AGENDA: 5

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Bay Area Alternative Fuels Projects

Stationary Source and Climate Impacts Committee Meeting
March 21, 2022

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Presentation Outcome

- Provide a brief overview of the two Bay Area refinery projects that will transition from producing petroleum products to alternative fuels
  - Marathon Martinez Refinery Renewable Fuels Project
  - Phillips 66 Rodeo Renewed
- Provide a status update of the two Air District permit applications

Presentation Outline

- Locations of Alternative Fuels Projects
- Origin of Petroleum and Alternative Feedstocks
- Difference between Renewable Diesel and Biodiesel
- Petroleum Refinery and Alternative Fuels Facility Processes
- Proposed Alternative Fuels Projects in the Bay Area
- Emissions Reduction
- Status Update and Estimated Timeline

Requested Action

- None – informational presentation

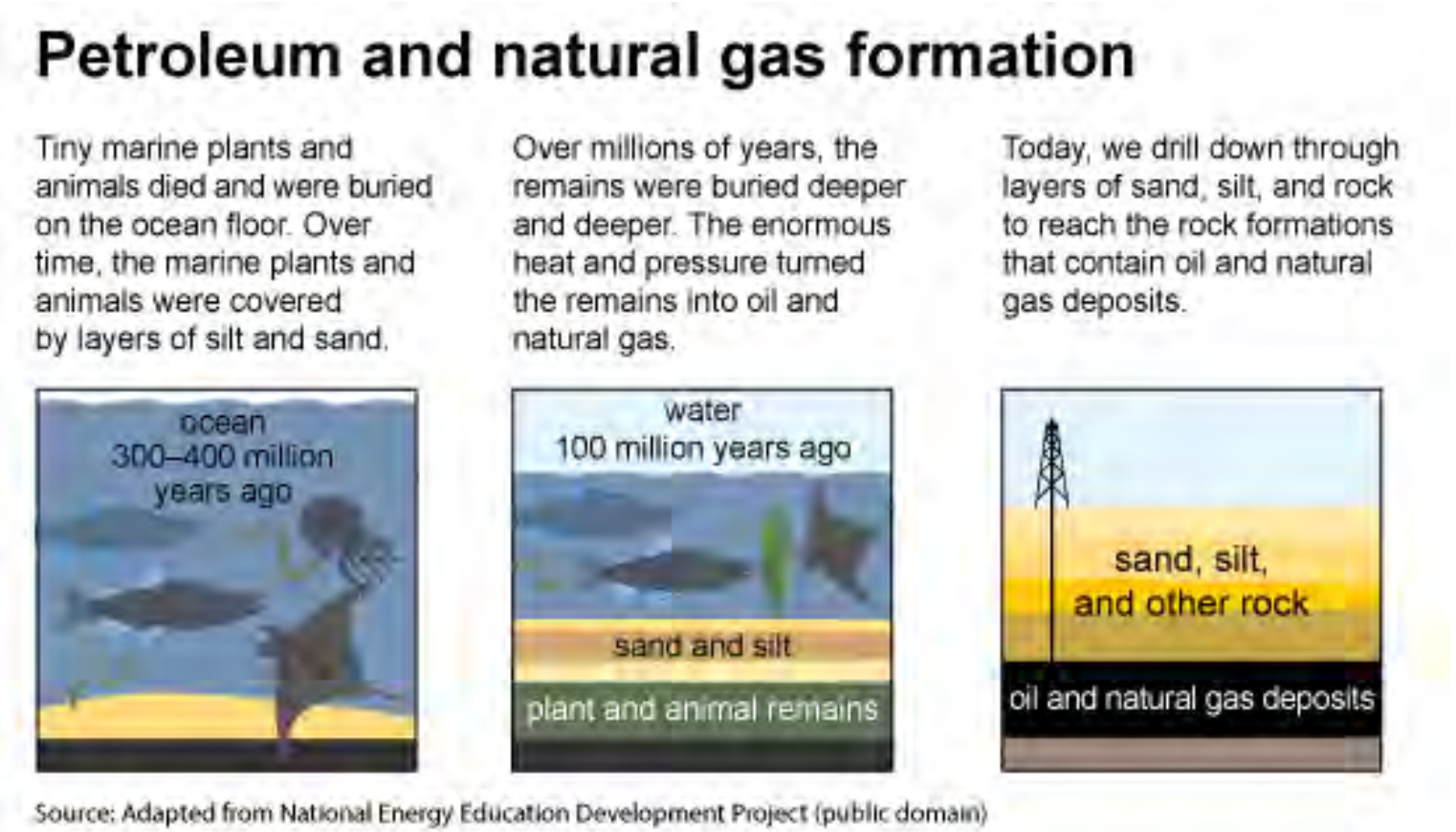
Locations of Alternative Fuels Projects

- Facility Locations
  - Phillips 66
    Rodeo, CA
  - Marathon
    Martinez, CA
    (Bulk Terminal Mode Only since April 2020)

Source: “Marathon Martinez Refinery.” 37°59’42.55”N 122°12’24.20”W. “Phillips 66 San Francisco Refinery.” 38°00’31.38”N 122°09’17.53”W. **Google Earth**. February 24, 2021. February 23, 2022.

Origin of Petroleum Feedstock

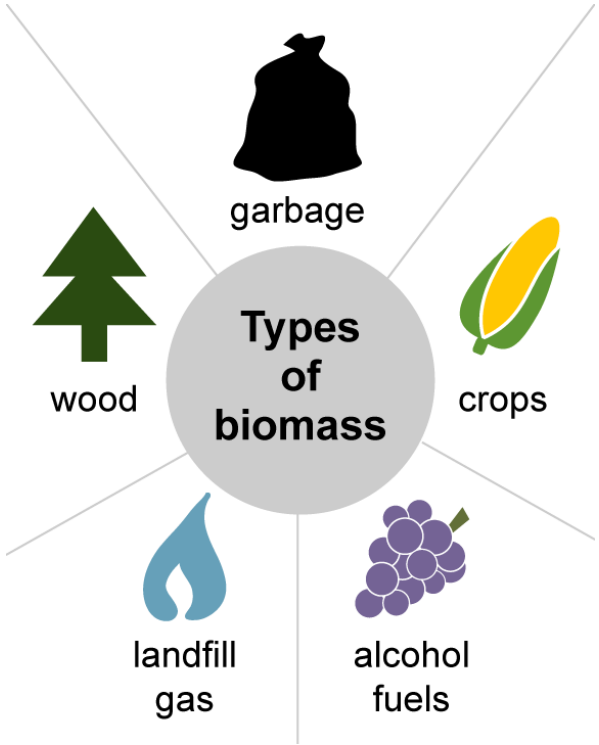
- Fossil Fuels, Crude Oil and Petroleum Products are from decayed organic materials.



Source: U.S. Energy Information Administration (public domain)

