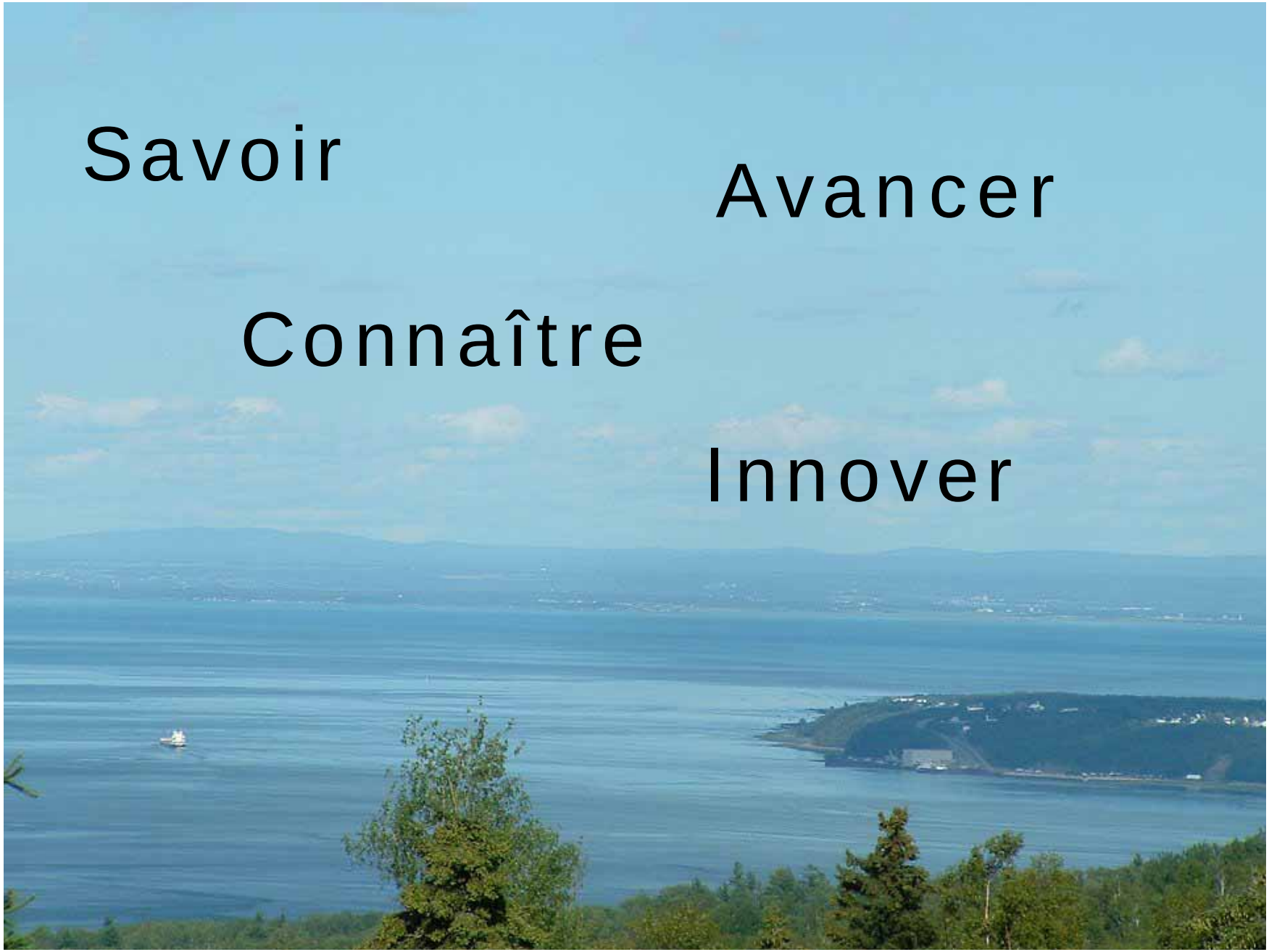
Projet d’avenir

RABASKA


Savoir
Avancer
Connaître
Innover

