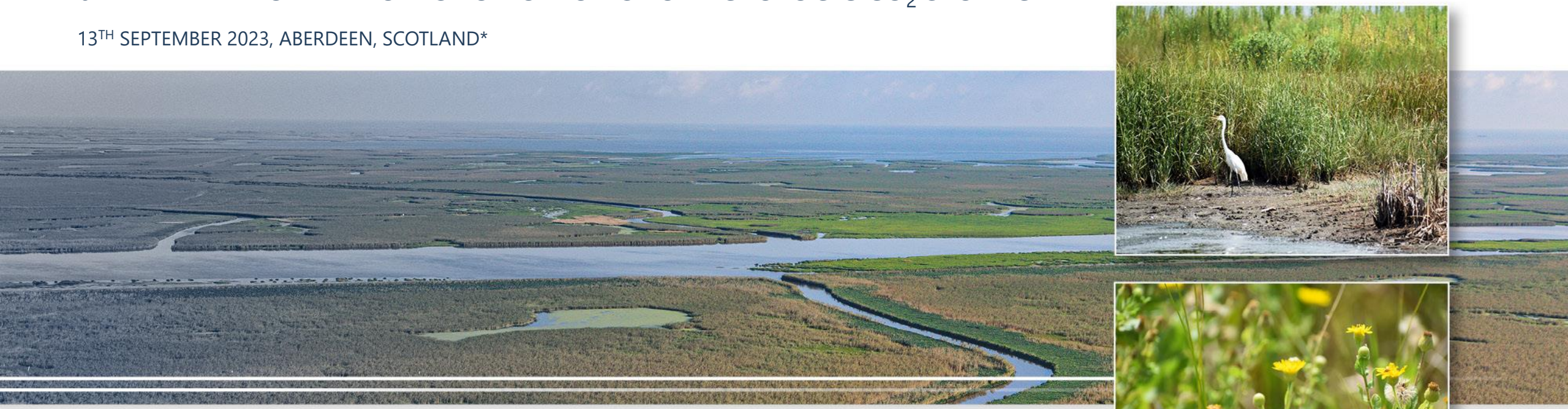
6TH INTERNATIONAL WORKSHOP ON OFFSHORE GEOLOGIC CO_2 STORAGE

13TH SEPTEMBER 2023, ABERDEEN, SCOTLAND*



TALOS ENERGY – CCS UPDATE

AOR (AREA OF REVIEW GENERATION WORKFLOW)

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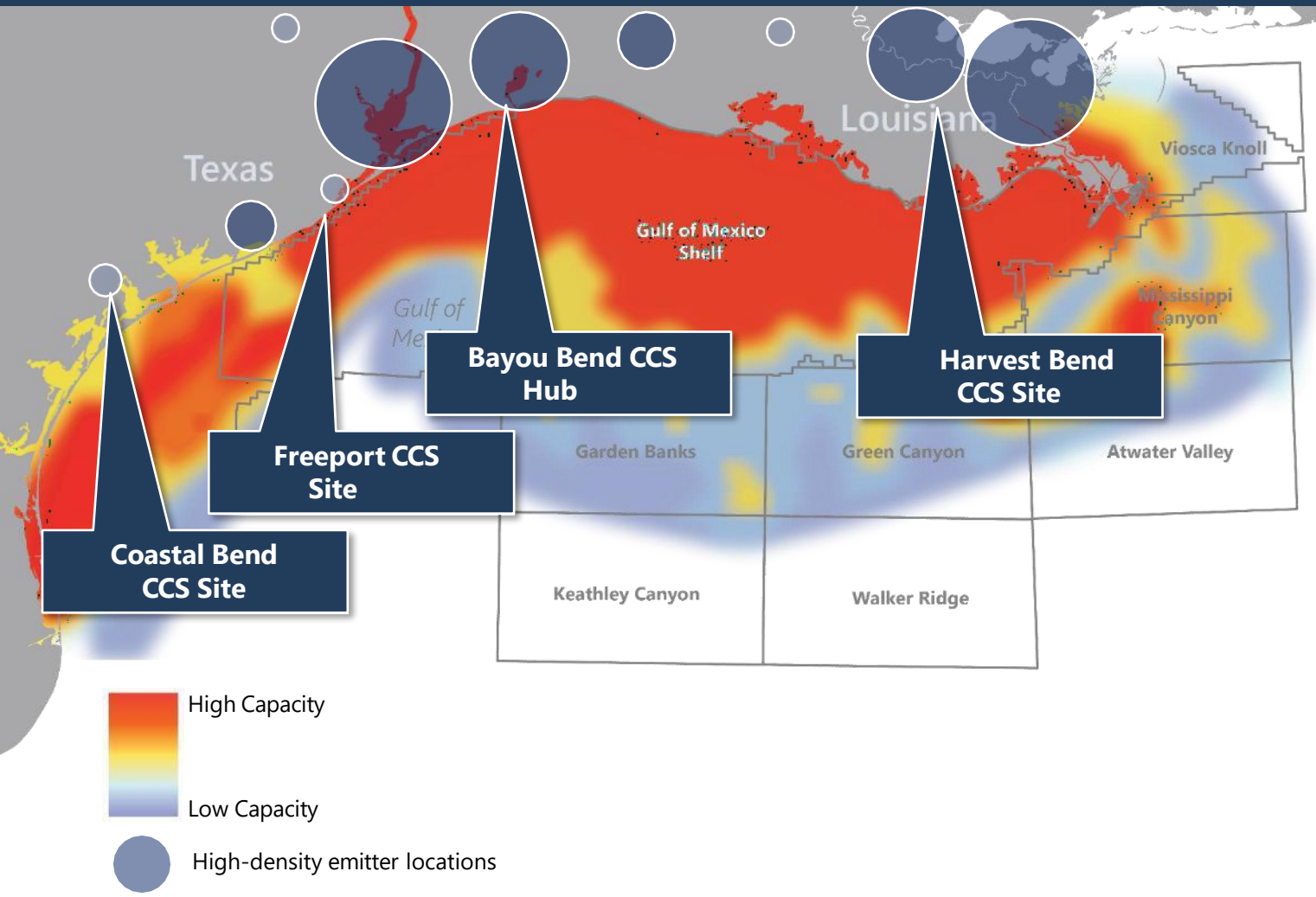
TALOS ENERGY