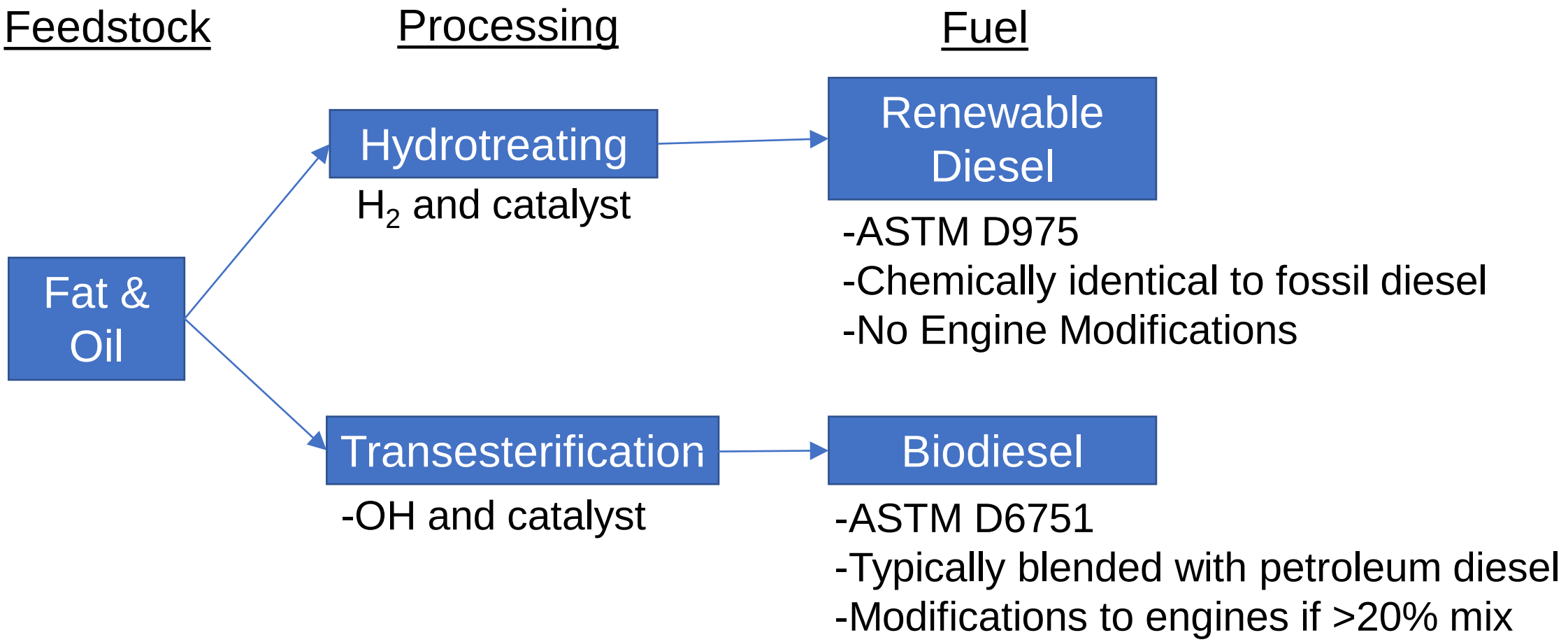
Origin of Alternative Feedstock

- Renewable diesel and biodiesel are derived from biomass feedstocks, such as vegetable oil, animal fat or waste oil.
- Biomass is renewable organic material that comes from plants and animals.

