

Phillips 66 San Francisco Refinery tar sands expansion update—tars sands up, and a ‘new’ project component

CBE reported on the Phillips 66 Company’s project to expand the capacity to import and process tar sands oil at its San Francisco Refinery (SFR) in [early 2019](#). Now its tar sands imports are increasing drastically, and another part of its tar sands project appears to have been revealed.

Tar Sands Rising

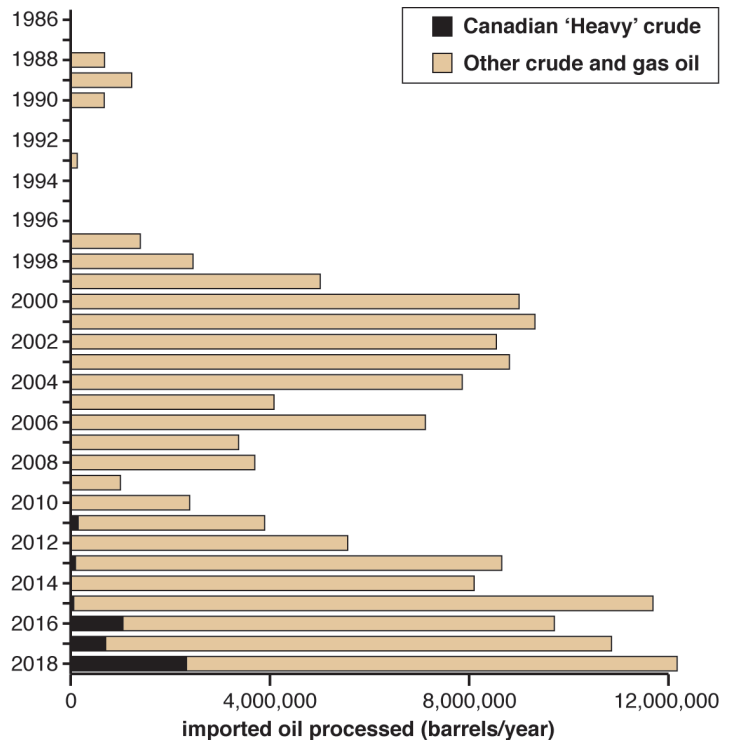
In 2018 the SFR imported and processed more than two million barrels of Canadian ‘Heavy’ crude.¹ Chart 1. Canadian Heavy ($\leq 25^\circ\text{API}$ and ≥ 2 wt. % sulfur) is primarily a ‘dilbit’ mix of diluent oils and bitumen from the Canadian tar sands. It grew to nearly 5% of the SFR’s total current capacity² by 2018. Chart 2.

Compared with the 158,000 barrels of this oil it refined during 2013–2015, during 2016–2018 the SFR refined 4,081,000 barrels of Canadian Heavy.¹ This means its three-year average tar sands oil refining volume grew over this period by a rate of nearly *25 times*.

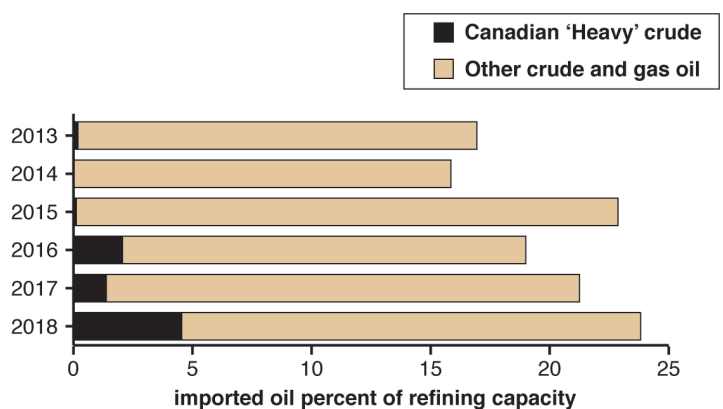
At this rate the Rodeo refinery could make a near-total switch to tar sands oil in another three years or less—but that would require expanding SFR tar sands oil import and refining capacities. Crucially, Phillips 66 has proposed several parts of this expansion, and now has revealed what appears to be a new component of its project

Diesel Hydrotreater Conversion

On 6 November 2019 Phillips 66 told investors it plans “to convert a diesel hydrotreater to run renewable feedstocks like soybean oils” at the SFR.³ Its management talked then about how this could take advantage of the Low Carbon Fuel Standard to boost profits.³ But this *also*



1. Foreign oil imports processed by the San Francisco Refinery from 1986–2018. Canadian Heavy: $\leq 25^\circ\text{API}$ and ≥ 2 % sulfur; is primarily diluted bitumen ‘tar sands’ oil. Data from USEIA imports: www.eia.gov/petroleum/imports/companylevel/archive.



