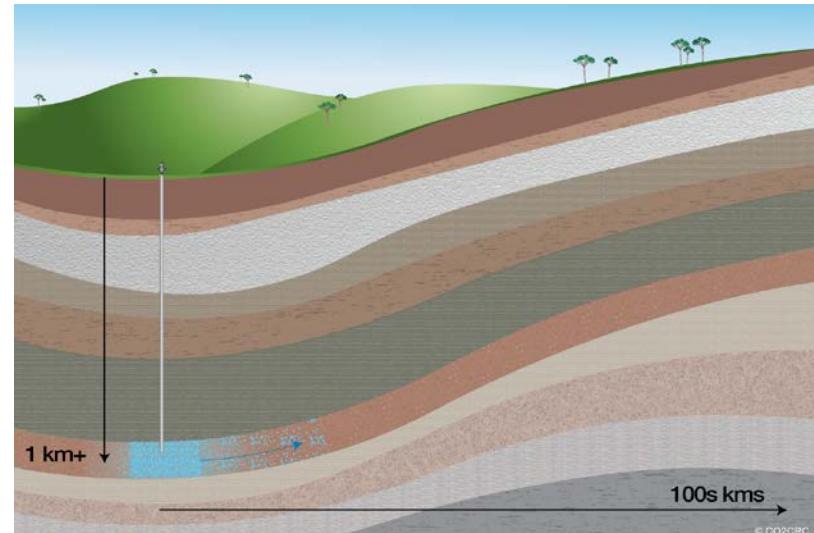
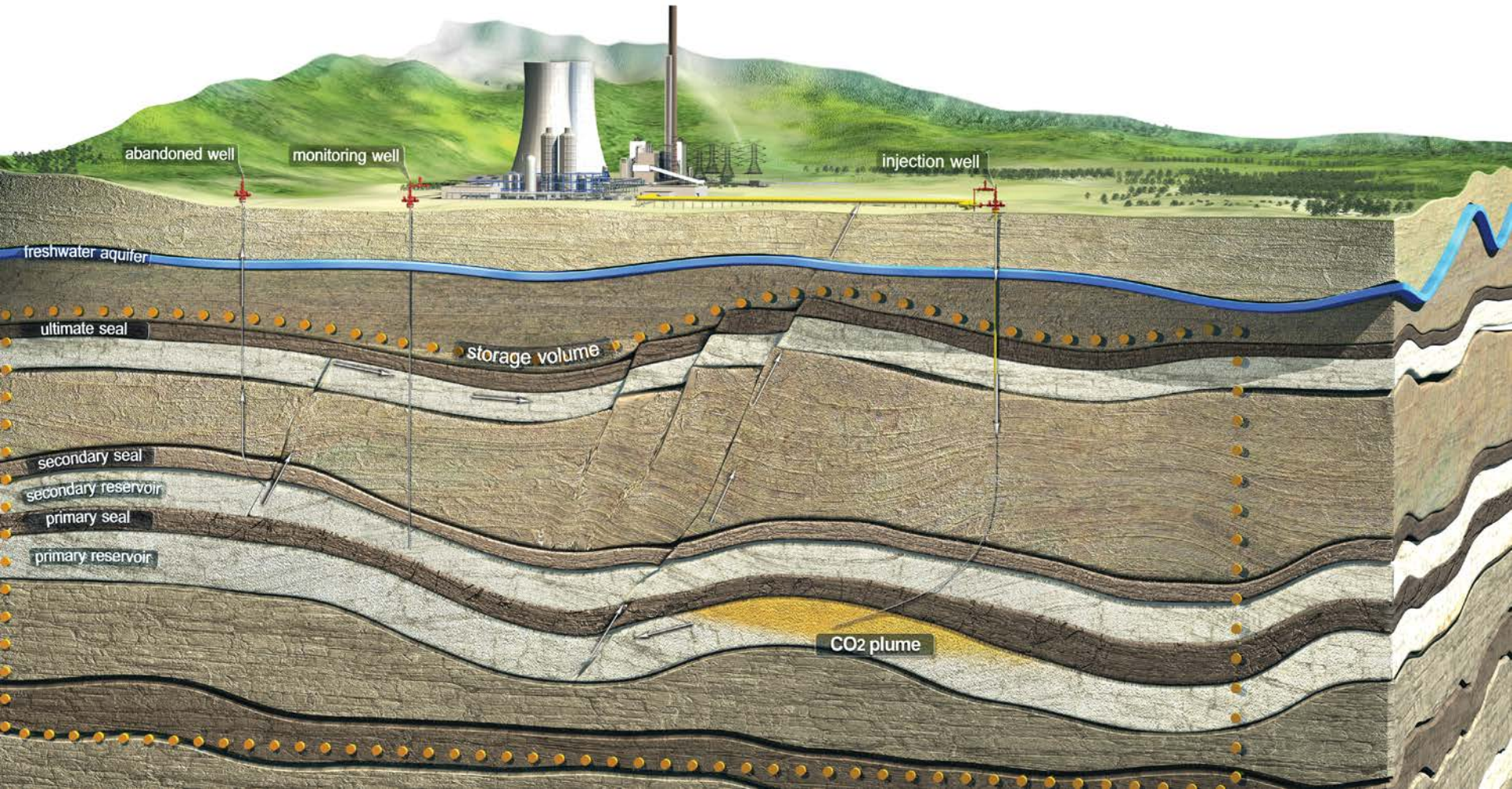