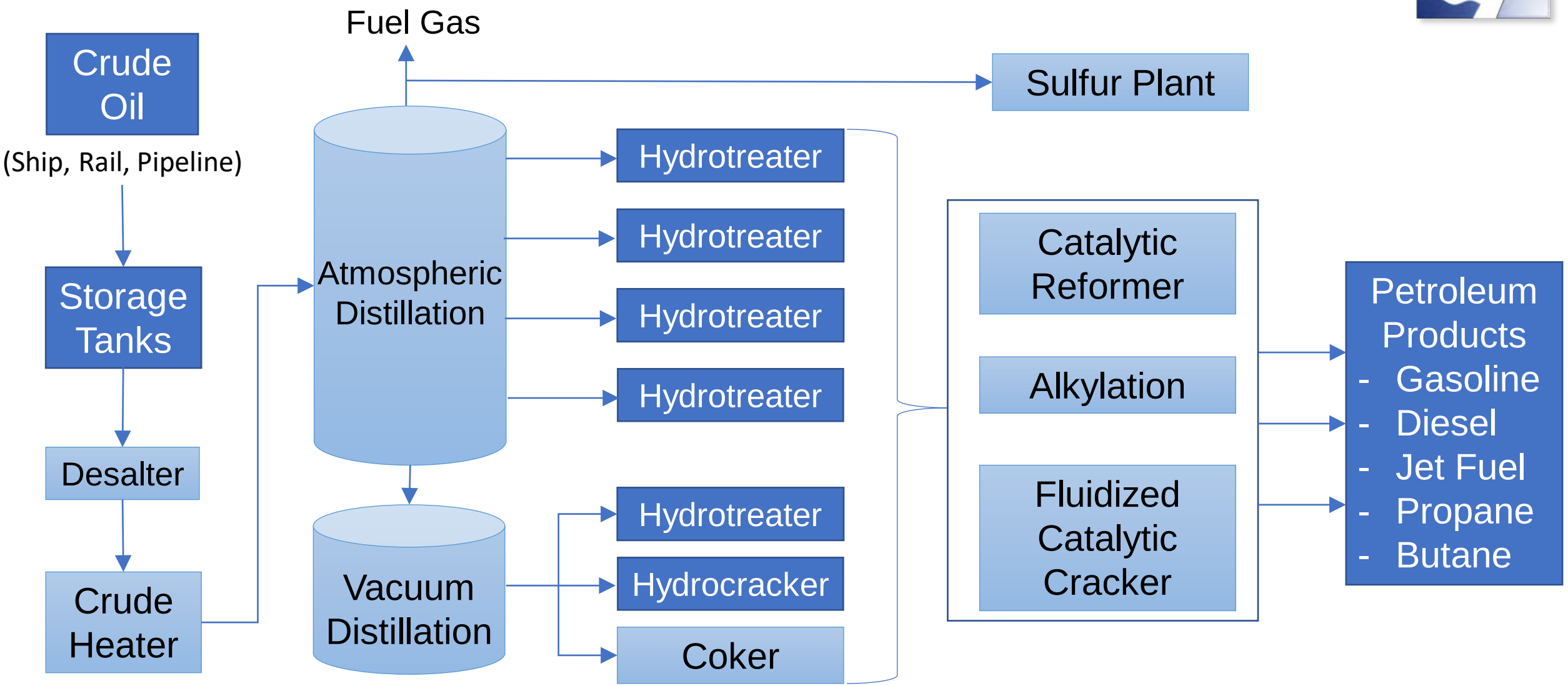


Source: U.S. Energy Information Administration (public domain)