Nos Ancêtres

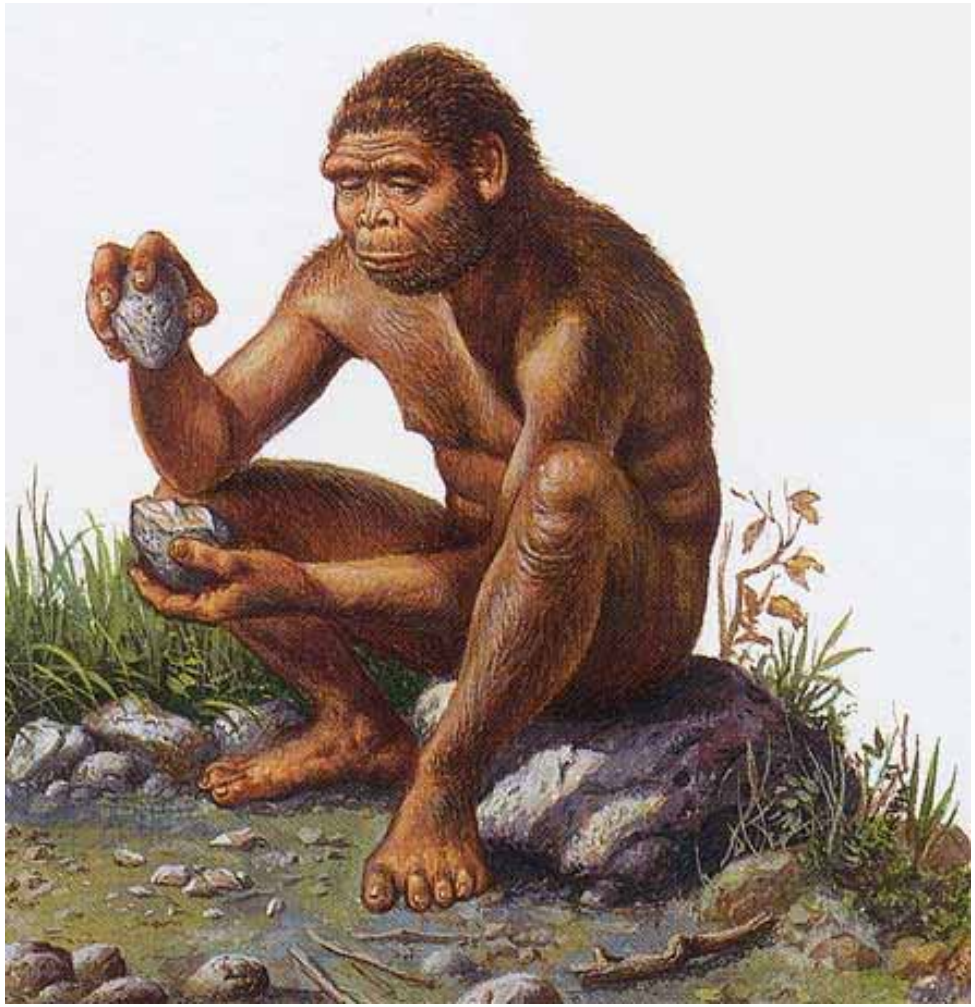
Le cheval
La faux
La scie
La lampe à l'huile

