

Comparison Summary

Currency: Canadian \$

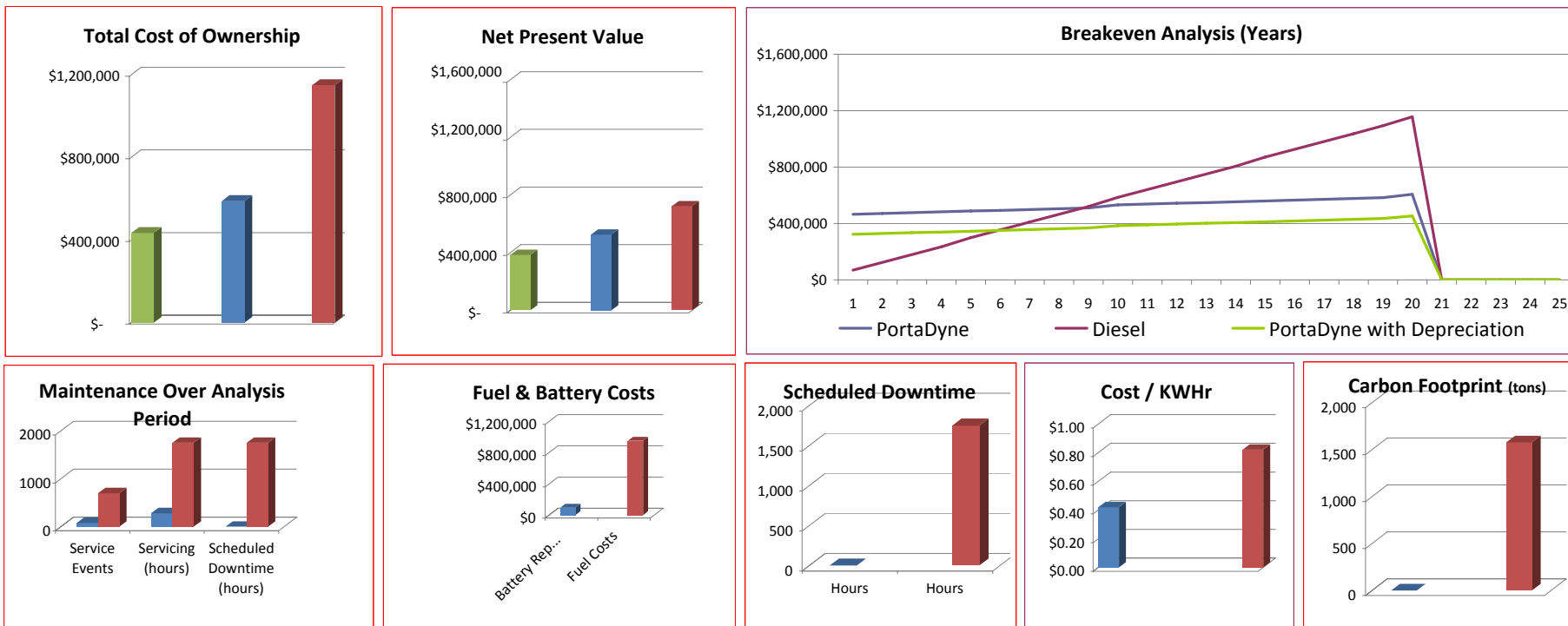
Kilowatt Requirement for Solution: 3
 Peak Inductive Load (KW): 8
 Years of Analysis: 20
 Average Inflation Rate: 2%

	PortaDyne	Diesel
Manufacturer	Hybridyne	Hardy Diesel
Model	W1-3	Isuzu 3CD1 + Autostart
NamePlace Rating (KW)	6	12
Life Expectancy (years)	20	5
Extended Purchase Price	\$444,744	\$38,160
Installation/Commissioning Costs	\$15,000	\$160
Maintenance	\$111,960	\$158,700
Fuel Costs	\$0	\$951,204
Battery Replacement: Wet Cell Technology	\$16,200	\$1,133
Total Costs Over Analysis Period	\$587,904	\$1,149,357
Depreciation (non-government only)	\$0	\$0
Downtime Impact	\$0	\$11,480
Total Cost Of Ownership	\$587,904	\$1,149,357
Effective cost per KW/hr	\$0.42	\$0.82

Business Case - Portadyne vs Diesel Genset



Graphical Comparison



Legend to Graphs :