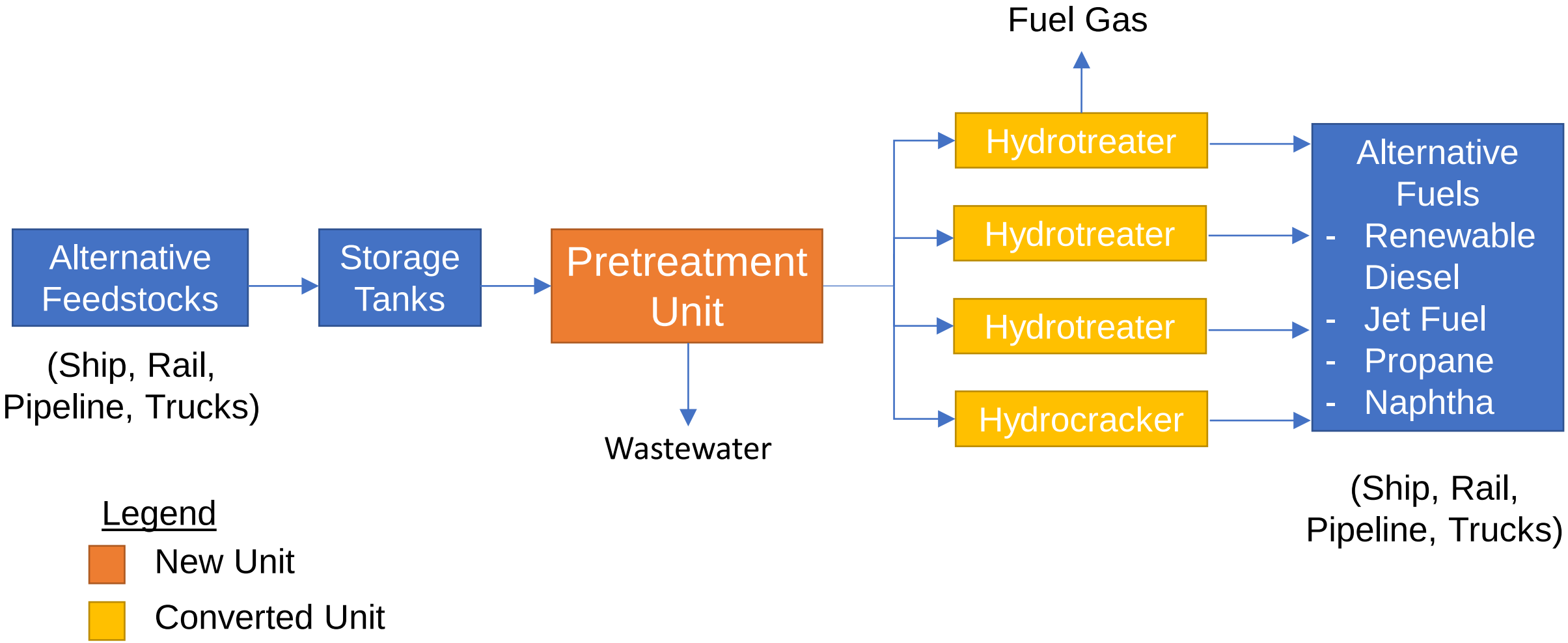
Renewable Diesel versus Biodiesel



Petroleum Refining Process



Alternative Fuels Process



Alternative Fuels Projects

	Marathon (Martinez, CA)	Phillips 66 (Rodeo, CA)
Existing Processing Capacity (Crude Oil)	161,000 barrels per day (bpd)	117,000 barrels per day (bpd)
Future Processing Capacity (Alternative Feedstock)	48,000 bpd (Annual Average)	69,000 bpd (Maximum)
Alternative Feedstocks	Soybean Oil Corn Oil Used Cooking Oil Other Vegetable Oil Rendered Fat (Tallow)	Soybean Oil Inedible Corn Oil Used Cooking Oil Other Vegetable-Based Oil Tallow, Canola Oil Fats/Oils/Grease
Alternative Fuels	Renewable Diesel Naphtha Propane	Renewable Diesel Naphtha Jet Fuel

Alternative Fuels Projects cont.

	Marathon (Martinez, CA)	Phillips 66 (Rodeo, CA)
Gasoline/Diesel Storage and Distribution	20,000 barrels per day	40,000 barrels per day
Notable Shutdown Sources	Fluidized Catalytic Cracking Unit Catalytic Reformer Unit Delayed Coker Unit Sulfuric Acid Plant Various Process Boilers/Heaters Various Cooling Towers/Flares	Crude Distillation Unit Carbon Plant Sulfur Plant Various Process Boilers/Heaters Santa Maria Plant: (Crude Unit, Coking Units, Sulfur Recovery Units)
New Units	Pretreatment Unit Wastewater Equipment Hydrogen Sulfide Adsorption Thermal Oxidizer	Pretreatment Unit Thermal Oxidizer Scrubber

Refinery Rules

Equivalent Refinery Requirements

- Amendments to Refinery Definitions adopted by the Board of Directors on November 3, 2021
- Continue to be subject to 21 Air District Regulations
- Reconsider the need for Rule 9-14 Petroleum Coke Calcining Operations for AB 617 Accelerated BARCT

Refinery Rules cont.

Regulation	Rule
Regulation 1: General Provisions and Definitions	-
Regulation 2: Permits	2-1, 2-2, 2-4, 2-5, 2-6
Regulation 3: Fees	-
Regulation 6: Particulate Matter	6-1, **6-5**
Regulation 8: Organic Compounds	**8-1,** 8-2, **8-5, 8-6, 8-7, 8-8, 8-9, 8-10, 8-18, 8-28, 8-33, 8-39,** 8-40, **8-44, 8-53**
Regulation 9: Inorganic Compounds	**9-1,** 9-8, 9-9, **9-10**
Regulation 10: Standards of Performance for New Stationary Sources	-
Regulation 11: Hazardous Pollutants	**11-10**, 11-12, 11-18
Regulation 12: Misc. Standards of Performance	**12-11, 12-12, 12-15**

