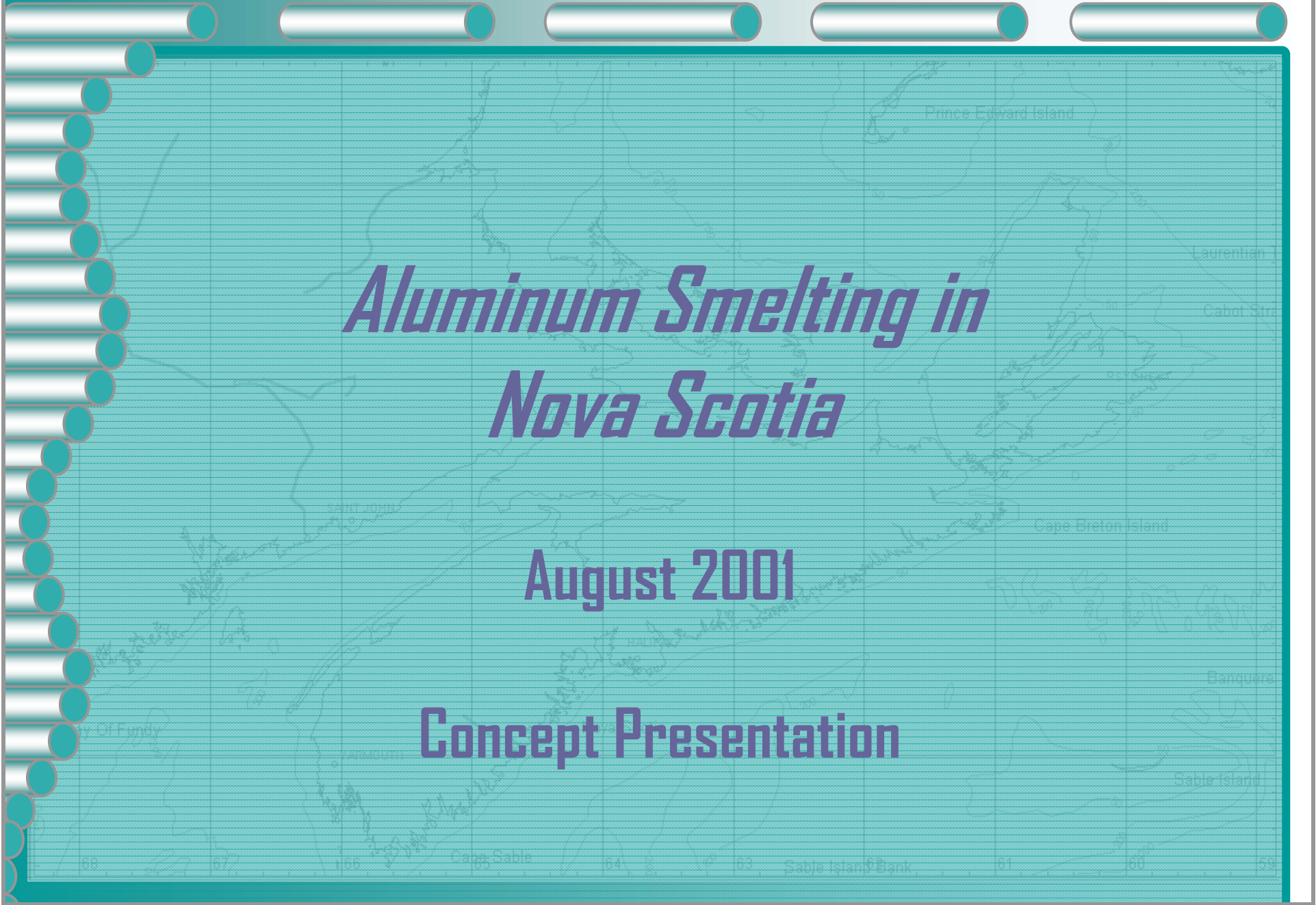




***Aluminum Smelting in
Nova Scotia***

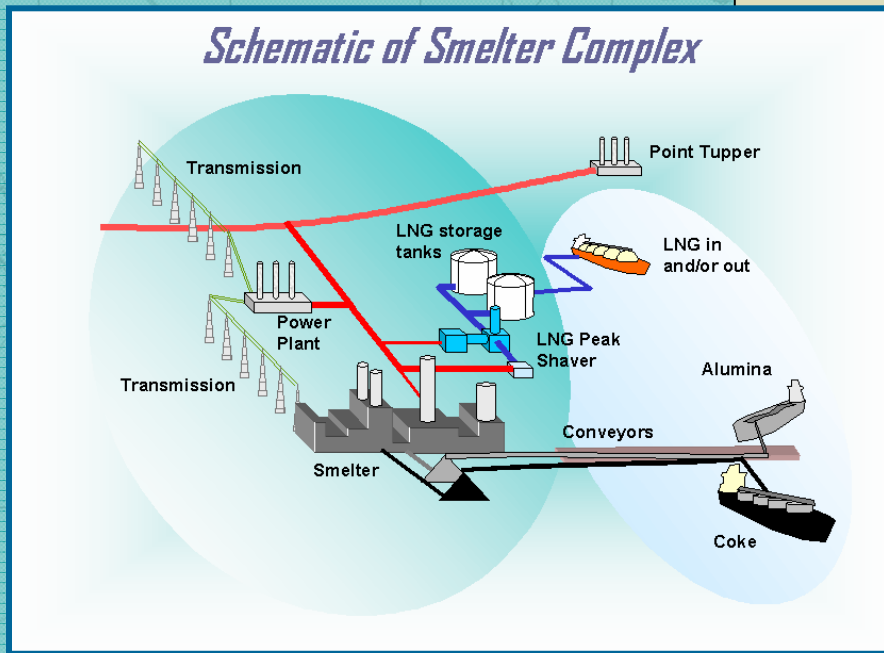
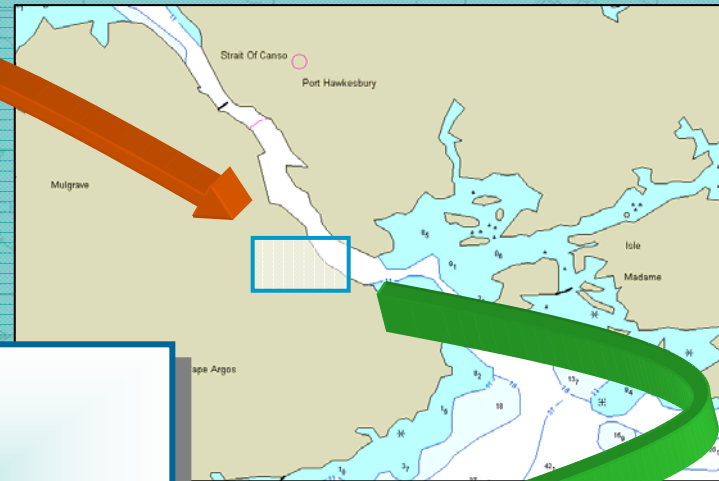
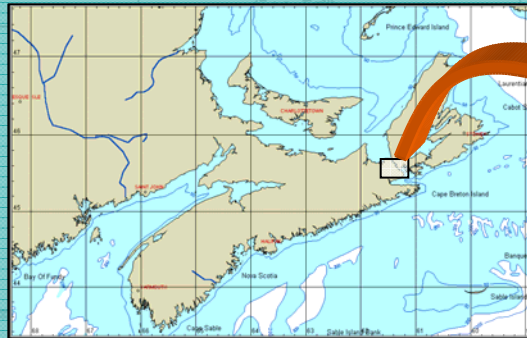
August 2001

Concept Presentation





Concept Placement and Layout