Ils ont choisi

Le tracteur
La moissonneuse
La tronçonneuse
L'ampoule électrique

Amélioré
le drainage,
la structure et
la fertilisation du sol

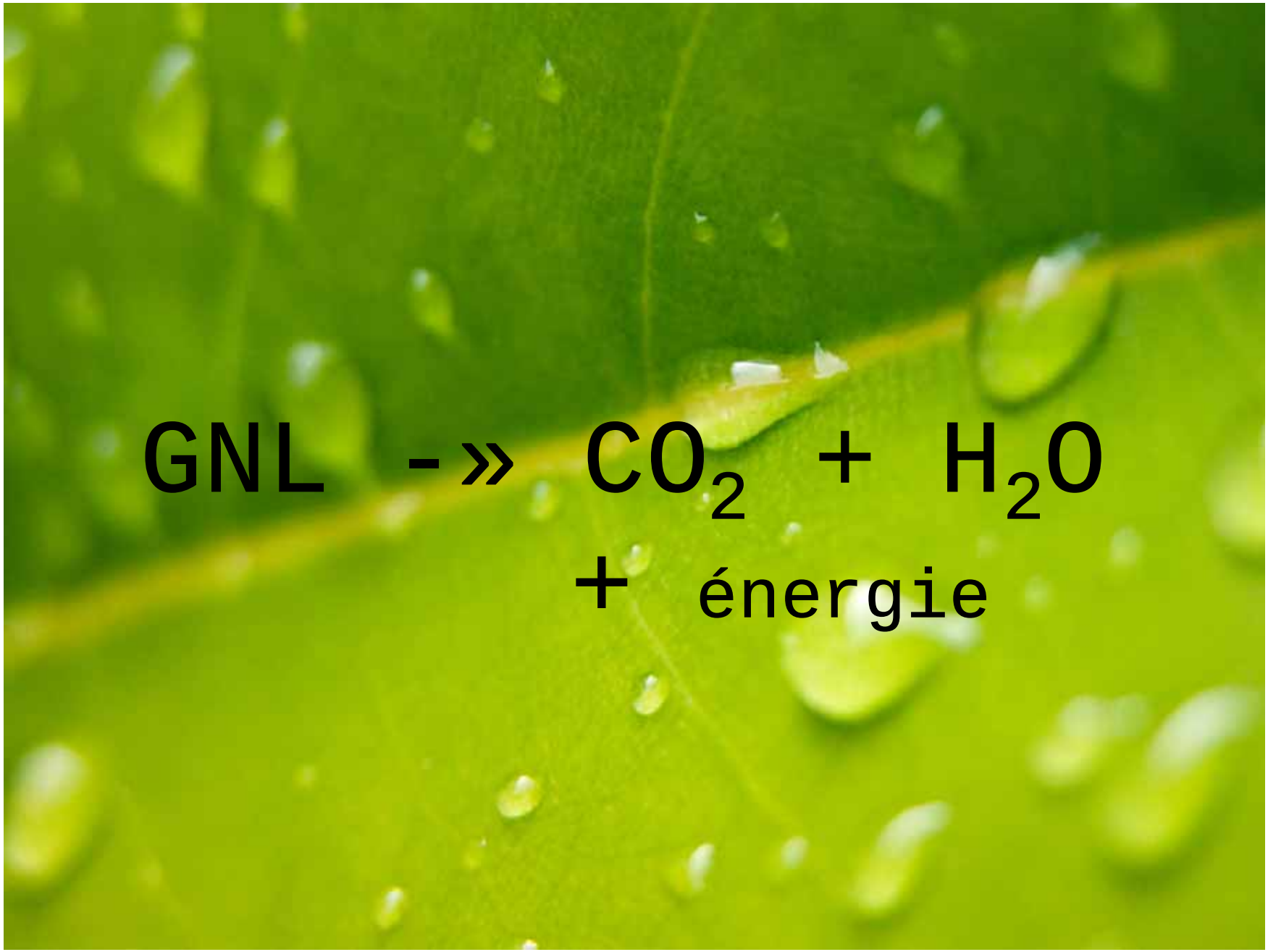
?



Que serait-il passé si ces derniers auraient refusés d’apprivoisé ces

nouveaux outils puisqu’ils sont dangereux?