# Million Ton Carbon Capture Fund

Monetizing Carbon Capture and Storage in the USA



# Conceptual Project





# Actual Project



Petra Nova Power Plant, Houston, Texas (2016)

# 18 Projects by 2020

Operation Date	Project Name	State	Facility Details	CO <sub>2</sub> Capture (mtpa)
1972	Val Verde Natural Gas Plants	Texas	Natural Gas Processing	1.3
1982	Enid Fertilizer CO <sub>2</sub> -EOR Project	Oklahoma	Fertilizer Production	0.7
1986	Shute Creek Gas Processing Facility	Wyoming	Natural Gas Processing	7.0
2010	Century Plant	Texas	Natural Gas Processing	8.4
2013	Air Products Steam Methane Reformer	Texas	Hydrogen Production	1.0
2013	Coffeyville Gasification Plant	Kansas	Fertilizer Production	1.0
2013	Lost Cabin Gas Plant	Wyoming	Natural Gas Processing	0.9
2015	ADM Illinois Industrial Project	Illinois	Chemical production	1
2016	Kemper County Energy Facility	Mississippi	Power Generation	3
2016	Petra Nova Carbon Capture Project	Texas	Power Generation	1.4
2017	Sargas Texas Point Comfort Project	Texas	Power Generation	0.8
2018	Quintana South Heart Project	North Dakota	Power Generation	2.1
2018	Medicine Bow Coal-to-Liquids Facility	Wyoming	Coal-to-liquids (CTL)	2.5
2019	Indiana Gasification	Indiana	Synthetic Natural Gas	5.5
2019	Mississippi Gasification	Mississippi	Chemical production	4
2019	Hydrogen Energy California Project	California	Power Generation	2.7
2019	Texas Clean Energy Project	Texas	Power Generation	2.7
2018-2020	Riley Ridge Gas Plant	Wyoming	Natural Gas Processing	2.5

# Environmental Benefits

- Prevents emissions from entering atmosphere, which mitigates climate change
- Unique attributes of Carbon Capture and Storage:
  - Huge volume: millions of tons CO<sub>2</sub> removed from atmosphere
  - Easily scalable: technology is viable (although expensive)
  - Fossil fuel compatible: complements existing infrastructure

