

Bluesource

Carbon Credit Opportunities for Landfills and Waste Management

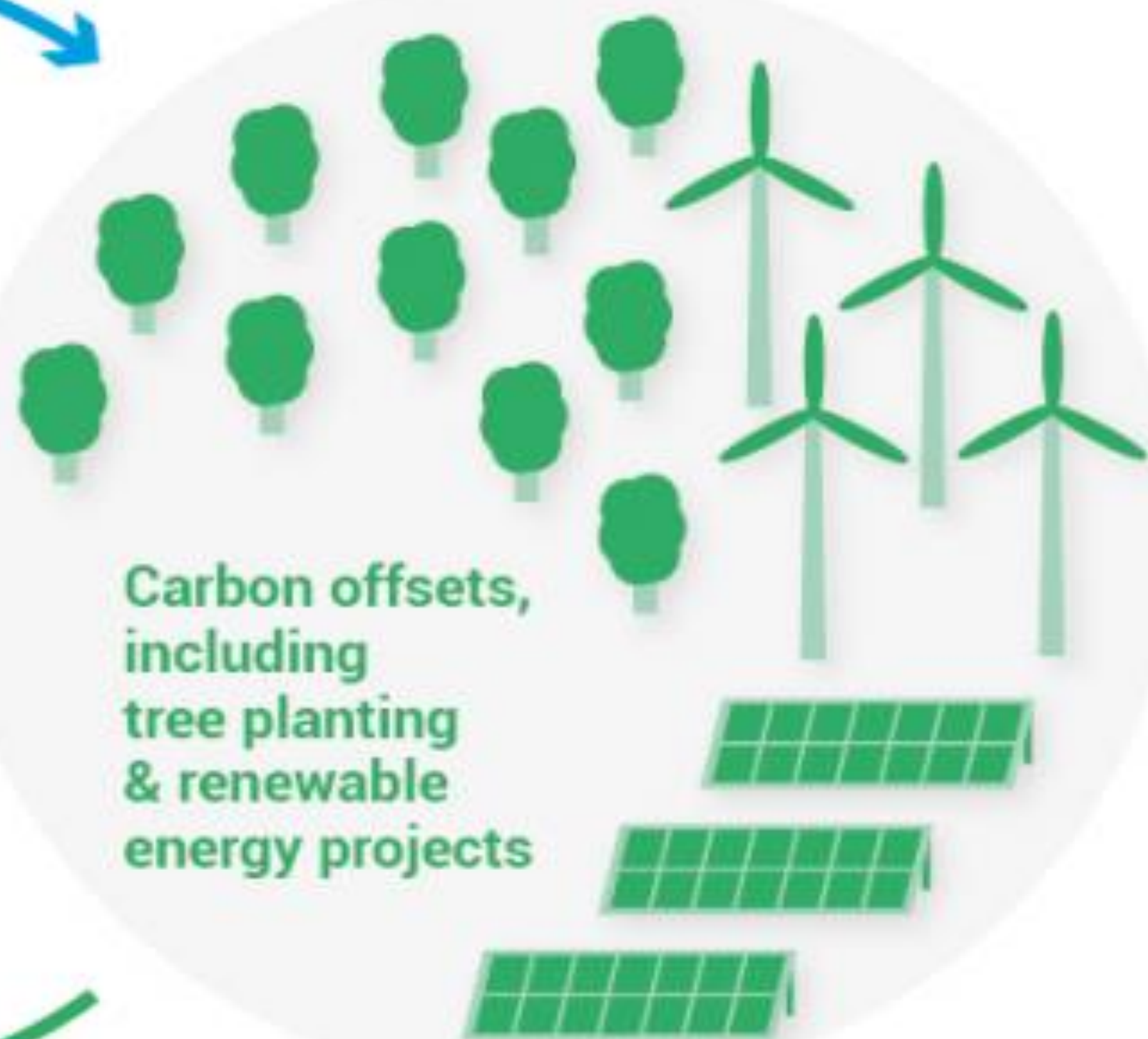
April 6, 2021



Investments
in emission reduction
projects



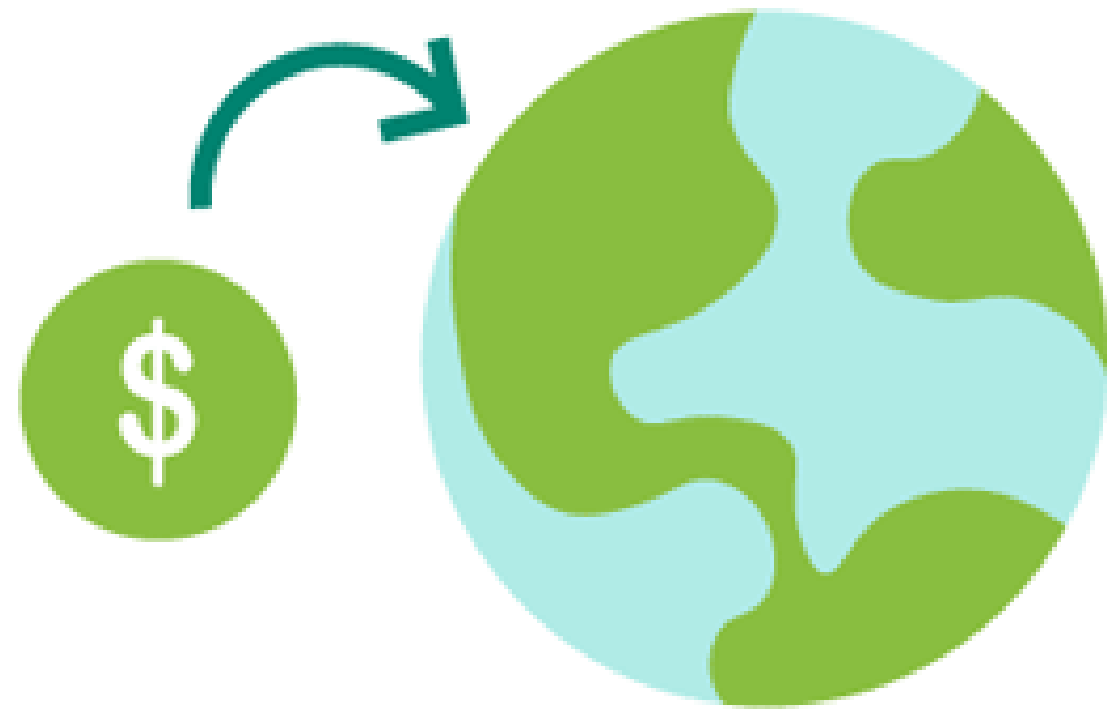