- Portadyne —————
- Diesel Genset —————
- Portadyne with Depreciation —————

Numerical Comparison

Currency:		Canadian \$	
Average Energy Requirement for Solution:	KW	3	
Peak Inductive Load:	KW	8	
Analysis Period (under 30 years):	Years	20	
North American Installation:	Yes=1, No=0	0	
Public Sector Proposal:	Yes=1, No=0	1	
Average Rate of Inflation:	%	2.0%	5.0%

	Units	PortaDyne	Diesel
Manufacturer:		Hybridyne	Hardy Diesel
Model:		W1-3	Isuzu 3CD1 + Autostart
Rated (Plate) Kilowatts:	KW	6	12
Warranty Period:	Years	1	1
Life Expectancy :	Years	20	5
Purchase Price (excluding battery refit):	\$	\$444,744	\$6,700
Battery refit costs (at 10 years):	\$	\$16,200	0
Oil for Lubrication :	Litres	0	7

Product Information

<http://www.hardydiezel.com/diesel-generators/isuzu-powered-12-kw-diesel-generator.html>

Fuel Consumption Calculator:

<http://www.hardydiezel.com/generator-fuel-consumption-calculator.html>

Purchase Price

Number of Machines required in analysis period:	1	4
External Diesel tank (1000 litres)		\$6,000
Total Purchase Price Over Analysis Period	\$444,744	\$38,160

Installation/Commissioning Costs

Two Supervisors with airfare	\$15,000	
Number of hours to install & commission		4
Rate per hour		\$40.00
Total Inst'n/Commissioning Costs Over Analysis Period	\$15,000	\$160

Maintenance

Preventative Maintenance

Total Analysis Period (years)		20	20
Warranty Period (years)		1	1
Annual Charge		\$4,320	\$550
Total Extended PM Charges		\$82,080	\$10,450

On site Service (labour)

Quarterly 'minor' inspections			
Time to perform activity (hours)		2	
Number per year		3	
Annual 'major' inspection			
Time to perform activity (hours)		8	
Number per year		1	
Onsite Oil Changes			
Oil/lube/filter change frequency (hours)			250
Number of O/L/F per year			35
Time to perform activity (hours)			2.5
Annualized (hours)		14	88
Rate/hour		\$40	\$40
Annualized cost		\$560	\$3,500
Total extended labour costs over lifetime		\$11,200	\$70,000

On Site service consumables

Number of Annual Servicing Events		1	35
Litres of lubrication oil consumed per servicing			7
Cost/litre			\$4
Coolant per servicing			\$8
Oil Filter			\$17
Air Filter			\$20
Grease		\$1.00	\$1
Total suppliest cost per servicing.		\$1.00	\$74
Annualized Costs for Service Events		\$1.00	\$2,590
Total extended costs of analysis period		\$20	\$51,800
Total Maintenance Over Analysis Period		\$111,960	\$158,700

Fuel Costs (launch urls below for retail prices by country and conversion to CDN\$)

<http://www.eia.doe.gov/emeu/international/IFP-2009-EN.pdf> Lookup International Diesel Prices (US\$/Litre) Pg 62

<http://www.rbcroyalbank.com/rates/cashrates.html> Lookup Current Exchange Rates (US\$ to CDN\$)

Fuel consumption (litres per hour)		0	3.05
Diesel Price for (US\$/litres):			\$0.89
Current Currency Exchange Rate to CDN \$:			1.060
Years since 2008 Fuel Rates:			2
Estimated current retail price in (CDN\$/Litre):			\$0.98
Fuel delivery cost to remote location (CDN\$/litre):			\$0.50
Annual cost of fuel			\$39,633
Total Fuel Costs Over Analysis Period		\$0	\$951,204

Battery Costs

Years between battery replacements	10	3
Numbers of Replacements over Period	1	6
Replacement Cost	\$16,200	\$200
Total Battery Costs Over Analysis Period	\$16,200	\$1,133

Environmental Considerations

Handling of lubrication oil from servicing

Total litres over analysis period	0	12250
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Carbon footprint from energy generation

Pounds of CO2 per litre of diesel burned*	0	5.9
Pounds per year of CO2 produced		157,636
Tons per year equivalent		79
Tons over analysis period	0	1,576

Depreciation

CapEx	\$444,744	\$38,160
Marginal Tax Rate for Depreciation	32%	32%
Total value of depreciation	\$142,318	\$12,211

Downtime

Maintenance requires downtime (hours)	0.0	1,750
Extended scheduled downtime for analysis period	0.0	1,750
Percent of analysis period non-operational	0%	1%
Uplift to equivalent Service	\$0	\$11,480