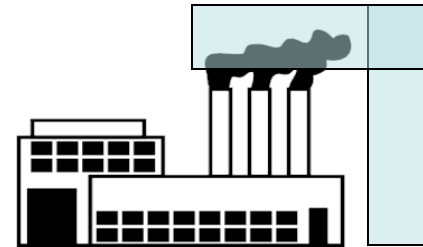
# Quick Background

- Technology created in 1970s
- Rapid increase in projects since 2009 due to three factors
  - Growth in US oil production using CO<sub>2</sub> (\$40 / ton)
  - Creation of 45Q tax credit (\$10 / ton)
  - Expansion of DOE subsidies program (25% - 30% project cost)

# Typical Project Economics

- Based on Subsidies, CO2 Market, Tax Credits

**Example:** Plant installs equipment,  
captures & stores 1 million tons annually



## Capital Expenditure:

\$200 million

- \$50 million

\$150 million

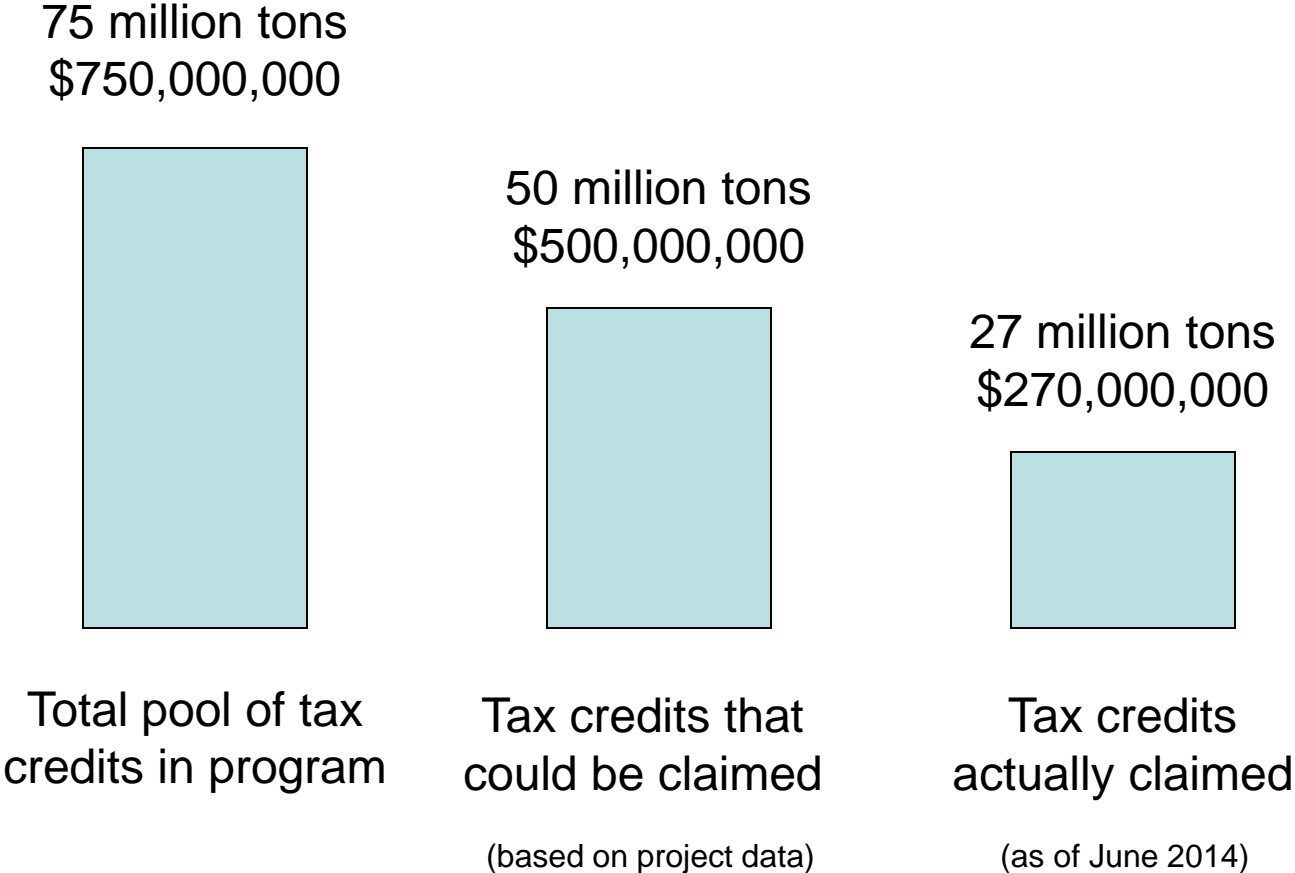
## Annual Cash Flow:

