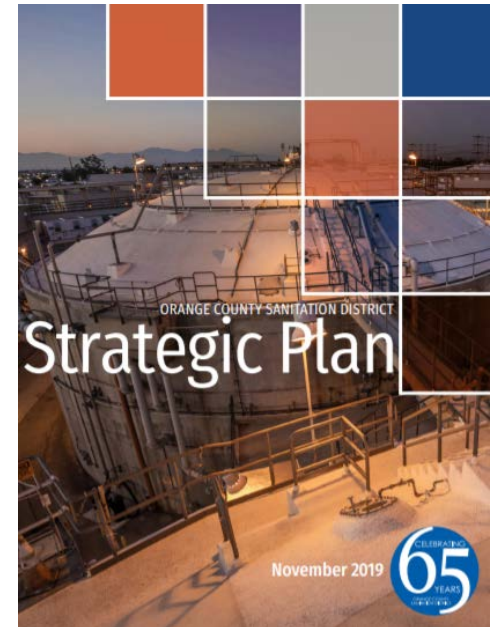


2019 Strategic Plan: Biosolids Management Policy Paper



- Recognized
 - Growing interest for organics management
 - Rising concerns: **emerging contaminants** such as polyfluoroalkyl substances (**PFAS**)
 - **Biosolids Master Plan**: emerging market opportunities
- Issue a request for information (**RFI**)
 - **Research and evaluate** available emerging market
 - **Biosolids-to-energy** options or other biosolids recycling operations
 - Potentially develop scope of work



What is BTC?

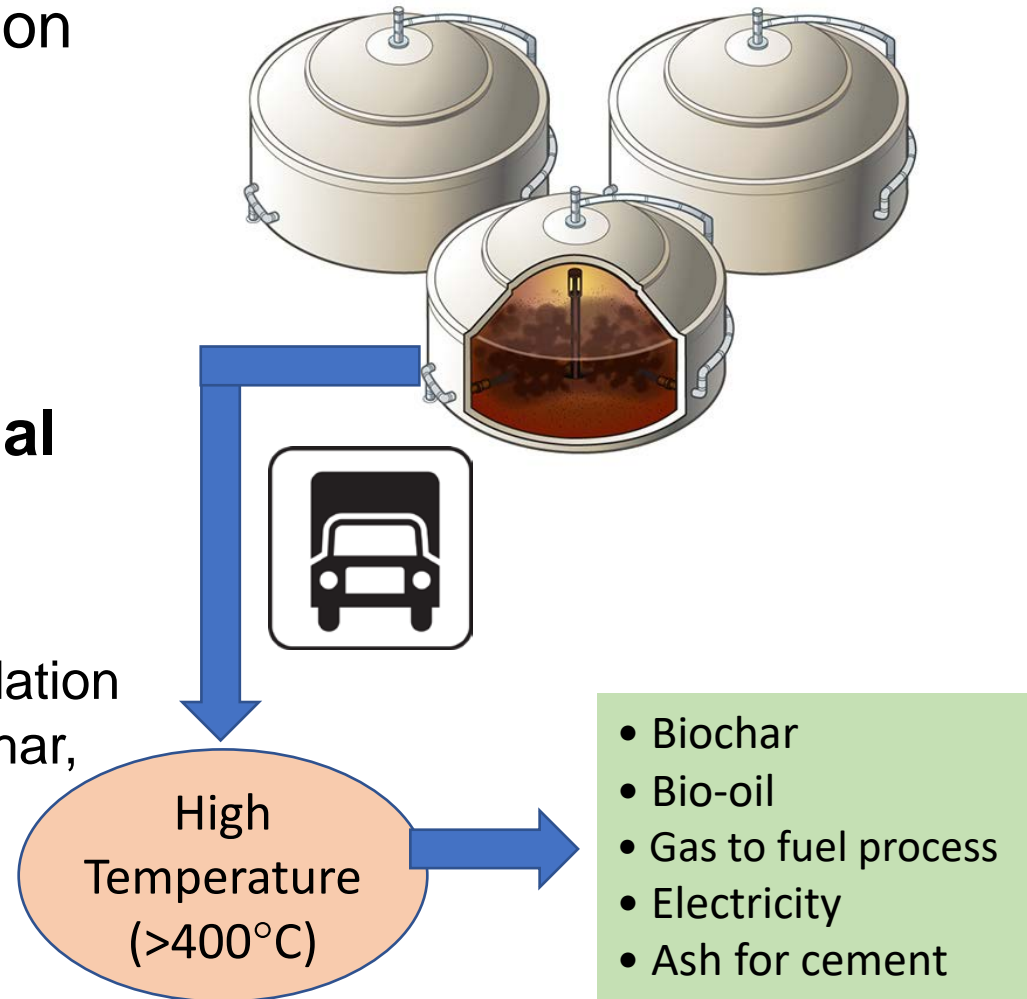


- Onsite – Anaerobic Digestion (Current Practice)

