



Parkland
FUEL CORPORATION

What Happens When the Lights Go Out?

November 2019



Presentation Overview

- Importance of electrical power supply to the refinery
- Typical causes of refinery power outages
- Power outage: now what?
- Flaring
- Post-outage refinery startup



The importance of the refinery's electrical power supply

- Just as you may experience power outages in your home, refineries also experience power outages
- Burnaby Refinery relies on a balanced energy supply of electricity and steam
- Refinery teams are trained to respond in the event of a power and/or steam supply disruption and there are robust safety procedures in place



Typical causes of refinery power outages

1. External Causes

- Power supply interruptions (e.g. wind storms, power blips, etc.)

2. Internal Causes

- Electrical equipment malfunctions
- Refinery unit electrical trips



Power outage: now what?

1. Safety systems activate as planned and expected (e.g. flaring)
2. Additional support staff, including incident response personnel, arrive on site as needed for support (available 24/7).
3. Refinery teams work to bring refinery units safely offline
4. Information Advisory is sent to regulators and our CAP members notifying them of the power outage
5. Refinery teams develop a plant startup plan
6. Community monitoring is conducted during the outage and subsequent start up.



Flaring

- The flare is our primary safety system
- During power outages, it may be required for refinery units to be safely depressurized and the gasses within the units are vented and combusted by the flare
- This process can result in elevated flaring (i.e. a more visible flame and sometimes audible venting)
- Wherever possible, unit start up is staged such that flaring is minimized





Post-outage refinery startup

1. Power is restored and source of failure is identified and resolved.
2. Pre-start up checks completed to ensure equipment is safe to re-start.
3. If impacted by the power outage, begin startup of utilities systems
4. Begin individual unit startup procedures. This could take a couple of hours to several days, depending on the number of units impacted by the outage and the unit conditions.
5. Technical staff complete unit “health checks” to ensure any long term risks are addressed.
6. Operations, maintenance and technical staff complete a review of the start up sequence and procedures to capture lessons learned and improvement opportunities are incorporated back into our processes.