Huile de Baleine
Pétrole
Gaz naturel


GNL -» CO_2 + H_2O
+ énergie

Gaz à Effet de Serre

Gaz naturel produit:

100% Charbon
50% Mazout

RABASKA réduira de

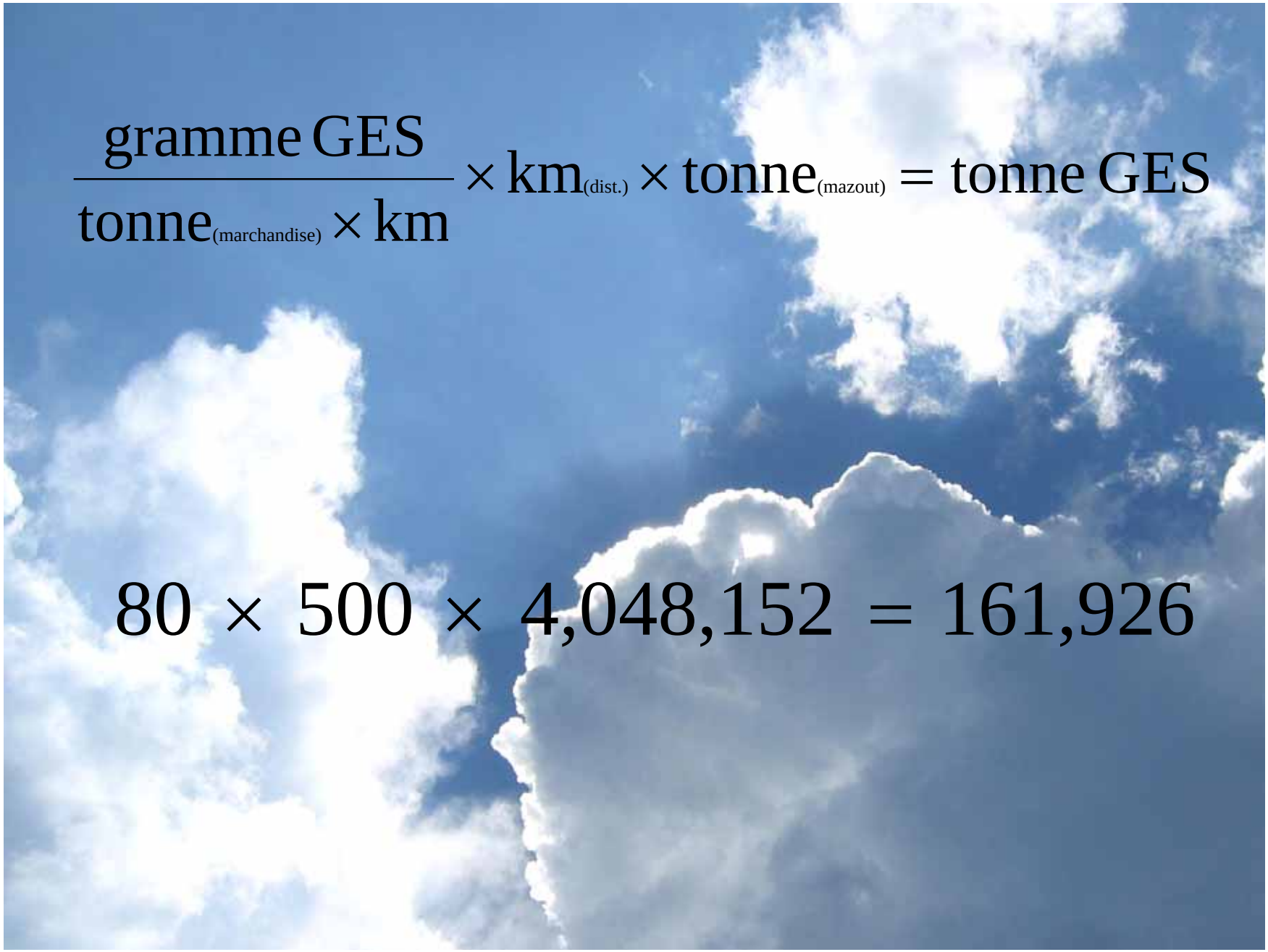
54 560 méga tonnes GES

en substituant le mazout

Rabaska gazéification = 146 000 tm GES

