



Natural Resources  
Canada

Ressources naturelles  
Canada

November 7, 2016

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**Subject: Draft Environmental Impact Statement (EIS) Guidelines for the Pacific Future Energy Refinery Project, proposed by Pacific Future Energy Corporation**

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Please find attached Natural Resources Canada's (NRCan) response to the Canadian Environmental Assessment Agency's (CEA Agency) request to provide comments on the Pacific Future Energy Refinery Project Draft EIS Guidelines.

NRCan is providing comments that relate to technical information that may be required for our review of this project, that fall within our mandate, specifically:

- Seismicity
- Geohazards and landslides
- Bitumen properties and behaviours in collaboration with ECCC
- Air quality (venting, flaring, fugitive emissions) and validation on estimates in collaboration with ECCC
- Bitumen upgrading and refining process

NRCan would like to highlight the importance that other than for fuel combustion emissions, refinery process emissions will include GHG and pollutants from processes, venting, flaring and fugitive equipment leaks and the scope of any air emissions assessment should be entirely within the context of emissions that such a facility will be required to report to the federal government National Pollutant Release Inventory (NPRI) and the National GHG Reporting Regulations for facilities emitting more than 50,000 tonnes of carbon dioxide equivalent emissions per year.

If you have any questions or require clarification on our comments please feel free to contact me at <contact information removed>.

Sincerely,

<Original signed by>

Veronica Mossop  
Environmental Assessment Officer  
Office of the Chief Scientist

**Canada** 

# Natural Resources Canada's Comments in relation to the Draft EIS Guidelines for the Pacific Future Energy Refinery Project

November 7, 2016

## Part 1 – Key Considerations

### Section 3.2 Factors to be considered

#### 10<sup>th</sup> bullet

[Add:]

- an estimate of upstream **pollutant and** greenhouse gas emissions that are linked to the project. This information should be presented by individual pollutant, **and individual greenhouse gas emissions** should be summarized in CO2 equivalent units per year; and

## Part 2 – Content of the Environmental Impact Statement

### Section 3.2.2 Operation

#### 1<sup>st</sup> bullet

[Remove:]

- ~~refinery plan, fuel production, fuel stockpiling, diluant production and use;~~

[Add:]

- refinery plan, fuel production slate (all types of fuel products and their production capacities/quantities (m<sup>3</sup>/day) under normal operation), fuel products use and consumption, stockpiling of each fuel product, diluent recovery, production and use;

#### 2<sup>nd</sup> bullet

[Remove:]

- ~~water management on the Project site including storm water, process water, wastewater, water recycling and effluent treatment (quantity, treatment requirements, release point(s));~~

[Add:]

- water management on the Project site including a description of:
  - volume and quality of all water that enters the site (e.g. runoff, imported water);
  - process schemes / diagrams for water import, storage, use, recycle, treatment, and disposal (if not already described in Section 3.1 Project components);
  - process water quality and quantity used per month or year including amount recycled;

- water volume and quality stored on site;
- effluent volumes, quality, treatment requirements and methods and disposal methods of all associated waste streams or products including volumes and quality of disposal streams;

**Between 3<sup>rd</sup> and 4th bullet**

[Add new bullet:]

- GHG and pollutant substance atmospheric emissions contributions and profiles (i.e., type, source and rate) from all described refining processes, carbon capture process(es), power generation, venting, flaring, and fugitive equipment leaks;

**4<sup>th</sup> bullet**

[Add:]

- air quality management including emissions from all described refining processes, carbon capture process(es), power generation, venting, flaring, and fugitive equipment leaks;

**5<sup>th</sup> bullet**

[Remove:]

- ~~contribution to atmospheric emissions, including emissions profile (type, rate and source);~~

**Section 6.1.1 Atmospheric Environment**

**1<sup>st</sup> sub-bullet**

[Add:]

- emissions of each VOC species should be specified individually;

**Section 6.1.2 Geology and geochemistry**

[Add:]

- the surficial geology deposits, types, characteristics and distribution including surficial geology maps, borehole stratigraphy and cross sections every half kilometer down valley from site to terminal at appropriate scale. The cross sections should be able to provide relevant details.

**3<sup>rd</sup> bullet**

[Add to sub-bullets:]

- if available, history of flooding in the area, frequency/magnitude tables, impact zones, flood zone mapping;

- Holocene flood history, dated chronology of events, diagrams and cross sections of flood deposits;
- landslide susceptibility maps, frequency/magnitude tables for slope failures in the area, radiocarbon age of events tables;
- hazard risk maps;
- tsunami (seismic) and displacement wave (landslide) Holocene deposit mapping, associated risks, deposit maps, section diagrams and photographs along marine coastal area, frequency/magnitude tables.

## Section 6.2.1 Changes to the Atmospheric Environment

### 1<sup>st</sup> bullet

[Add:]

- The proponent will carry out atmospheric dispersion modelling of the main contaminants identified in Section 6.1.1 in order to estimate the contaminant [...]

### 2<sup>nd</sup> bullet

[Add:]

- a description of all methods and practices (e.g., control equipment, heat or gas recovery systems) that will be implemented to minimize and control atmospheric emissions (i.e., greenhouse gas and pollutants) throughout the project life cycle [...]

### 3<sup>rd</sup> bullet

[Add:]

- an estimate of the direct greenhouse gas and pollutant emissions associated with all phases of the Project as well as any mitigation measures proposed to minimize greenhouse gas and pollutant emissions. This information is to be presented by individual pollutant and greenhouse gas emissions should also be summarized in CO2 equivalent per year [...]

### 1<sup>st</sup> sub-bullet

[Add:]

- an estimate of the contribution of the Project greenhouse gas and pollutant emissions at the local, provincial and federal scale. The proponent must indicate the category into which the Project falls in terms of the relative magnitude of its contribution to greenhouse gas and pollutant emissions (Project with low, medium or high emission rates);

### 2<sup>nd</sup> sub-bullet

[Add:]

- a greenhouse gas and pollutant emissions management plan providing a description of the potential for fugitive greenhouse gas and pollutant emissions and the methods used to detect and repair leaks in the refinery and associated infrastructure;

### **Section 6.6.1 Effects of potential accidents or malfunctions**

[Add:]

The failure of certain works caused by human error or exceptional natural events (e.g. flooding, earthquake, forest fire, tsunami) could cause major effects.

### **Section 6.6.2 Effects of the environment on the Project**

[Add:]

[...] natural hazards, such as severe and/or extreme weather conditions and external events (e.g., flooding, drought, ice jams, landslides, avalanches, erosion, subsidence, fire, outflow conditions, tsunami and seismic events) [...]