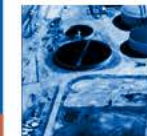
- Solids (sludge) to Biogas
- Methane Recovery
- Biogas to Electricity

- Offsite – **Biosolids Thermal Conversion (BTC)**

- Biosolids (post digester treatment)
- Pyrolysis, Gasification, Oxidation
- Biosolids to Electricity, Biochar, and Oil



State Water Board-ordered PFAS Sampling



Biosolids Contracts and Options Timeline

Q2 2020

Q3 2020

Q4 2020

Q1 2021

Q2 2021

Q3 2021

PFAS → Risk

SWRCB
PFAS Order
7/20

PFAS Sampling
Qtrly 10/20 – 6/21

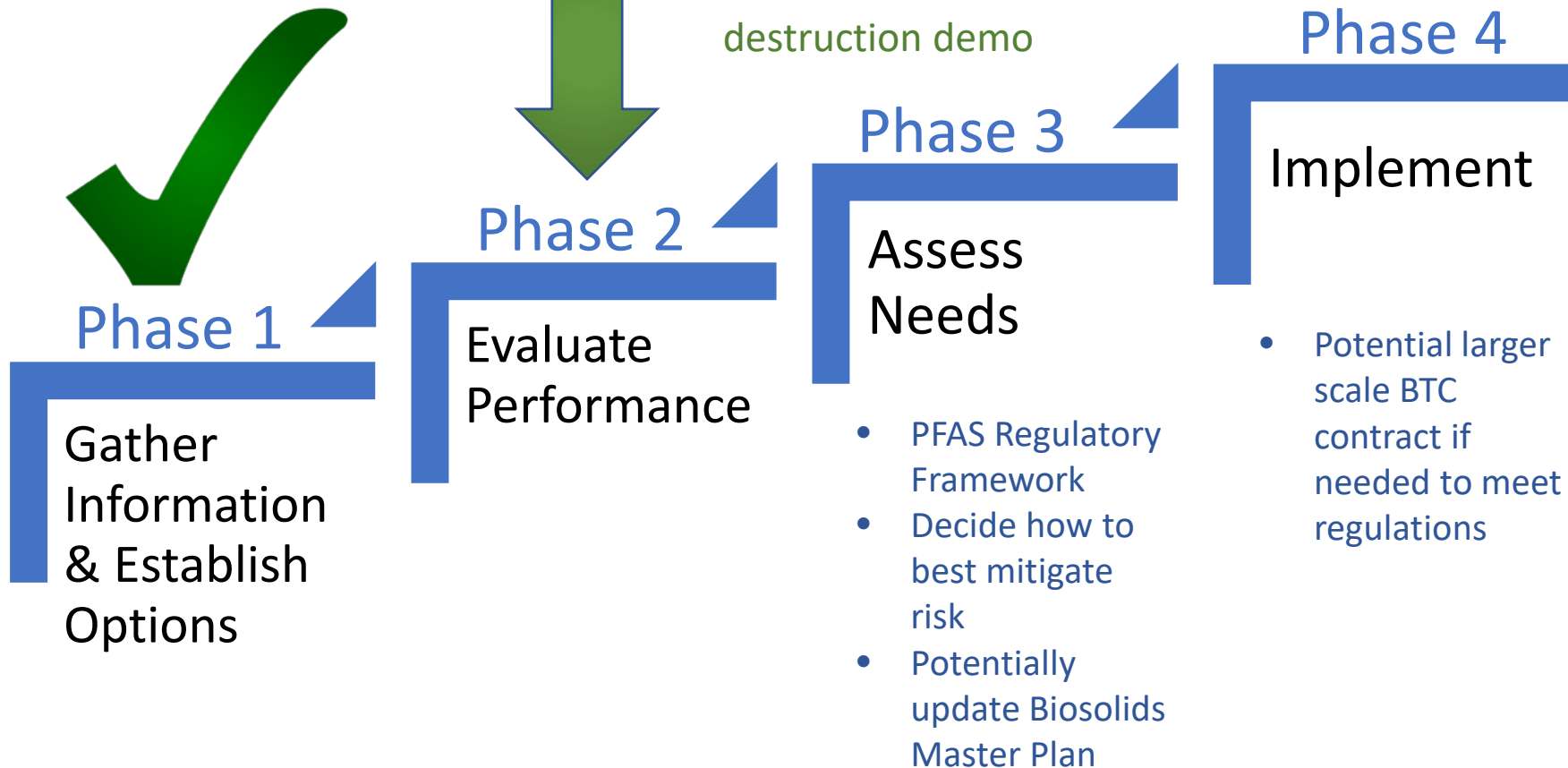
PFAS
Results
Q3 2021

Project Phasing & Considerations

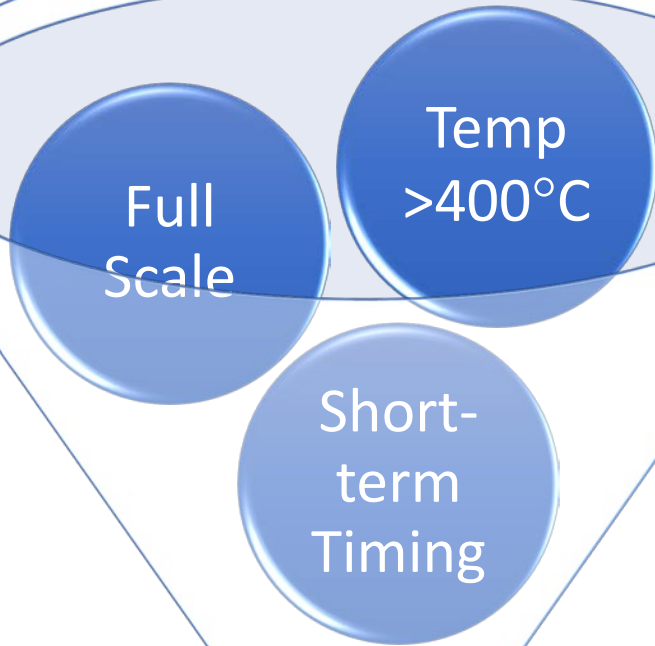


- Biosolids Thermal Conversion RFI
- Haz Waste Landfill List

- PFAS Sampling
- 1-2 Small Tonnage BTC contracts - PFAS destruction demo



BTC RFI Completed



**Viable Criteria for
Initial BTC Facility**

5 Respondents

- 4 with appropriate thermal temperatures
- 3 with proven scalable technologies
- 2 with short-term demonstration opportunities that are already funded to minimize OCSD risk

Availability Timeframes



RFI Responses	Notes	Short-term Availability	Long-term Availability
