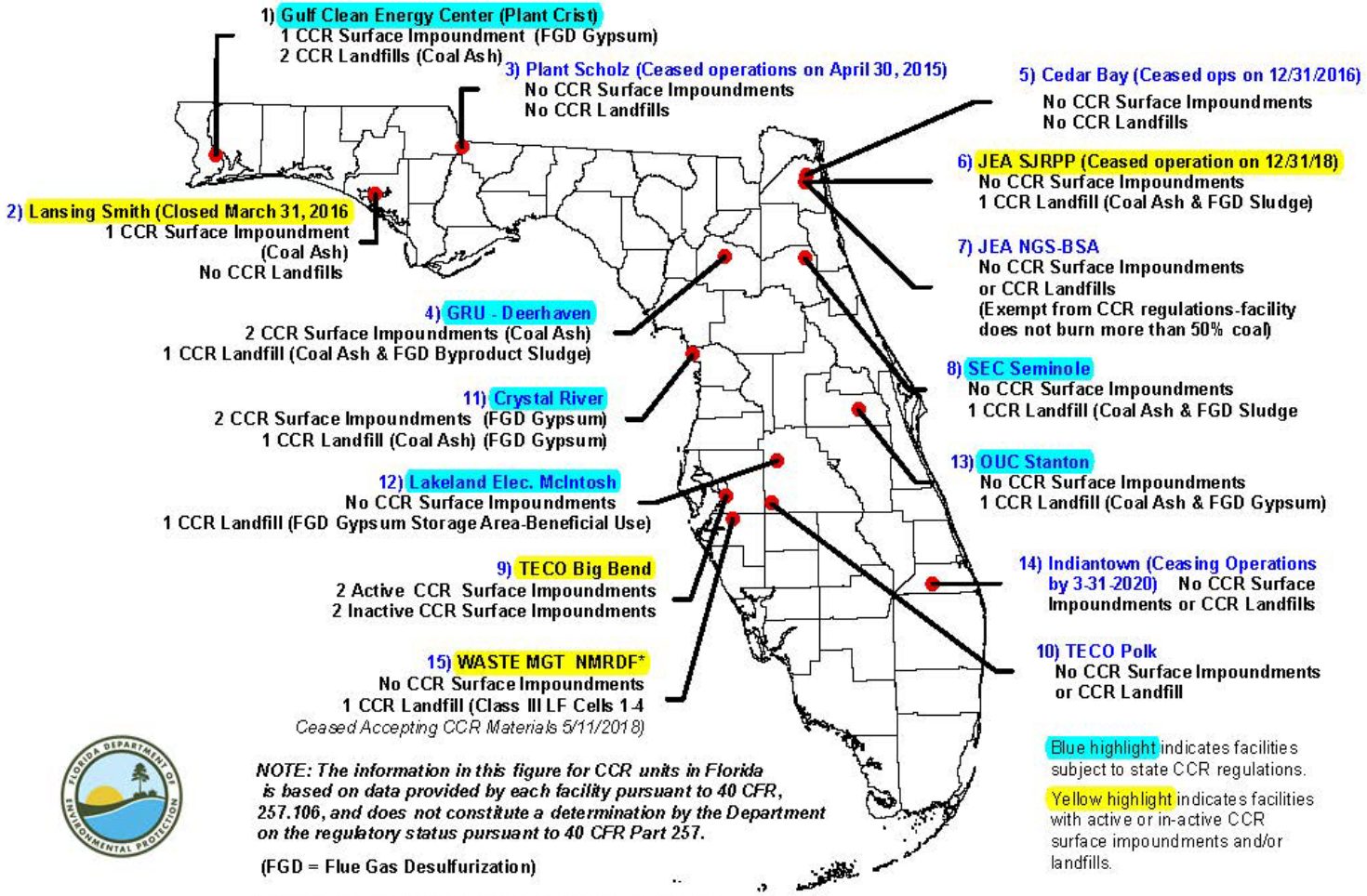
- Coyote East.
- Coyote West.
- Rolling Hills.

DEP evaluating

- Joiner.
- Cerny.