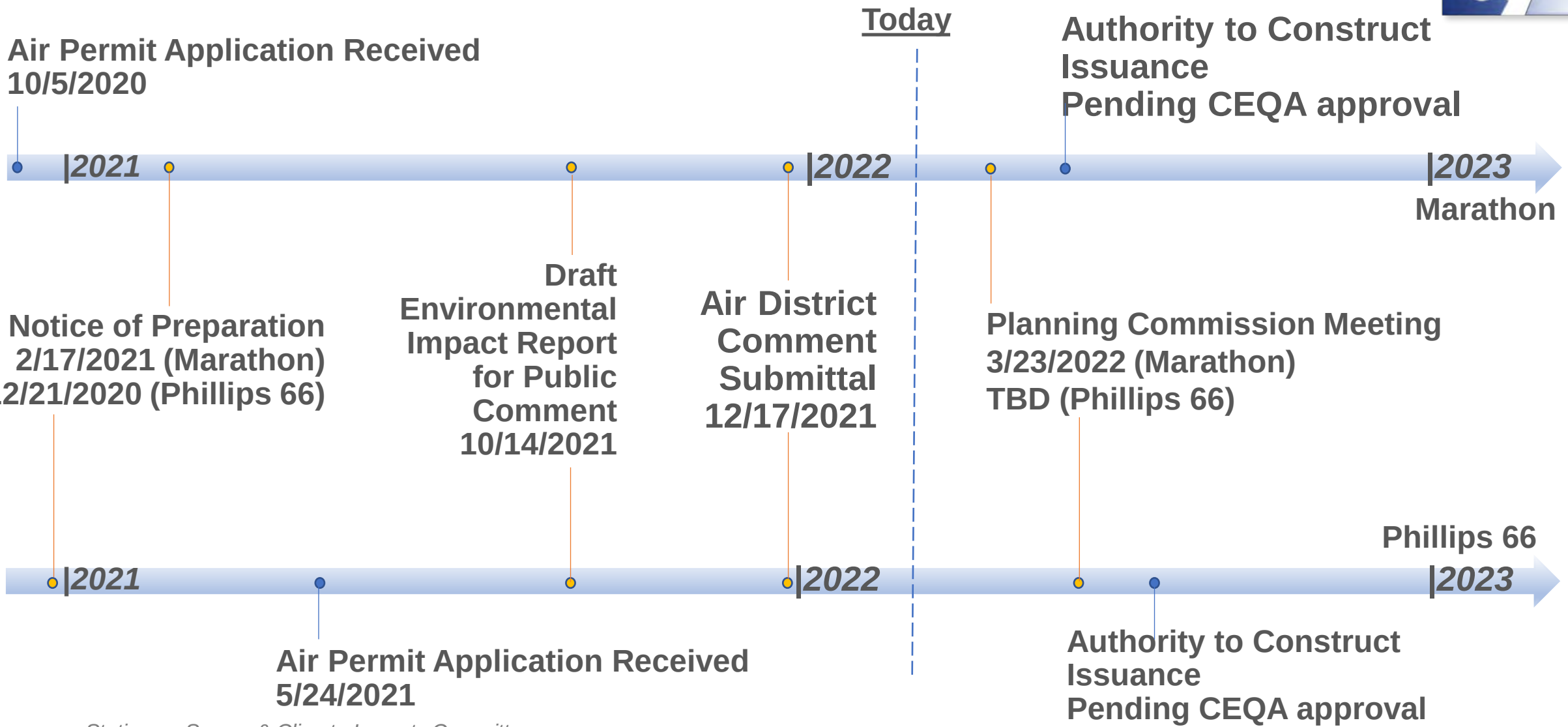
Bold - Amendments to Refinery Definitions adopted by the Board of Directors on November 3, 2021.