<p>Anaergia Pyrolysis</p>	<ul style="list-style-type: none"> • June 2021 Pyrolysis commissioning • Only 60 miles from OCSD • Faster expansion with existing permits 	<p>150 tpd 4 trucks</p> <p>Non-Guaranteed tons, easier contract = <u>Low Risk</u></p>	<p>~300-600 tpd 50-100% of OCSD tonnage</p> <p>Guaranteed tons, harder off-ramps, commissioning</p>
<p>Holloway Gasification - Pyrolysis</p>	<ul style="list-style-type: none"> • All permits expected by December 2020 • Construction begins by Q3 2021 • ~200 miles from OCSD • Expansion opportunities (300 tpd ea.) 	<p>up to 100 tpd 4 trucks</p>	<p>~250-400 tpd 50-67% of OCSD tonnage</p> <p>Guaranteed tons, harder off-ramps, commissioning</p>

OCSD Biosolids Production:

6-day avg: up to 690 tpd, 27 trucks (current truck loading schedule);

7-day avg: up to 600 tpd, 24 trucks

BTC Next Steps



Biosolids Contracts and Options Timeline

Q2 2020

Q3 2020

Q4 2020

Q1 2021

Q2 2021

Q3 2021

Milestone Goals

BTC RFI
4/20

RFI
Results
to EMT
10/20

Contracts
12/2020

Board
Award
2/2021

Annual
Biosolids
Update
6/2022

Demo Projects
June 2021 - May 2026