CO2 markets: \$40/ton = \$40 million

45Q tax credit: \$10/ton = \$10 million

\$50 million

# Problem: Tax Credit





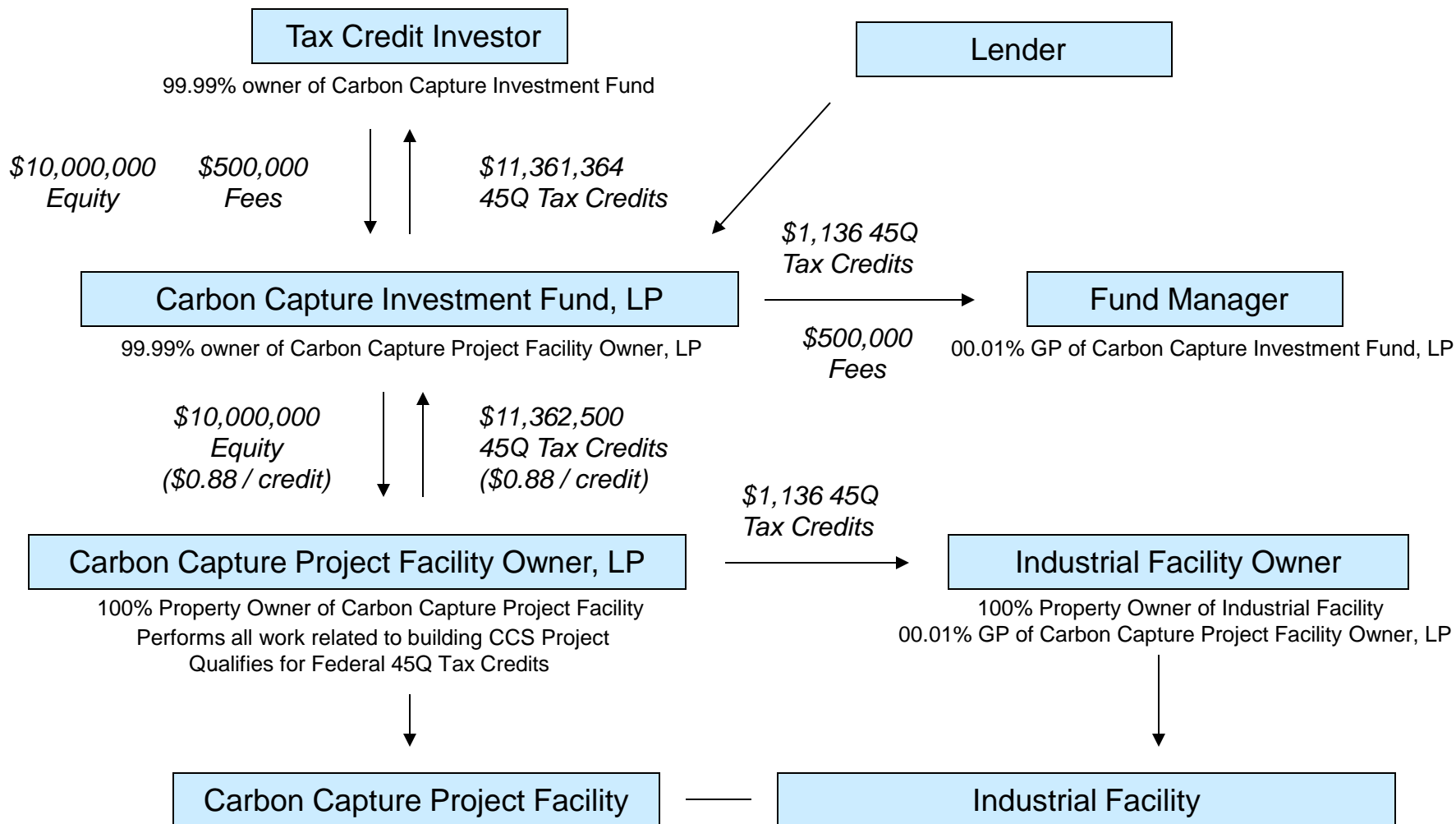
# Investment Opportunity

- Create investment fund that will buy & sell (transfer) tax credits
- Provide project financing to project developers that can't use, or do not need, the tax credits
- Create stable revenue source for project financing, that is not dependent on project owners' tax liability
- 15 potential clients by 2020, receiving tax credits
- Current market size / value is \$480 million (credits for 48 million tons remaining), possible expansion of the program in the future

# Fund Summary

- Invest \$10 million in US carbon capture and storage projects, in exchange for tax credits
- Buy carbon capture tax credits for cash at a discount from CO2 project owners, pass-through to investor
- Facilitate the capture and storage of 1 million tons of CO2
- Provide returns of 8-10% in the form of tax credits (via credit discount)

# Contemplated Structure



# Investment Thesis

- Supply of credits will exist from industrial facility owners, who will sell credits at a discount (assumption of \$0.88 / \$1.00 credit)
- Demand for credits will exist from banks to buy credits, which have environmental attributes but also risk and uncertainty
- Government will be on board - IRS will need to approve investment structure (unknown)



# Value Added

- Provide project financing to project developers that can't use, or do not need, the tax credits
- Create stable revenue source for project financing, that is not dependent on project owners' tax liability
- Support existing projects by lowering overall cost of capital
- Incentivize new projects and economically marginal projects

# Next Steps

1. Talk to facility owners (potential clients) to gauge interest
2. Talk to banks (potential clients) to gauge interest