Companies/
governments
needing to meet
their emissions
targets



Carbon offsets,
including
tree planting
& renewable
energy projects



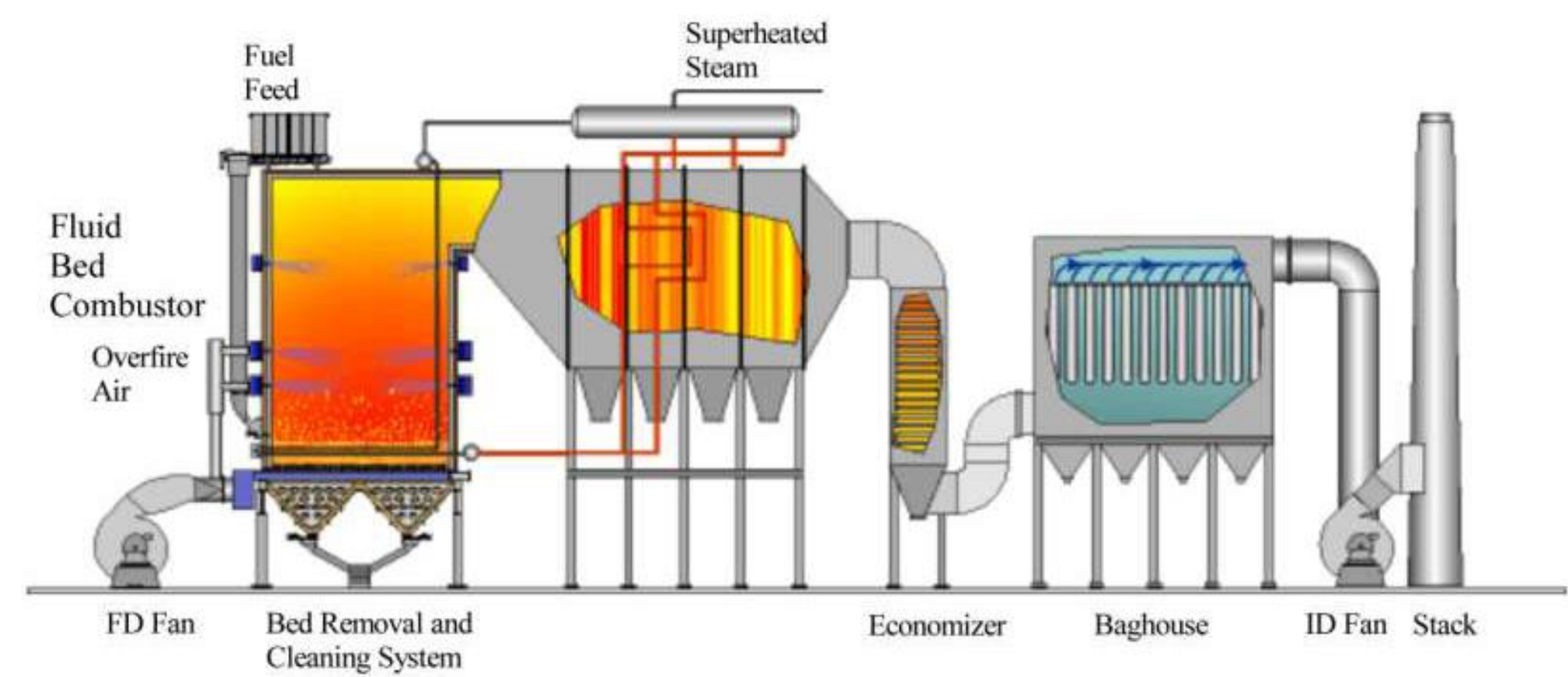
certificate obtained
for payment of
carbon offsets