COAL COMBUSTION RESIDUALS (CCR)

Florida's Coal-Fueled Power Plants & CCR Units



1) Gulf Clean Energy Center (Plant Crist)
1 CCR Surface Impoundment (FGD Gypsum)
2 CCR Landfills (Coal Ash)

2) Lansing Smith (Closed March 31, 2016
1 CCR Surface Impoundment
(Coal Ash)
No CCR Landfills

3) Plant Scholz (Ceased operations on April 30, 2015)
No CCR Surface Impoundments
No CCR Landfills

4) GRU - Deerhaven
2 CCR Surface Impoundments (Coal Ash)
1 CCR Landfill (Coal Ash & FGD Byproduct Sludge)

5) Cedar Bay (Ceased ops on 12/31/2016)
No CCR Surface Impoundments
No CCR Landfills

6) JEA SJRPP (Ceased operation on 12/31/18)
No CCR Surface Impoundments
1 CCR Landfill (Coal Ash & FGD Sludge)

7) JEA NGS-BSA
No CCR Surface Impoundments
or CCR Landfills
(Exempt from CCR regulations-facility
does not burn more than 50% coal)

8) SEC Seminole
No CCR Surface Impoundments
1 CCR Landfill (Coal Ash & FGD Sludge

9) TECO Big Bend
2 Active CCR Surface Impoundments
2 Inactive CCR Surface Impoundments

10) TECO Polk
No CCR Surface Impoundments
or CCR Landfill

11) Crystal River
2 CCR Surface Impoundments (FGD Gypsum)
1 CCR Landfill (Coal Ash) (FGD Gypsum)

12) Lakeland Elec. McIntosh
No CCR Surface Impoundments
1 CCR Landfill (FGD Gypsum Storage Area-Beneficial Use)

13) OUC Stanton
No CCR Surface Impoundments
1 CCR Landfill (Coal Ash & FGD Gypsum)

14) Indiantown (Ceasing Operations by 3-31-2020) No CCR Surface Impoundments or CCR Landfills

15) WASTE MGT NMRDF*
No CCR Surface Impoundments
1 CCR Landfill (Class III LF Cells 1-4
Ceased Accepting CCR Materials 5/11/2018)

Blue highlight indicates facilities subject to state CCR regulations.

Yellow highlight indicates facilities with active or in-active CCR surface impoundments and/or landfills.

Date: June 2023

NOTE: The information in this figure for CCR units in Florida is based on data provided by each facility pursuant to 40 CFR, 257.106, and does not constitute a determination by the Department on the regulatory status pursuant to 40 CFR Part 257.

(FGD = Flue Gas Desulfurization)

* Facility #15 is unique in that Cells 1-4 of a Class III LF was used for disposal of CCR-FGD materials from the TECO Big Bend facility through 5/11/2018.

Grease Waste

Section 403.0741, F.S. Effective July 1, 2022

- Requires grease waste haulers to dispose of grease waste, including grease waste from grease interceptors, traps and graywater, at permitted or certified disposal facilities.

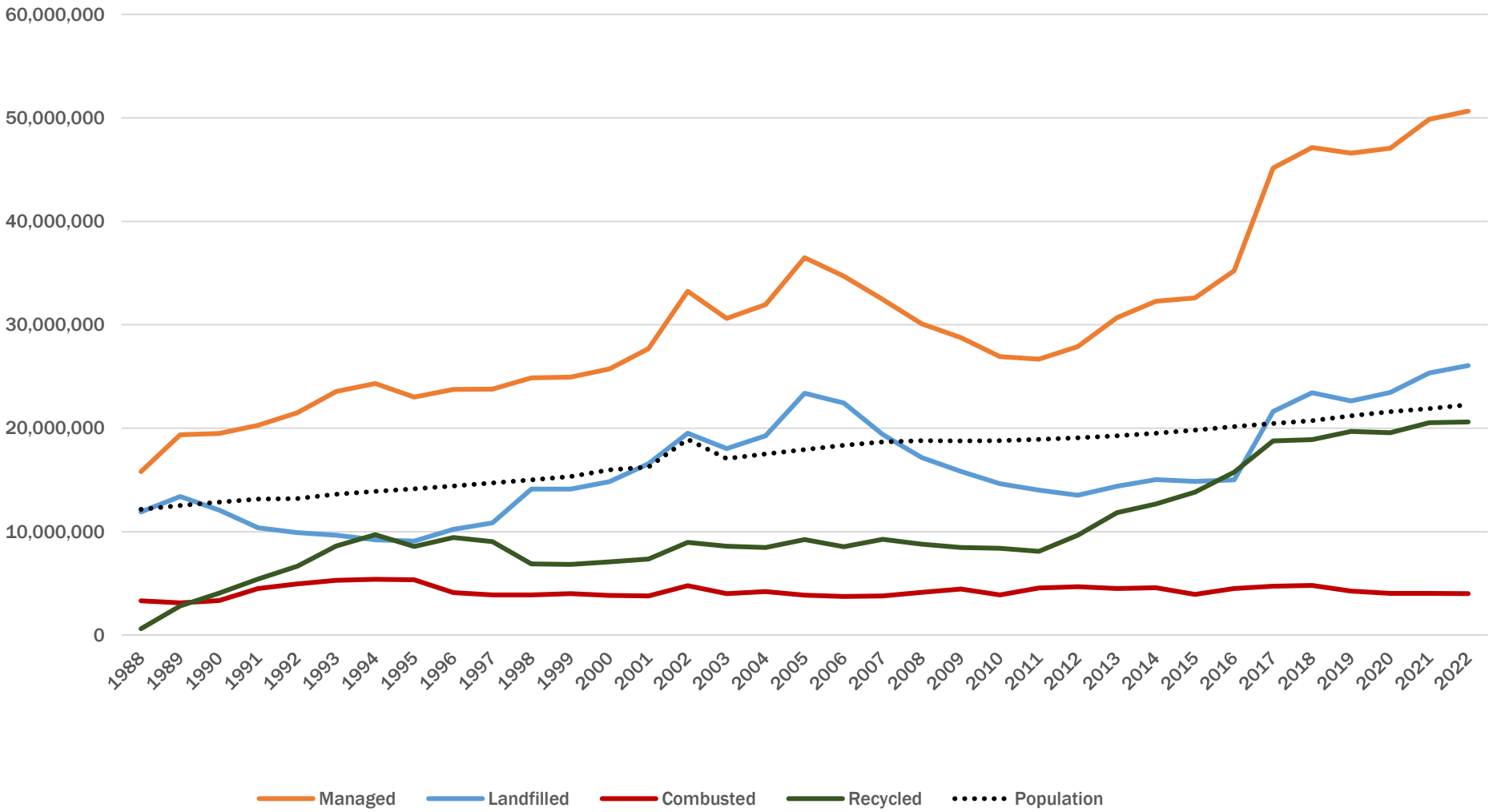
The Department is in the process of rulemaking to adopt rules to implement Section 403.0741, F.S.