Talos CCS Projects Overview

Emissions concentrated along the Gulf Coast are adjacent to best-in-class storage capacity & infrastructure



America's Industrial Epicenter

- Critical power generation, industrial and petrochemical corridor
- **100+ facilities emitting >1 MM MT of CO_2 per year**
- Diverse, quality emitter community

World-Class Storage Region

- **>30 gigatons of potential capacity**
- 1,000'+ saline aquifer columns
- Exceptional conventional rock properties and sealing shales
- Established supply chain & expertise

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Critical Pressure Calculation and Area of Review Concept

- Motivation: Critical pressure concept (key element of an AoR) is generally less understood in the EPA Class 6 permitting space.
- CO_2 injection activities cause regions of elevated pressure. Above a certain threshold, elevated pressure may cause upward migration of formation fluids towards the closest overlying freshwater source (USDW).
- Fluid migration may occur through a mechanical or geological migration pathway
- The area of influence is known as Area of Review (AoR)

Threshold Elevated Pressure or Critical Pressure Calculation

Nicot Method for Normally Pressured Reservoirs (Nicot et al. 2008)

$$\Delta Pc = \frac{1}{2} g \times \in \times (z_u - z_i)^2 \qquad equation\ (1)$$

Where:

$$\in = \frac{\rho_i - \rho_u}{z_u - z_i}$$

ΔPc = Critical pressure or incremental pressure, Pa
ρ_u = Fluid density of lowermost USDW, kg/m^3
ρ_i = Fluid density of injection interval, kg/m^3
z_u = Elevation of lowermost USDW, m
z_i = Elevation of injection interval, m
g = gravitational acceleration, 9.81 m/s^2

Interval	Start Depth	Zu	Zi	ρi	ρu	ΔPc
	ft,MD	m	m	kg/m^3	kg/m^3	psi
USDW	1280	-390.125				
Interval 1	5956	-390.125	-1815.3	1109	1004	106
Interval 2	5690	-390.125	-1734.23	1109	1004	100
Interval 3	5572	-390.125	-1698.26	1109	1004	97
Interval 4	5377	-390.125	-1638.83	1109	1004	93
Interval 5	4988	-390.125	-1520.27	1109	1004	84