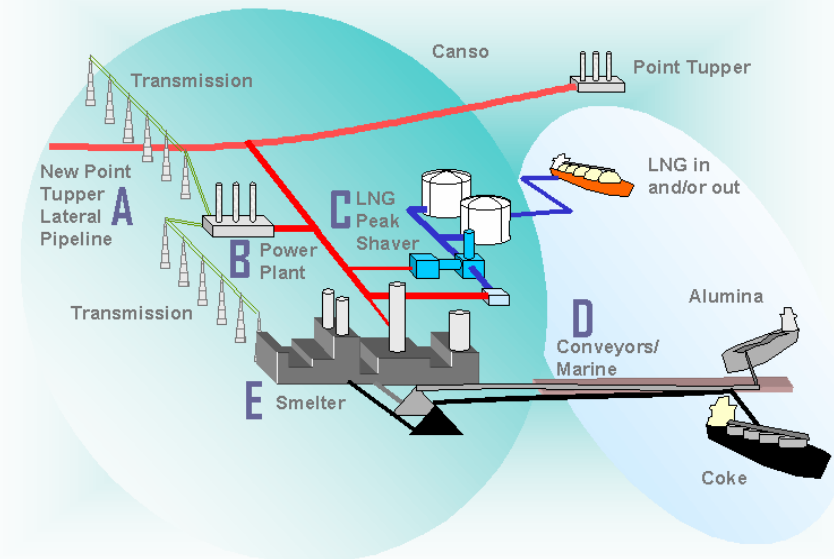
Concept Economics

Economic Analysis

The following cost and profit centres have been selected

- A - Pipeline Lateral
- B - Power Plant
- C - LNG Peak Shaving Plant
- D - Marine Infrastructure
- E - Smelter