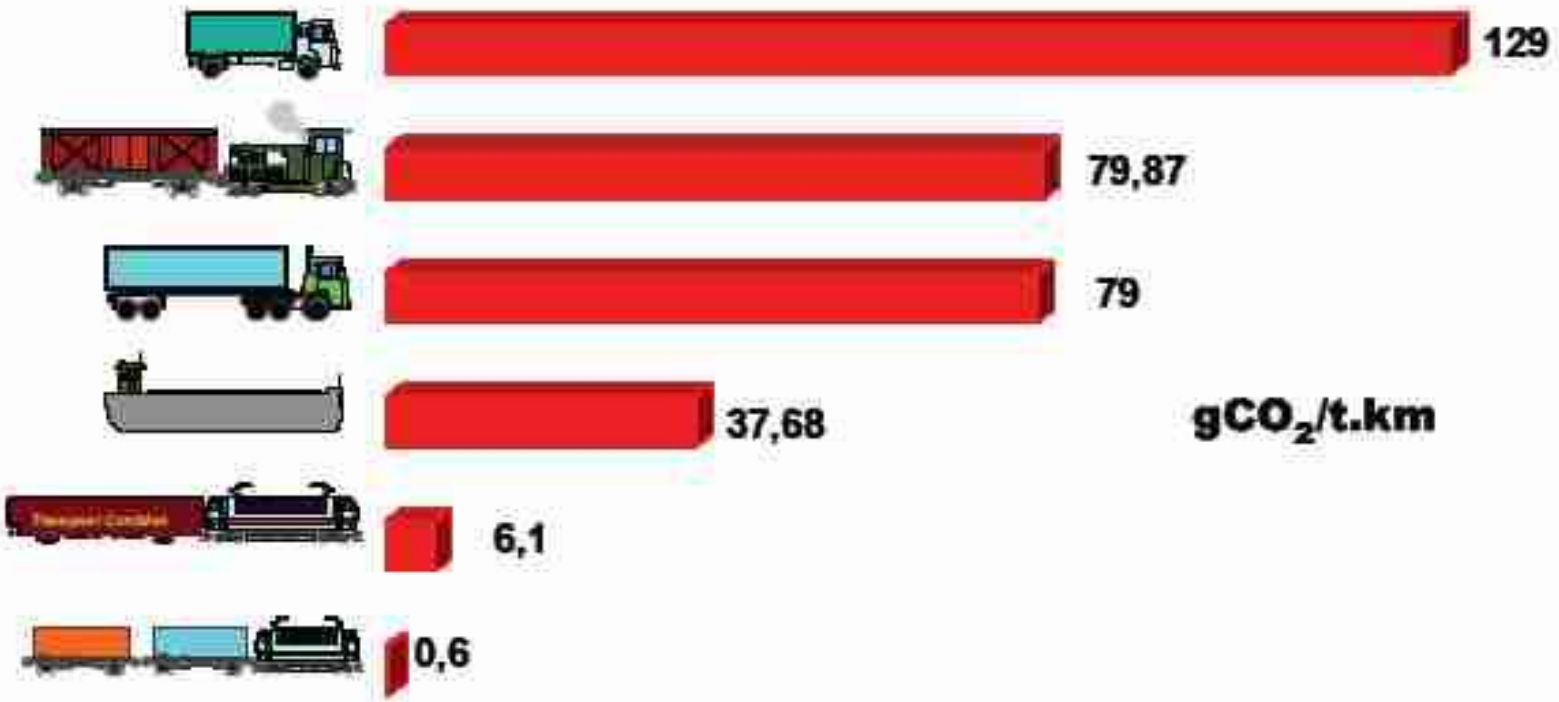
vs

Distribution mazout = 161 926 tm GES


$\frac{\text{gramme GES}}{\text{tonne}_{(\text{marchandise})} \times \text{km}} \times \text{km}_{(\text{dist.})} \times \text{tonne}_{(\text{mazout})} = \text{tonne GES}$
$80 \times 500 \times 4{,}048{,}152 = 161{,}926$