- Grease Waste | Florida Department of Environmental Protection

- Rule Workshop was held on March 22, 2023.

- Comments on draft rule submitted by May 5, 2023.

SOLID WASTE MANAGEMENT IN FLORIDA 1988-2022



EMERGING WASTE STREAMS – Solar Panels

- Estimated number of PV panels in service in Florida for 2023 – 25.6 million.
- Solar panels are not currently considered electronic devices or universal waste.
  - Electronic components can include heavy metals such as silver, lead, arsenic, cadmium, and selenium.
  - Older silicon panels can be hazardous due to lead solder.
- Main types of solar panels in circulation:
  - Mono and poly crystalline silicon,
  - Cadmium telluride, and
  - Copper indium gallium selenide
- As for any waste, the generator must make a hazardous waste determination and manage the waste as hazardous if it determines the waste to be hazardous.
- Limited recycling markets; none currently in Florida.
- EPA is planning to propose new rules to improve the management and recycling of end-of-life solar panels. Likely add solar panels to Universal Waste regulations.

OTHER EMERGING WASTE STREAMS
ELECTRIC VEHICLE LITHIUM-ION BATTERIES

- Considered to be ignitable (D001) and reactive (D003).
- Fires at end of life are common, and mismanagement and damage to batteries make fires more likely.
- Limited recycling markets. Transportation to recycling facilities is a big hurdle.
- EPA is planning to propose distinct category of universal waste specifically tailored to lithium batteries.

EPA's May 24, 2023, guidance:

> ***Today the Agency is clarifying that most lithium-ion batteries are likely hazardous waste at end of life and that they can be managed under the streamlined hazardous waste management standards for universal waste until they reach a destination facility for recycling or discard.***
>
> **A handler of universal waste may only manage broken or damaged hazardous waste batteries as universal wastes if the breakage or damage does not constitute a breach in an individual cell casing.**

THANK YOU

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Director | Division of Waste Management
Florida Department of Environmental Protection

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Tim.Bahr@FloridaDEP.gov

Geosyntec consultants

Case Studies in PFAS Assessment and Treatment

Olivia Cain, P.E. (FL) | December 5, 2023 | Tallahassee, Florida

Florida Section Air and Waste Management Annual Meeting 2023

Agenda

Considerations for PFAS Assessments

- Identifying potential source areas
- Site investigation strategies
- Data evaluation considerations

Overview of PFAS Treatment

- Background and challenges
- Research and development

Case Studies

- Municipal system source assessment and treatment
- Passive treatment for stormwater and groundwater

Geosyntec consultants

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https://www.geosyntec.com/pfas