Schematic of Smelter Complex





Concept Economics

A - New Point Tupper Lateral

Capital cost elements

Cost Breakdown*

		PER KM COST CAD	UNIT	UNIT COST CAD	
PROJECT MANAGEMENT					
COMPANY COSTS		3500	KM		
ENGINEERING	(35000 orig)	17500	KM		
QA/QC		3500	KM		
PERMITTING	(7000 orig)	3500	KM		
SURVEYS	(2000 orig)	0	KM		
ROW ACQUISITION	(15000 orig)	0	KM		
PROCUREMENT/CONSTRUCTION MNGT		3500	KM		
MATERIALS					
LINE PIPE					
COATING				750	INCH KM
CATHODIC PROTECTION		4000	KM		
PIG LAUNCHER				250	INCH KM
BLOCK VALVES				750	INCH KM
SCADA		1000	KM		
PIG RECEIVER/REGULATOR/METERING				750	INCH KM
CONSTRUCTION					
CIVIL CONSTRUCTION SPREAD	(350000 orig)	300000	KM		
PIPE HANDLING/WELDING				5000	INCH KM
SCADA INSTALLATION		2000	KM		
COMMISSION/START-UP		2500	KM		
TOTAL PER KM COST		341000			
TOTAL INCH DIA PER KM COST				7500	

* Figures based on estimated new-build gas distribution costs in Newfoundland



Concept Economics

A - New Point Tupper Lateral

Capital cost summary

Point Tupper Lateral Replacement Costs

DIA INCH	THK INCH	MASS TONNE/KM	LINEPIPE COST PER KM CAD	OTHER PER KM COST CAD	FIXED PER KM COST CAD	TOTAL PER KM COST CAD	PLUS 10% CONTING. CAD	LENGTH km	COST mmCAD	COST mmUSD 0.65
20	0.31	97.92	117509	150000	341000	608509	669360	55	36.8	23.9
18	0.28	79.32	95182	135000	341000	571182	628301	55	34.6	22.5
16	0.25	62.67	75206	120000	341000	536206	589826	55	32.4	21.1
14	0.22	47.98	57579	105000	341000	503579	553937	55	30.5	19.8
12	0.18	35.25	42303	90000	341000	473303	520634	55	28.6	18.6
10	0.15	24.48	29377	75000	341000	445377	489915	55	26.9	17.5



Concept Economics

A - New Point Tupper Lateral

Business case study

New Point Tupper Lateral

Assumptions				
Price at Goldboro	USD/mscfd	\$		2.00
Pipeline Capital Cost	mmUSD	\$		23.93
Throughput	mmscfd		90	
PipelineTarrif	USD/mscfd	\$		0.40

Operating Costs*			
Element A	mmUSD		
Element B	mmUSD		
Element C	mmUSD		
Total Operating per annum		\$	10.00

* Details not available

Pay	IRR (22 yrs)	
		11%

year	Capital break %	Capital cost mmUSD	Operating cost mmUSD	Throughput mmscf/year	Revenue mmUSD	Cash flow
1	1	\$0.24	\$0.00	0	\$0.00	-\$0.24
2	9	\$2.15	\$0.00	0	\$0.00	-\$2.15
3	40	\$9.57	\$0.00	0	\$0.00	-\$9.57
4	50	\$11.96	\$0.00	0	\$0.00	-\$11.96
5	0	\$0.00	\$10.00	32850	\$13.14	\$3.14
6	0	\$0.00	\$10.00	32850	\$13.14	\$3.14
7	0	\$0.00	\$10.00	32850	\$13.14	\$3.14
25	0	\$0.00	\$10.00	32850	\$13.14	\$3.14

IRR = 11%

NOVA ALUMINIUM[®] - Nova Atlantic Aluminium Limited



Concept Economics

B - New Combined Cycle Gas-Fired Power Plant

Power Plant

600 MW

Assumptions	Fuel cost	mscfd	\$	2.40
	Capital Cost	mmUSD	\$	260.00
	Throughput/MW	mmscfd/MW		0.166666667
	Price per KWH	USD/KWH		0.026
Operating*	Capacity Factor			90.00%
	Production rate	MW		540
	Gas Consumption	mmscfd/MW		90
	Fuel cost/annum	mmUSD	\$	78.84
	Oper. cost/annum	mmUSD	\$	10.00

