



# talk about north west upgrading/CNRL refinery

February 2011

## North West Upgrading/CNRL Refinery

- North West Upgrading/CNRL Refinery will construct a 150,000 barrels-per-day (bpd) refinery in Alberta's Industrial Heartland. The facility, to be built three stages, will include the application of newer technologies and an integrated carbon capture and storage capability to reduce carbon dioxide (CO<sub>2</sub>) emissions. Once completed, up to 75,000 barrels per day of royalty in-kind-bitumen will be supplied by the province for refining. The refined products will then be sold to meet domestic and export market demand.
- The first phase will process 37,500 bpd of Crown royalty bitumen and 12,500 bpd of bitumen supplied by Canadian Natural Resources Limited (CNRL) for a total of 50,000 bpd
- The refinery will be owned by a 50/50 partnership between North West Upgrading and Canadian Natural Upgrading Limited, a subsidiary of CNRL.
- The refinery will process and market bitumen from the Alberta Petroleum Marketing Commission (APMC) on behalf of the Crown.
- The North West Upgrading/CNRL Refinery will process APMC and CNRL bitumen and diluent for

a term of 30 years, with options for APMC and CNRL to extend beyond 30 years under a different profit sharing arrangement.

- The refinery will have carbon capture technology fully implemented from day one – an opportunity to further decrease the environmental footprint of oil sands development.
- Products from the first phase include:
  - **ultra low sulphur diesel** - a clean burning diesel fuel that is defined by Environment Canada to have a maximum sulphur content of 15 parts per million.
  - **naphtha** - a very strong and multipurpose solvent which can be used in laundry soaps and cleaning fluids. The product is also used to make varnish, to fuel camping cook stoves and lamps, and in the processing of fuels such as gasoline and kerosene.
  - **diluent** - a hydrocarbon fluid used to dilute heavy oil, allowing it flow easier for better transportation.
  - **CO<sub>2</sub>** (3,500 tonnes per day) - used for enhanced oil recovery.

(NOTE: CO<sub>2</sub> can be injected into depleted oil reservoirs which dissolve into the residual oil in place, lowering the viscosity of the oil. The lower viscosity enables the oil to flow more easily, which makes it possible to extract more oil from reservoirs.)