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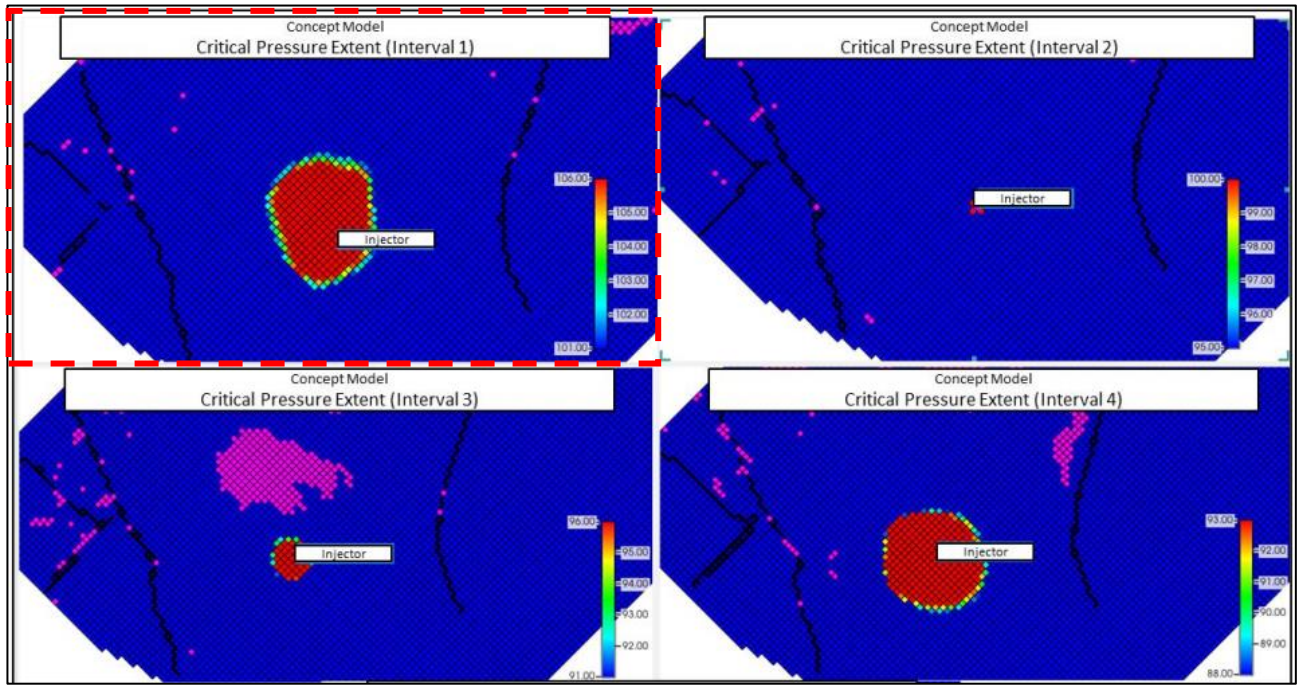
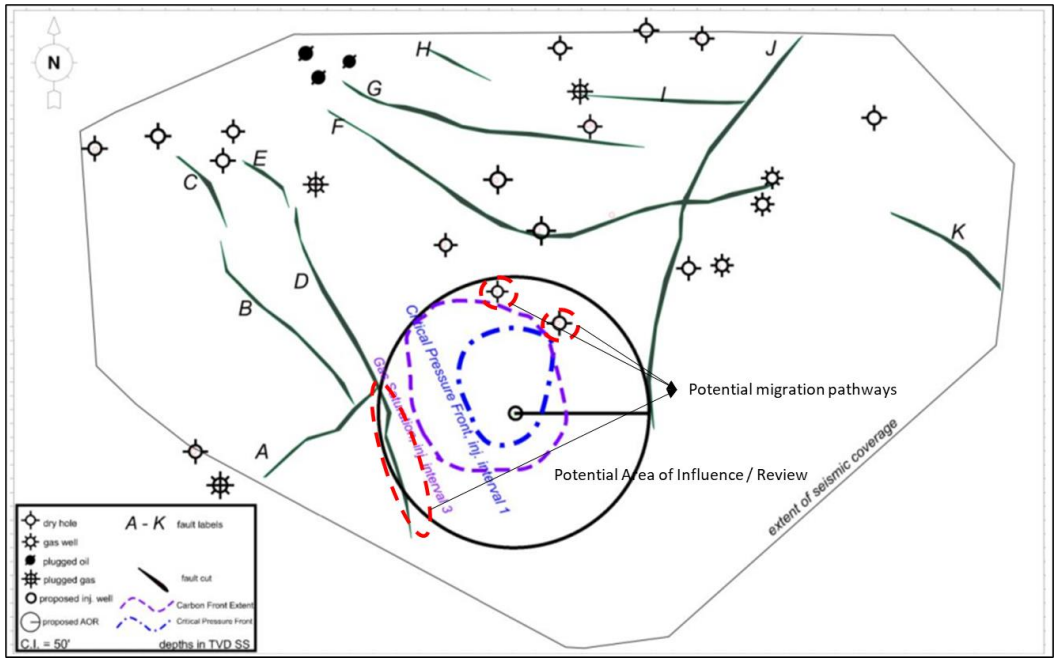
Interpretation of Results and AoR Formulation





- A maximum projected AoR comprising of both CO2 and critical pressure extent is required by the USEPA to issue a Class 6 permit
- The proposed AoR is subject to continuous monitoring and periodic revisions
- An AoR helps identify and mitigate potential risks that pose a threat to loss of long-term CO_2 containment

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