* Requires checking

Pay **IRR** **11%**

year	Capital brea. %	Capital cost mmUSD	Operating cost mmUSD	Production KWH	Revenue mmUSD	Cash flow
1	10	\$26.00	\$0.00	0	\$0.00	-\$26.00
2	40	\$104.00	\$0.00	0	\$0.00	-\$104.00
3	50	\$130.00	\$0.00	0	\$0.00	-\$130.00
4	0	\$0.00	\$88.84	\$ 4,730,400,000.00	\$122.99	\$34.15
5	0	\$0.00	\$88.84	\$ 4,730,400,000.00	\$122.99	\$34.15
6	0	\$0.00	\$88.84	\$ 4,730,400,000.00	\$122.99	\$34.15
24	0	\$0.00	\$88.84	\$ 4,730,400,000.00	\$122.99	\$34.15
25	0	\$0.00	\$88.84	\$ 4,730,400,000.00	\$122.99	\$34.15
					IRR =	11%



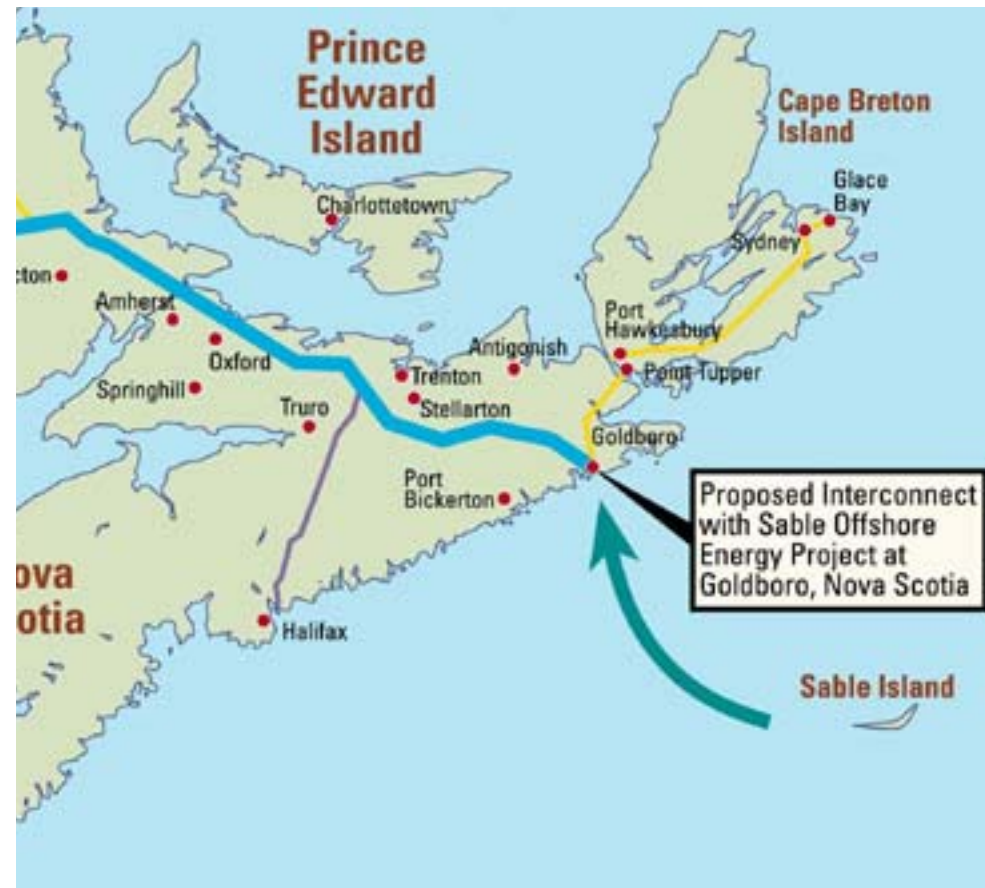
Notes

The Point Tupper Lateral Pipeline is a approximately 59 km in length and includes associated metering, control and pressure regulation facilities. The first 55 km of the pipeline, from the main pipeline, is 8" in diameter and was installed at the same time as the Sable Offshore Energy Inc. natural gas liquids pipeline. The remaining 4 km of the pipeline is 6" in diameter.

On August 10, 2000, M&NP received Leave to Open the Point Tupper Lateral from the National Energy Board. The Leave to Open was granted on the condition that the line operate at a maximum of 4710 kPa or approximately 50 percent of the originally applied for maximum operating pressure.

Discussions are now taking place with pipeline builder, Sable Offshore Energy Inc. regarding transfer of ownership of the pipeline. In addition, an application to the National Energy Board to construct a pressure reducing facility to limit the pressure in the lateral to a maximum of 4710 kPa was submitted on Friday, September 29, 2000.