2. Oil imports v. San Francisco Refinery Capacity, 2013–2018. Canadian Heavy: $\leq 25^\circ\text{API}$ and ≥ 2 % sulfur. Foreign imports from USEIA: www.eia.gov/petroleum/imports/companylevel/archive; total San Francisco Refinery capacity (140,000 barrels/day) from Phillips 66: www.phillips66.com/refining/san-francisco-refinery.

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San Francisco Refinery tar sands expansion update—continued

could help the SFR refine more tar sands oil, and refining biofuels has its own hazards.

Tar sands ‘dilbit’ has a notoriously low crude distillation yield of distillate-diesel. Chart 3. This means that a switch to tar sands could idle some of the diesel hydrotreating capacity at the SFR. So, to maximize profits while switching to tar sands dilbit, the SFR would need another hydrotreater feedstock. The refiner’s newly announced diesel hydrotreater conversion could help it switch to tar sands oil in this way.

Despite the green image, refining biofuels creates new hazards

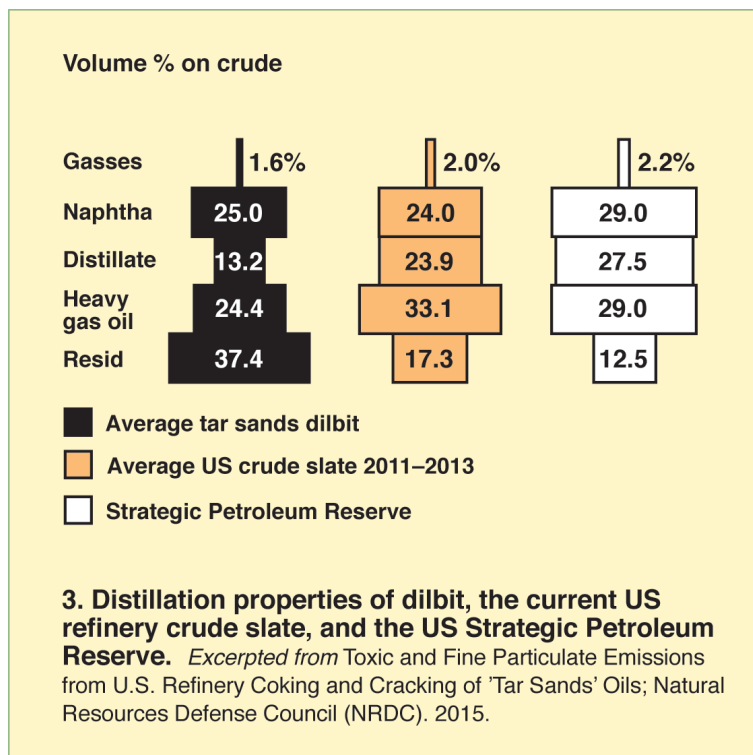
Climate: New investments in refining biofuels instead of in solar-electric vehicles risk carbon lock-in (continuing too much oil refining emissions for too long).

Health: Compared with maximum feasible reliance on solar and wind-powered electric vehicles, over-reliance on biofuels to meet our 2050 climate target could cause 9,300 air pollution deaths statewide each year.⁴

Safety: Introducing a new refinery feedstock introduces new hazards. The Nustar ethanol explosion incident pictured is a disastrous example that this is true for biofuels too.

References:

(1) U.S. Energy Information Administration, *Company Level Imports*; www.eia.gov/petroleum/imports/companylevel/archive. Downloaded 2 December 2019. (2) Phillips 66 Company, *San Francisco Refinery: Facts & Figures*; www.phillips66.com/refining/san-francisco-refinery. Accessed various dates through 3 December 2019. (3) Phillips 66 Company, *Transcript, Phillips 66 2019 Investor Day: Phillips 66 (NYSE: PSX), November 6, 2019 at 8:30 a.m. ET*. (4) Zhao, B., Wang, T., Jiang, Z., Gu, Y., Liou, K-N., Kalandiyur, N., Gao, Y., and Y. Zhu. Air Quality and Health Cobenefits of Different Deep Decarbonization Pathways in California. *Environmental Science & Technology* **2019** 53: 7163–7171. DOI: 10.1021/acs.est.9b02385.



Ethanol tank explosions and fire, Nustar Shore Terminals in Rodeo, October 15, 2019. Photo: Chris Riley, Times-Herald