3. Talk to lawyer, design optimal fund structure
4. Talk to IRS, look for approval
  - Office of Passthroughs and Special Industries

# Thank you!

## And Thanks to Advisors!



David L. Yermack  
Albert Fingerhut Professor of Finance  
and Business Transformation  
Leonard N. Stern School of Business



Bob Taylor  
Executive Director, Morgan Stanley  
Global Sustainable Finance

# Appendix: 45Q Tax Credit Compliance Rules

- Section 45Q(d)(2): “ the Secretary of Treasury... in consultation with the Administrator of the EPA, the Secretary of Energy (DOE), and the Secretary of the Interior (DOI), shall establish regulations for determining adequate security measures for the geological storage of CO2 such that the CO2 does not escape into the atmosphere.”
- IRS Guidance 2009-83: “the proposed UIC program rules have not been finalized... taxpayer claiming the § 45Q credit must follow... the IPCC Guidelines... a site characterization...an assessment of the risks... Monitor potential leakage pathways... taxpayer... must submit an annual report to the Service.”
- EPA Class 2 and Class 6 well injections regs, GHG reporting regs



# Appendix: Tax Credit Allocation Rules

## Allocation of § 45Q Credit Among Qualified Facility Owners

- (a) If the qualified facility is owned by a partnership that has not made a valid election under § 761(a), the partnership will be considered the taxpayer for purposes of this notice. In such cases, the § 45Q credit must be allocated in accordance with § 1.704-1(b)(4)(ii).
- (b) If the qualified facility is owned by a partnership that has made a valid § 761(a) election, then each partner in the partnership will be considered the taxpayer for purposes of this notice. In such case, the taxpayer may claim the § 45Q credit in accordance with its portion of the total amount of qualified CO<sub>2</sub> that is commensurate with its undivided ownership of the qualified facility.