At 4710 kPa, M&NP will be able to ship 28,610 MMBtu/day on the Point Tupper Lateral. Current firm service contracts with customers total 15,600 MMBtu/day, leaving approximately 45% of the pipeline capacity for future contracted supply





Notes

Location Map



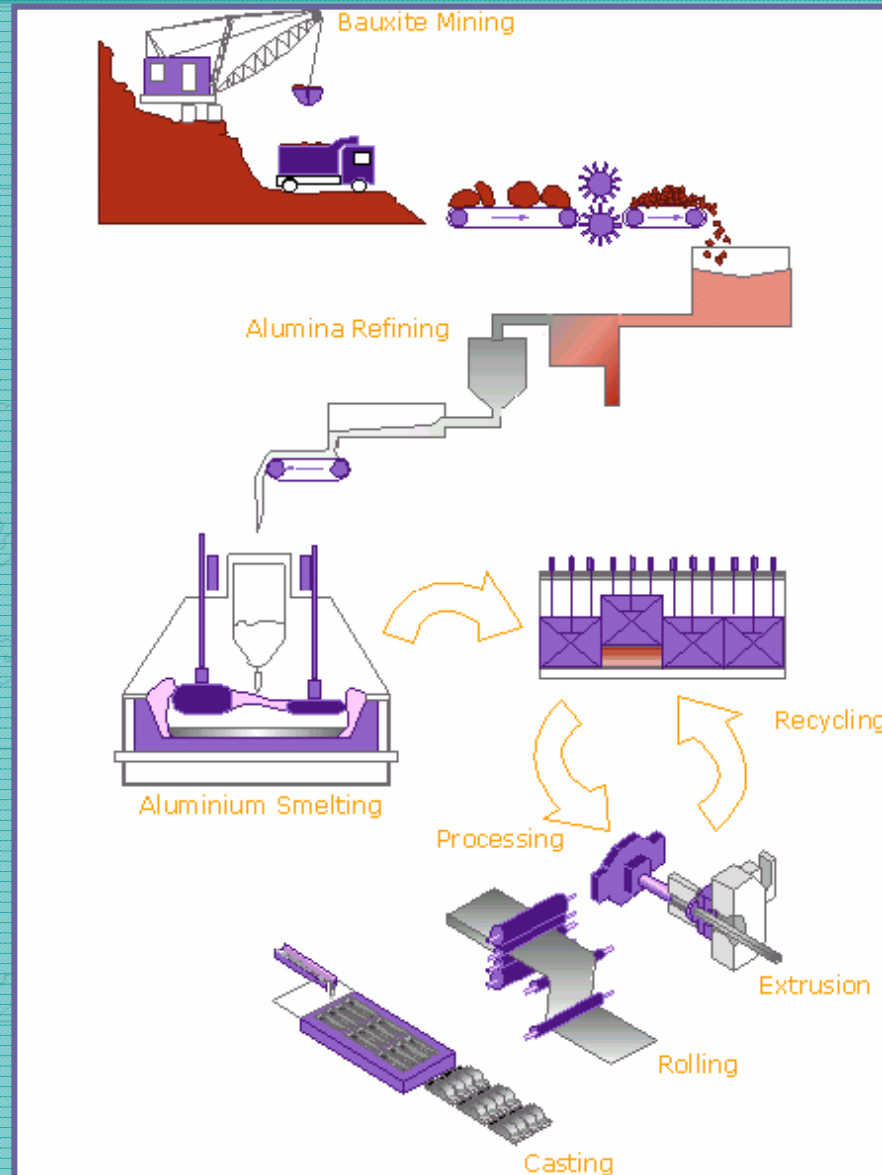
Mulgrave Marine Industrial Park

- 54 acres (about 32 acres available)
- the park is 175 miles (282km) from Halifax; 215 miles (346km) from Moncton, NB
- no rail service; The Strait of Canso Harbour (5 miles/8km away) is the nearest ice-free deep-water seaport; the nearest airport is the Port Hawkesbury Municipal Airport, with a 5,000-foot runway.
- Land sells for \$12,000 to \$14,000 Cdn per acre.



Notes

Aluminum Smelting Basics Processes



Laurentian

Cabot Str.