EMISSIONS UNITAIRE DE CO_2

TRANSPORT INTERURBAIN de MARCHANDISES en 2000

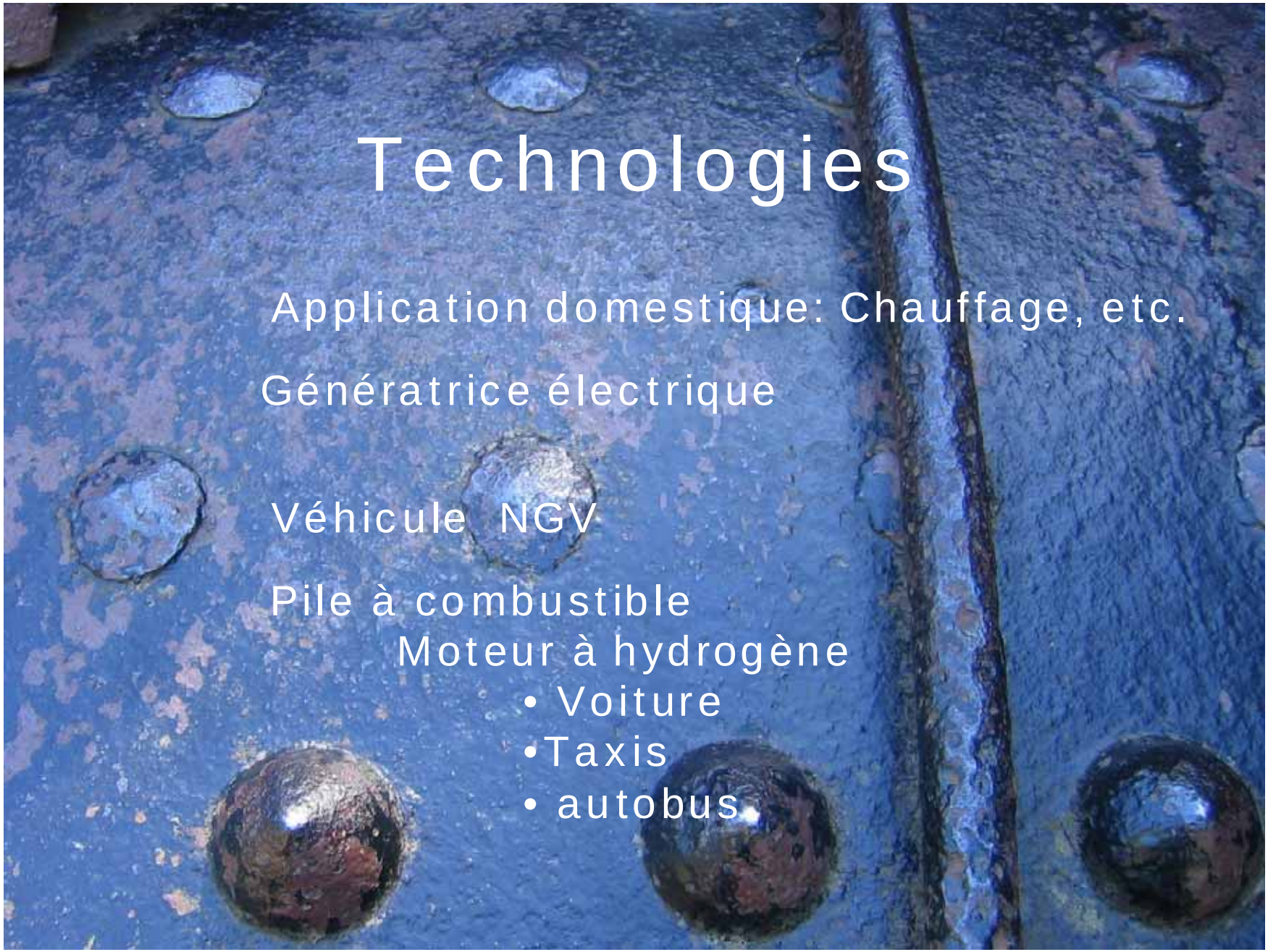


LES CHIFFRES PRENNENT EN COMPTE LES TAUX DE REMPLISSAGE EFFECTIFS DES DIFFÉRENTS MODES
ÉQUIVALENCE ÉNERGÉTIQUE DE L 'ÉLECTRICITÉ EN ÉNERGIE FINALE

Source : ADEME / Equilibi, 2002

Avantage du Gaz

- Aucune cendre
- Peu d'infrastructure de stockage
- Aucune émission de particule polluante
- Forme d'énergie écologiquement favorable
- Disponibilité du gaz en grande quantité
- Réactif industrielle
- Réduit les contaminants
- Distribution sans impact visuel


Technologies
Application domestique: Chauffage, etc.
Génératrice électrique
Véhicule NGV
Pile à combustible
Moteur à hydrogène
• Voiture
•Taxis
• autobus

Bus Mfr.	Operation	Model	Year Shown	Engine Type	Fuel Cell Size/Type	Fuel Cell Mfr.	Range (mi/km)	Max. Speed	Fuel Type	Picture
Bus Manufacturing U.S.A., Inc.	Generation I of Georgetown University's program	30-foot Transit Bus	1994	Fuel cell/ battery hybrid	50kW/ Phosphoric Acid FC (PAFC)	Fuji Electric	250mi 402km	55mph 90km/ h	Methanol	
Bus Manufacturing U.S.A., Inc.	Generation I of Georgetown University's program	30-foot Transit Bus	1995	Fuel cell/ battery hybrid	50kW/ PAFC	Fuji Electric	250mi 402km	55mph 90km/ h	Methanol	
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NovaBus Corporation (a subsidiary of Volvo)	Generation II of Georgetown University's program	40-foot heavy duty transit buses	1998	Fuel cell/ battery hybrid	100kW/ PAFC Ambient-pressure	UTC Fuel Cells	350mi 563km	66mph 106km /h	Methanol	
