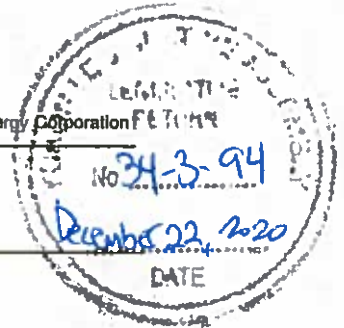


LEGISLATIVE RETURN

SUBMITTED BY: Hon. Mr. Pillai, Minister responsible for the Yukon Development Corporation and the Yukon Energy Corporation



- 1. On \_\_\_\_\_, (Member)
  - asked the following question during the Oral Question Period at page(s) \_\_\_\_\_ of Hansard
  - submitted the following written question – WQ No. \_\_\_\_\_
  - gave notice of the following motion for the production of papers – MPP No. \_\_\_\_\_

RE: \_\_\_\_\_

OR

- 2. This legislative return relates to a matter outstanding from discussion with Mr. Kent, Member for Copperbelt South on December 15, 2020 related to:
  - Bill No. \_\_\_\_\_  Second Reading  Third Reading
  - Committee of the Whole: YEC Witness
  - Motion No. \_\_\_\_\_ RE: the detailed analysis of fuel choices considered for the 20 megawatt thermal facility
  - at page(s) 2410 of Hansard.

The response is as follows:  
Information pieces that show the results of that analysis are included as attachments to this return.

December 17, 2020  
Date

Signature

# fuel options

	LNG	diesel	dual-fuel <i>only available at our diesel plant location</i>
<b>environmental considerations</b>	<ul style="list-style-type: none"> <li>• Lower emissions (GHG, particulate matter, NOx)</li> <li>• Harder to use with integration of future intermittent renewables</li> <li>• Lower environmental effects of spills</li> </ul>	<ul style="list-style-type: none"> <li>• Higher emissions (GHG, particulate matter, NOx)</li> <li>• Better suited to future integration of intermittent renewables</li> <li>• Higher environmental effects of spills to land and water</li> </ul>	<ul style="list-style-type: none"> <li>• Medium emissions (GHG, particulate matter, NOx)</li> <li>• Harder to use for future integration of intermittent renewables</li> <li>• Higher impacts of spills to land and water (diesel)</li> </ul>
<b>social considerations</b>	• No fuel-specific considerations		
<b>economic considerations</b>	<ul style="list-style-type: none"> <li>• Potential for project investment by First Nations as an alternative energy project</li> </ul>	• None	<ul style="list-style-type: none"> <li>• Does not require new infrastructure to store LNG; can use existing storage</li> </ul>
<b>operational considerations</b>	<ul style="list-style-type: none"> <li>• Higher safety requirements</li> <li>• More complex to operate</li> <li>• More complex logistics and operations required for fuel transportation, storage and handling</li> <li>• Responds slowly to changes in load</li> </ul>	<ul style="list-style-type: none"> <li>• Less complex to operate</li> <li>• Responds quickly to changes in load</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility to run on both LNG and diesel reduces fuel price and availability risk</li> <li>• Start-up characteristics of diesel; running characteristics of natural gas</li> </ul>
<b>technical considerations</b>	<b>LNG</b>	<b>diesel</b>	<b>dual-fuel</b>
INSTALLED CAPACITY		20 MW	
PROJECT LIFE		40 years	
LEAD TIME		3.5 years	
AVAILABILITY		greater than 95%	
RELIABILITY		greater than 98%	
START-UP CAPABILITY	slow	fast	fast
RAMP RATE	slow	fastest	fast