Banquere

Sable Island



Notes

Aluminum Smelting Basics

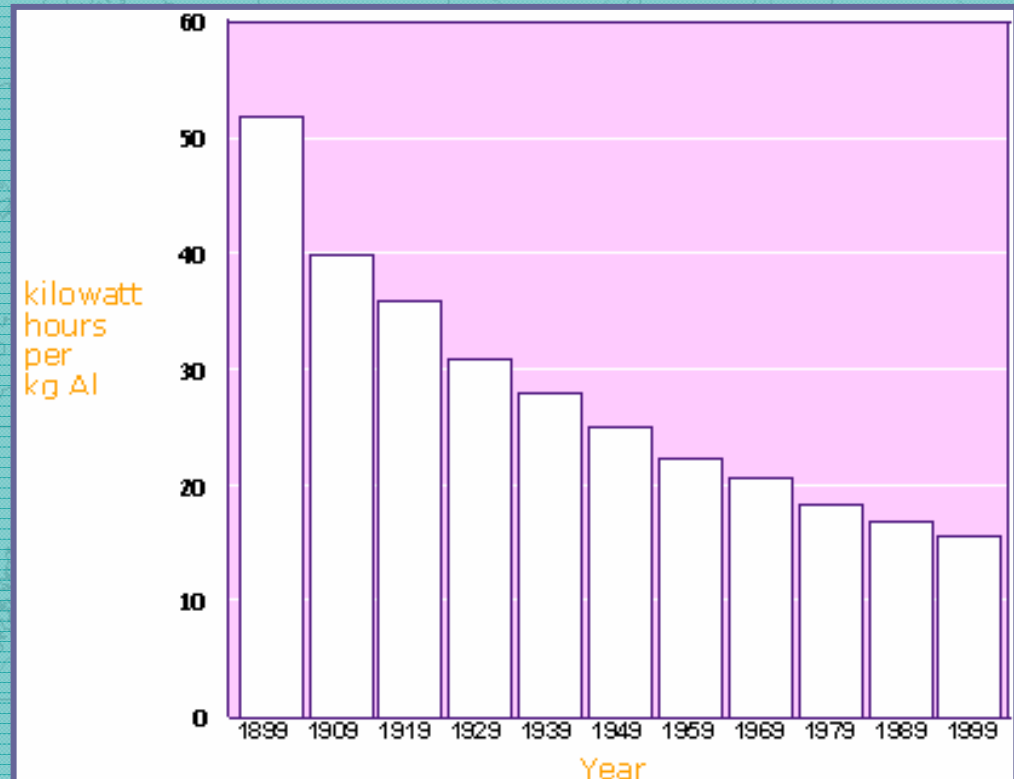
Energy Intensity



La Grande Baie Smelter, Quebec

___ tons/year

___ MW (___ MWhr)

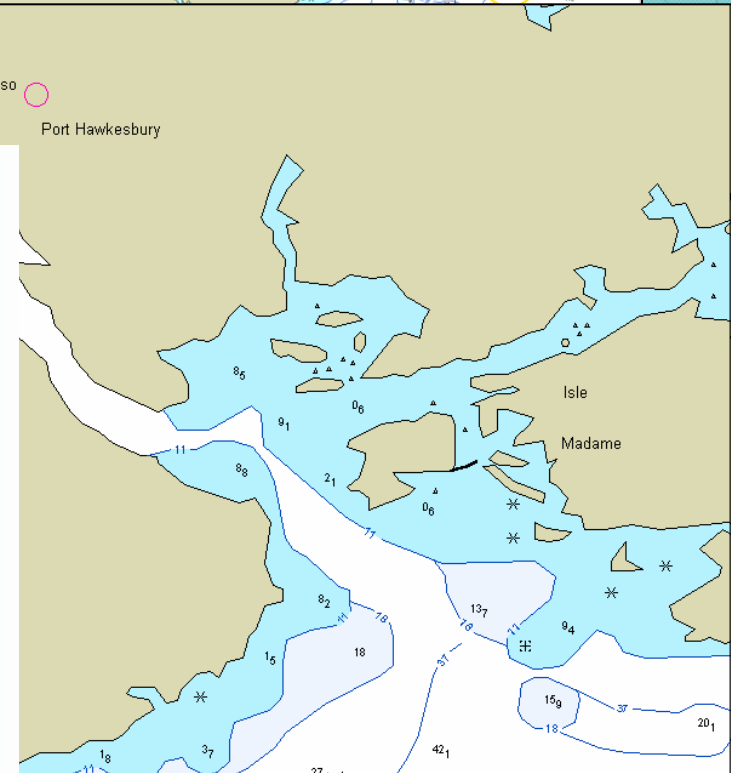
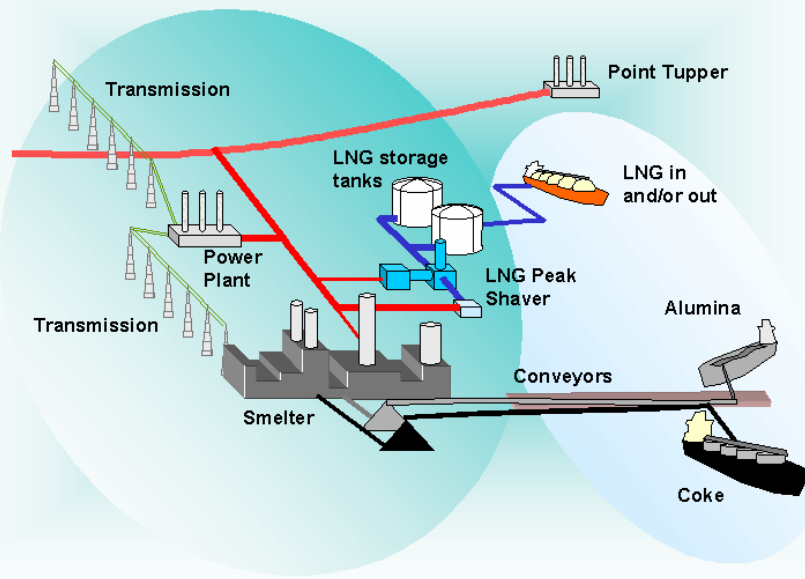