**1 METRIC TON OF
CO₂ “OFFSET”**



**1 METRIC TON OF
CO₂ REDUCED**



1 TONNE of CH₄ METHANE = 25 TONNES of CO₂



Compliance Offset Market

- Jurisdictions or Regions with Regulations on Emissions (e.g. AB, Federal, California)
- Demand created from entities purchasing offsets to meet compliance
- Pricing determined based on ceiling price on pollution or price of allowances in cap and trade

Voluntary Offset Markets

- Market involves buyers voluntarily purchasing offsets
- Verra (VCS), CAR, ACR, CSA CleanProjects
- Pricing varies based on project characteristics

About Bluesource

Carbon Project Investment, Development, Marketing

- Leader in carbon project finance, development, marketing since 2001
- >150M t portfolio, >50M t sold to date
- All key regulatory/voluntary registries (AB, OBPS, CAR, VCS, RINs, LCFS) in North America
- Market presence: ~18-22% of all offsets in Alberta on yearly basis and ~20% in California/Quebec market to date

Advisory Services

- Carbon strategy, policy and market advice
- Feasibility studies (to determine if/how credits can be generated)
- Offset methodology development
- Carbon neutral products (Neutral by Blue™)
- GHG Inventories / carbon footprinting



Calgary



Salt Lake City



San Francisco



Toronto



Bluesource + Element Markets under TPG Rise

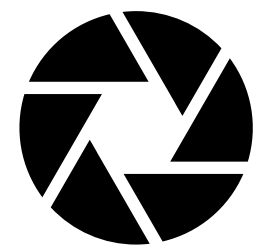
- Bluesource and Element Markets have merged under ownership by TPG Rise
- TPG Rise Climate is the dedicated climate investing arm of TPG's global impact investing platform TPG Rise. \$13 billion in Assets
- Bluesource + Element -> Largest marketer and originator of carbon and environmental credits in North America



Federal Protocol: Landfill Methane Recovery and Destruction



LFG recovery and destruction systems are eligible



8 year crediting period with option to renew.
Project start date > Jan, 1 2017



Additionality: national and regional



Landfills with existing capture and destruction can
credit new cells with no infrastructure



Federal Protocol: Landfill Methane Recovery and Destruction

- In provinces with existing offset systems and LFG protocols the ECCC protocol is not applicable:
Alberta, BC & Quebec

Province	Regulatory Requirement
Ontario	Landfills > 1.5 million m3 required to capture and destroy
Manitoba	All major landfills are required to collect and destroy gas.
Saskatchewan	No requirement for capture and destruction
Nova Scotia	
New Brunswick	
Newfoundland	
P.E.I	No requirement for capture and destruction but gas production is required to be monitored