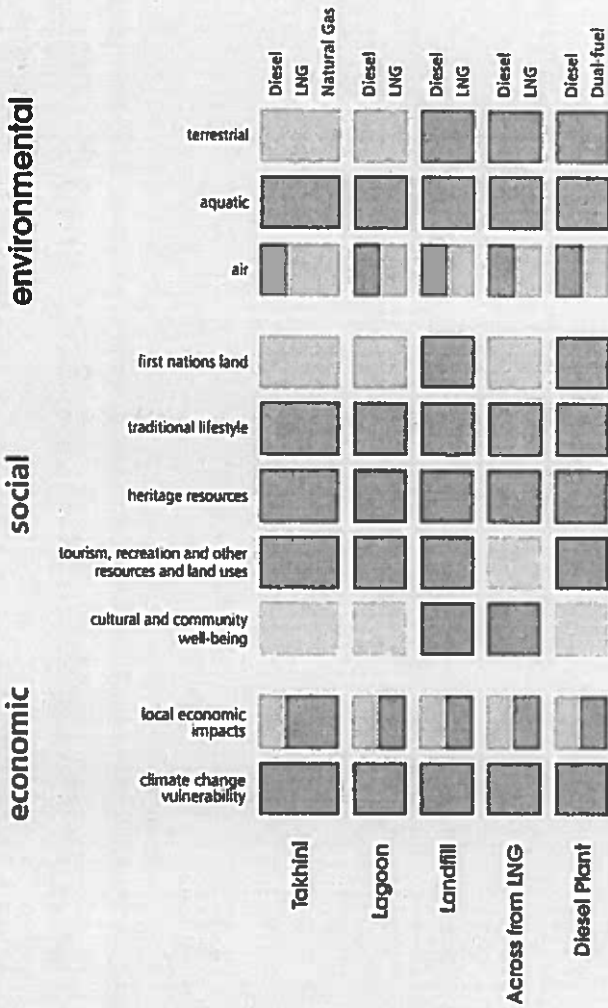
## rented generators

- Lower reliability
- Only available during winter months
- Future availability of rental units uncertain
- Uncertain future rental costs; costs may increase over the life of the plant
- Lower construction costs; higher operating costs

## owned generators

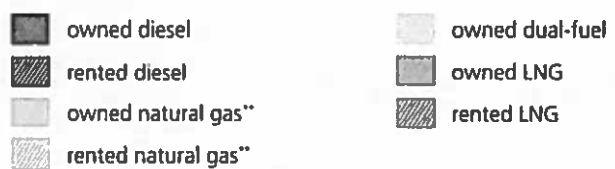
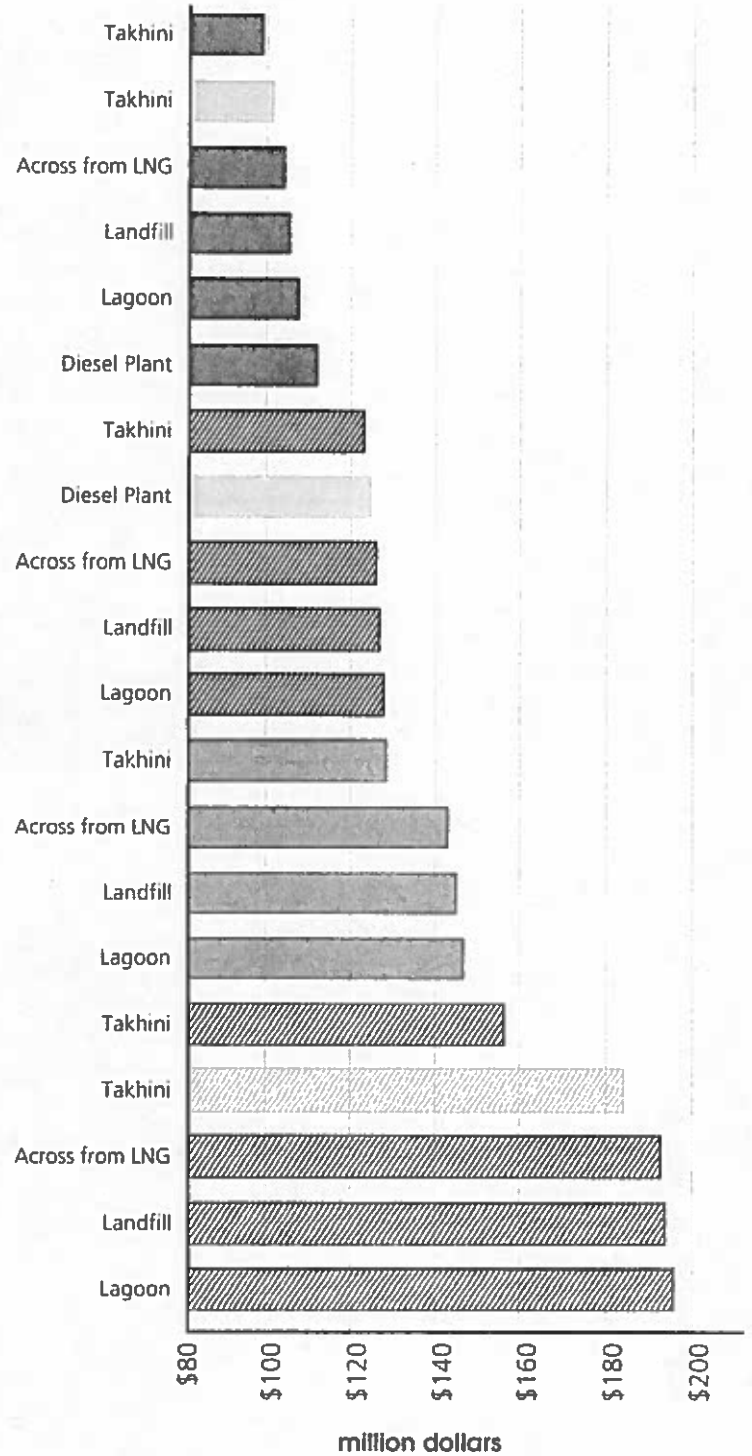
- Higher reliability
- Available year-round
- Higher cost certainty
- Higher construction costs; lower operating costs

# impact comparison



# cost comparison

total cost of ownership (40 years)\*



\*-15% / + 50%  
 \*\*only feasible if third-party LNG depot is built