NOVA ALUMINIUM[®] - Nova Atlantic Aluminium Limited



Strait Of Canso
Port Hawkesbury

Schematic of Smelter Complex

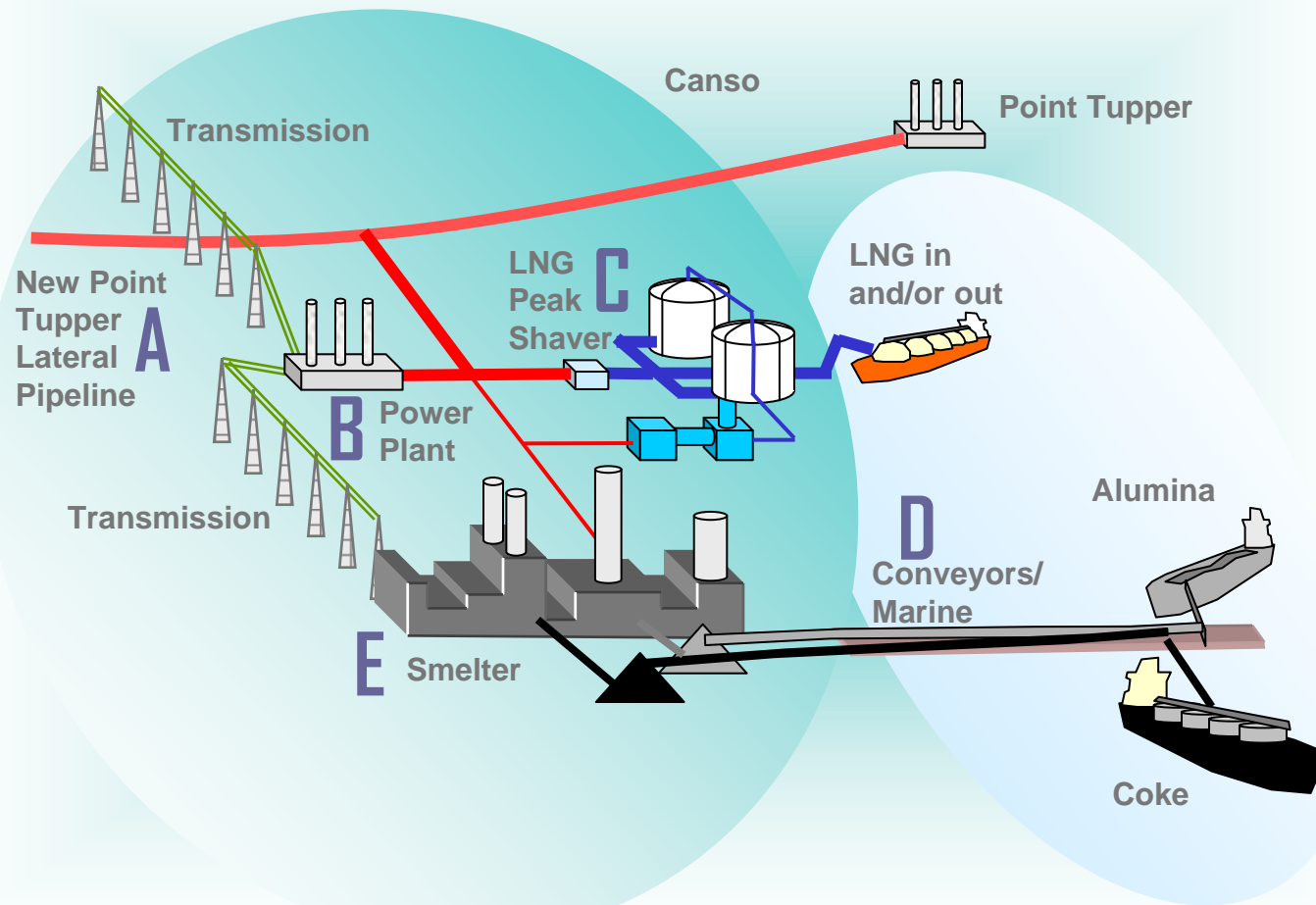


Sable Island Bank

59



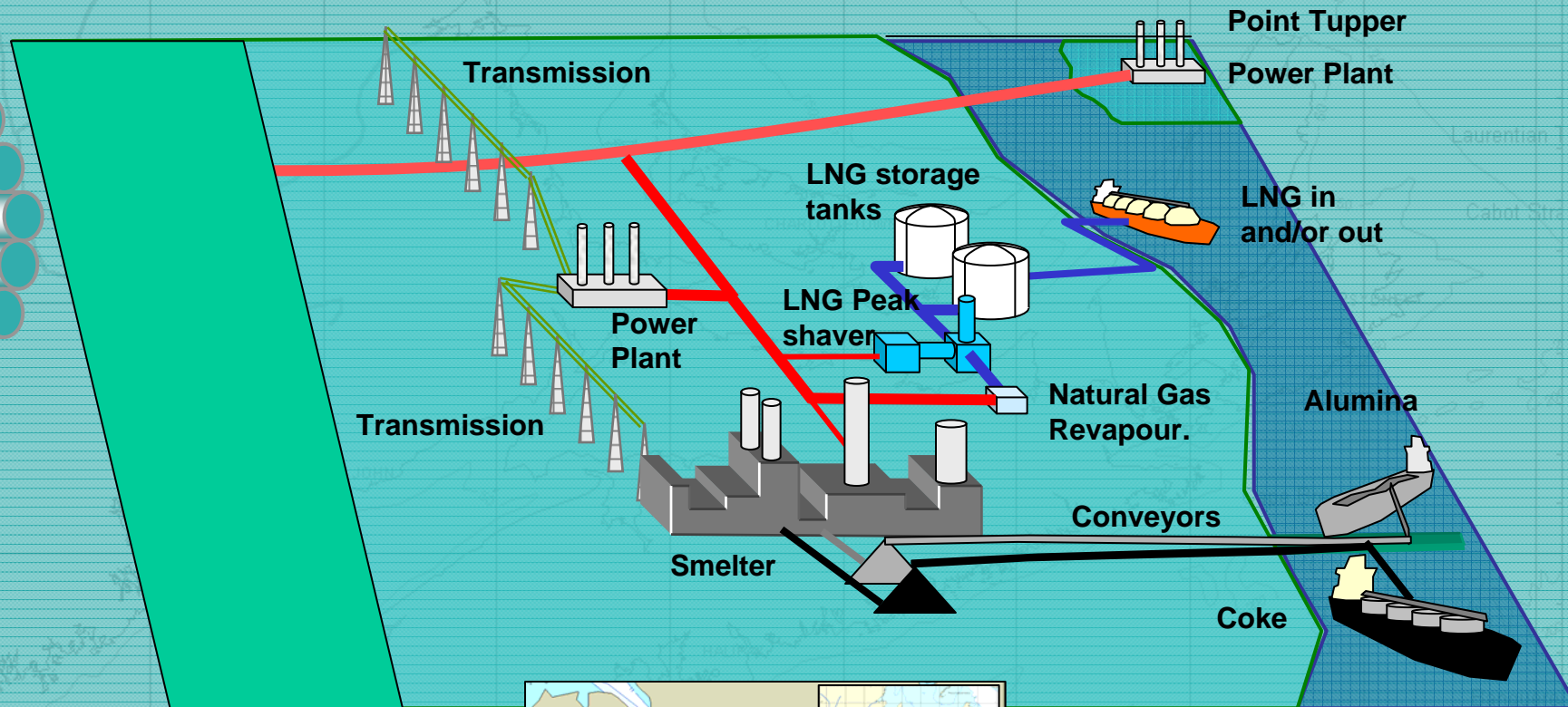
Schematic of Smelter Complex



NOVA ALUMINIUM[®] - Nova Atlantic Aluminium Limited



Schematic of Smelter Complex



NOVA ALUMINIUM[®] - Nova Atlantic Aluminium Limited





End of Presentation

Nova Aluminium[®]

August, 2001