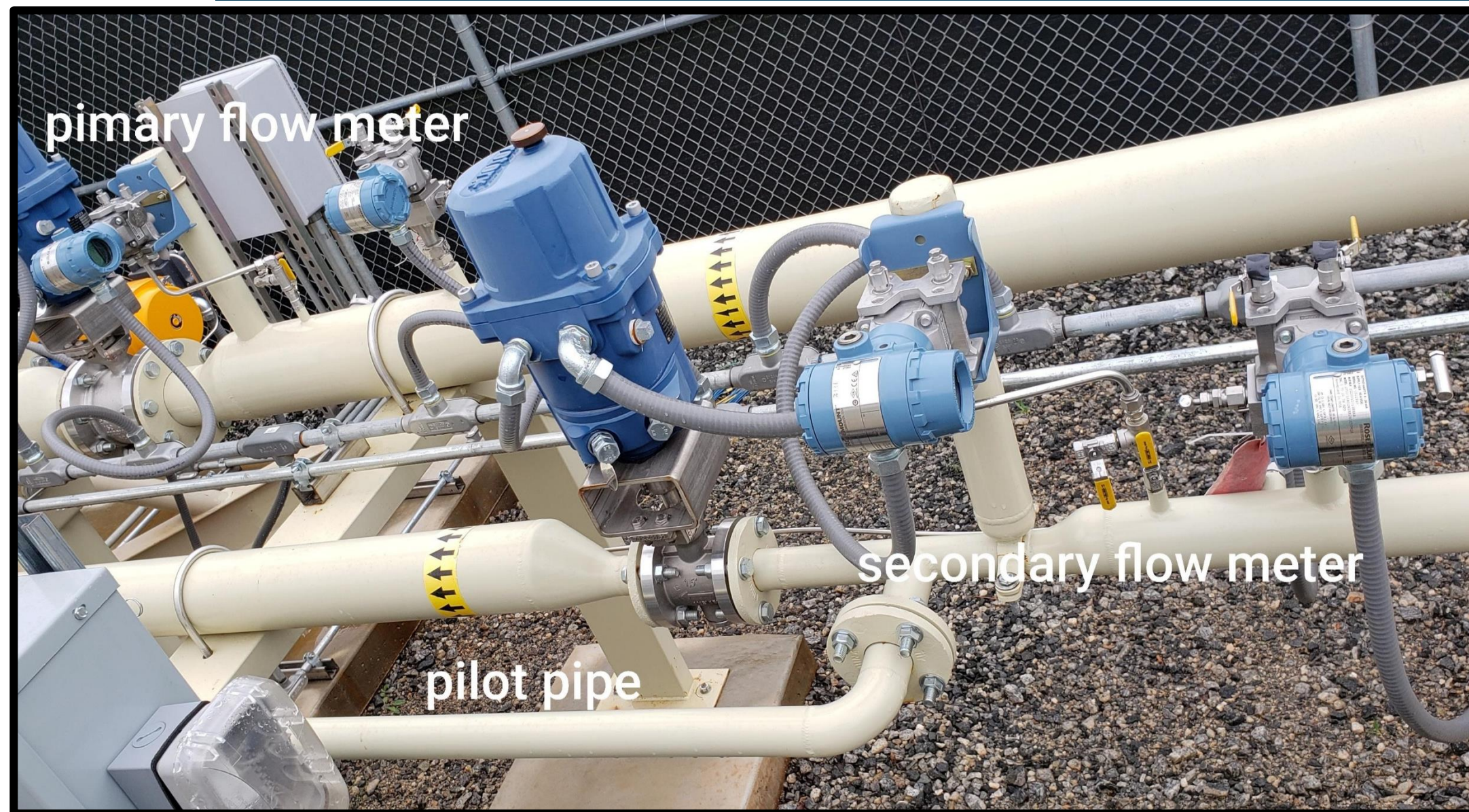


Landfill Gas Destruction Projects

- 35 projects developed involving flaring or beneficial use of landfill gas
- Registries:
 - Climate Action Reserve (CAR)
 - Verified Carbon Standard (VCS)
- 10 million tCO₂e reduced to date



Monitoring Requirements + Maintenance and Operations



Methane Gas Flow Meter

Methane Gas Composition Analyzer



Regulations for US Voluntary LFG Projects

- New Source Performance Standard (NSPS)
 - Landfills with capacity > 2.5 million Mg
 - Annual NMOC emissions > 50 Mg (old regs)
- As of June 2021, annual NMOC emissions threshold is 34 Mg
- If landfills exceed limit on Tier 2 report (every 5 years), they are required to install and begin operation of a GCCS within 30 months (2.5 yrs).
- After the 30-month window, they are no longer eligible to generate offsets.



Additional Opportunities in Waste Sector

Alberta

CSA CleanProjects

CAR

VCS

ACR

Composting

Biomass/Waste
to Energy

Biogas
Generation

Wastewater
Treatment



Carbon Markets Pricing

Federal Offset System

- Trades at a discount to OBPS price on pollution (\$50/tCO₂e for 2021)
- \$44 - \$46/tonne of CO₂e for 2021
- OBPS price to increase by \$15/t up to \$170/t by 2030

Voluntary Markets

- Based on supply/demand of voluntary credits
- Price variation due to project characteristics
- ~\$10/t for LFG and waste diversion projects in 2022



| THANK YOU. QUESTIONS?

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