Estimated Emissions Reduction

	Marathon*	Phillips 66*
Nitrogen Oxides (NO_x)	76%	64%
Sulfur Dioxide (SO_2)	87%	79%
Carbon Monoxide (CO)	91%	51%
Precursor Organic Compounds (POC)	40%	7%
Particulate Matter (PM_{10})	88%	24%
Particulate Matter ($PM_{2.5}$)	88%	23%
Greenhouse Gas (GHG)	59%	20%

*Subject to Final CEQA and Air District Evaluations
(Source: Draft Environmental Impact Reports, October 2021)

Estimated Timeline



Questions or Feedback

AGENDA: 6

Major Stationary Source Community Air Monitoring (Schedule X)

Stationary Source and Climate Impacts Committee
March 21, 2022

Ila Perkins
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Presentation Outcome

- Understand background of Schedule X fee and status of monitoring in refinery fenceline communities

Presentation Outline

- Background
- Fee estimates and costs
- Developing stations
- Status update
- Next steps

Presentation Requested Action

- None. Informational only.

Background

2016: During Regulation 12, Rule 15 rulemaking, Air District committed to implementing enhanced air monitoring in refinery communities

- Purpose: establish air monitoring sites near refineries and other large stationary sources to make near-real time air pollution data and information about long-term trends available with context to fenceline communities

2016: Regulation 3 (Fees) Amendment

- Established a new fee schedule (X) to recover the costs associated with the Major Stationary Source Community Air Monitoring Program

Background (continued)

2017: State Law Assembly Bill (AB) 1647

- Required Air Districts to design, install, operate, and maintain a refinery-related community air monitoring system

Schedule X: Cost Estimates

Initial Fee Schedule Included:

- Cost of site construction
- Instrumentation
- Monitor operation, amortized over ten years

Total annualized cost of five stations over 10 years ~ $1.5 million

Initial Cost Estimates Did Not Include

- District staff time for station development and ongoing data validation and analysis
- Community engagement (stipends, language access, rental fees, facilitation services)
- Increased cost of property leases or construction over time

Phased Approach for Site Development

Siting

- Community input
- Assessment of preferred locations
- Site identification
- Leasing
- Site design & permitting

Construction

- Site construction & station setup
- Equipment procurement
- Equipment installation
- Equipment testing

Monitoring

- Begin monitoring
- Ongoing station maintenance
- Data quality assurance
- Data analysis & reporting

Considerations for Candidate Sites

Assessment of Preferred Locations

- Community input
- Proximity of the monitor to source(s) of air pollution
- Historical weather patterns and topography
- Existing air quality measurements or modeling data
- Proximity to sensitive populations and other environmental justice considerations

Site Identification and Lease

- Locate available properties
- Site infrastructure and logistics:
  - Access
  - Power
  - Telecommunications
  - Lease longevity
  - Siting feasibility
  - Presence of obstructions to air flow
  - Location of existing air monitors
  - Site safety
- Lease negotiation and permitting

Current Status – Benicia (Valero)

Siting

- ☑ Community input
- ☑ Assessment of preferred locations
- ☑ Site identification
- ☑ Leasing
- • Site design & permitting

Construction

- • Site construction & station setup
- • Equipment procurement
- • Equipment installation
- • Equipment testing

Monitoring

- • Begin monitoring
- • Ongoing station maintenance
- • Data quality assurance
- • Data analysis & reporting

Update: Air District formalizes approval for candidate location – early September 2021

Developing Stations – Community Engagement

Key Stakeholders

- Community Members & EJ Advocates
- Benicia Community Air Monitoring Program
- Air Watch: Bay Area
- City of Benicia Officials
- Benicia Fire Department
- Benicia Unified School District

Recent Community Engagement

- Co-developed a well-attended virtual workshop with community advocates
- Accessibility survey ensured equitable participation
- Refinery Stakeholder listserve
- Strong support from community partners
- Opportunities for improvement identified with community advocates

Current Status – Chevron, Marathon, PBF, Phillips 66

Siting

- ☑ Community input
- ☑ Assessment of preferred locations
- Site identification
- Leasing
- Site design & permitting

Construction

- Site construction & station setup
- Equipment procurement
- Equipment installation
- Equipment testing

Monitoring

- Begin monitoring
- Ongoing station maintenance
- Data quality assurance
- Data analysis & reporting

Feedback Requested

Questions and comments?