NovaBus Corporation (a subsidiary of Volvo)	Generation II of Georgetown University's program This bus is used for national demonstration purposes	40-foot heavy duty transit buses	2001	Fuel cell/ battery hybrid	100kW/ PEMFC	Ballard	350mi 563km	66mph 106km /h	Methanol	
Undetermined	Generation III of Georgetown University's program Team includes EPRI, ZSW, NuCellSys	40-foot low-floor bus platform	Phase 1 - 2006	Fuel cell	At least 240 kW/ PEMFC	NuCellSys	N/a	N/a	Methanol	
New Flyer Industries Ltd.	Proof of Concept	**P1**; low fl. transit bus based on New-Flyer model 40	1993 world's first	Fuel cell/ battery hybrid	90kW/ PEMFC	Ballard	250mi 400km	60mph 95km/ h	Compress. Hydrogen	
N/a	Proof of Concept	**P2**: full-sized, 40-foot	1995	Fuel cell/ battery hybrid	205kW/ PEMFC	Ballard	250mi 400km	N/a	Compress. Hydrogen	
New Flyer Industries	Demo. service of 3 buses in Chicago (1997) and Vancouver (1998) for 2 years	**P3**: H40LF models	1998	Fuel cell/ battery hybrid	205kW/ PEMFC	Ballard	N/a	N/a	Compress. Hydrogen	
New Flyer Industries	Natural Resources Canada (US$1.9 million) and Hydrogenics for demo in Winnipeg, Manitoba, Canada	40 foot	Proj. 2006	Distributed array of 25kW modules w/ ultra-capacitors	180kW/ PEMFC	Hydrogenics	N/a	N/a	Compress. Hydrogen	

Technologies

Métallurgie

Fer

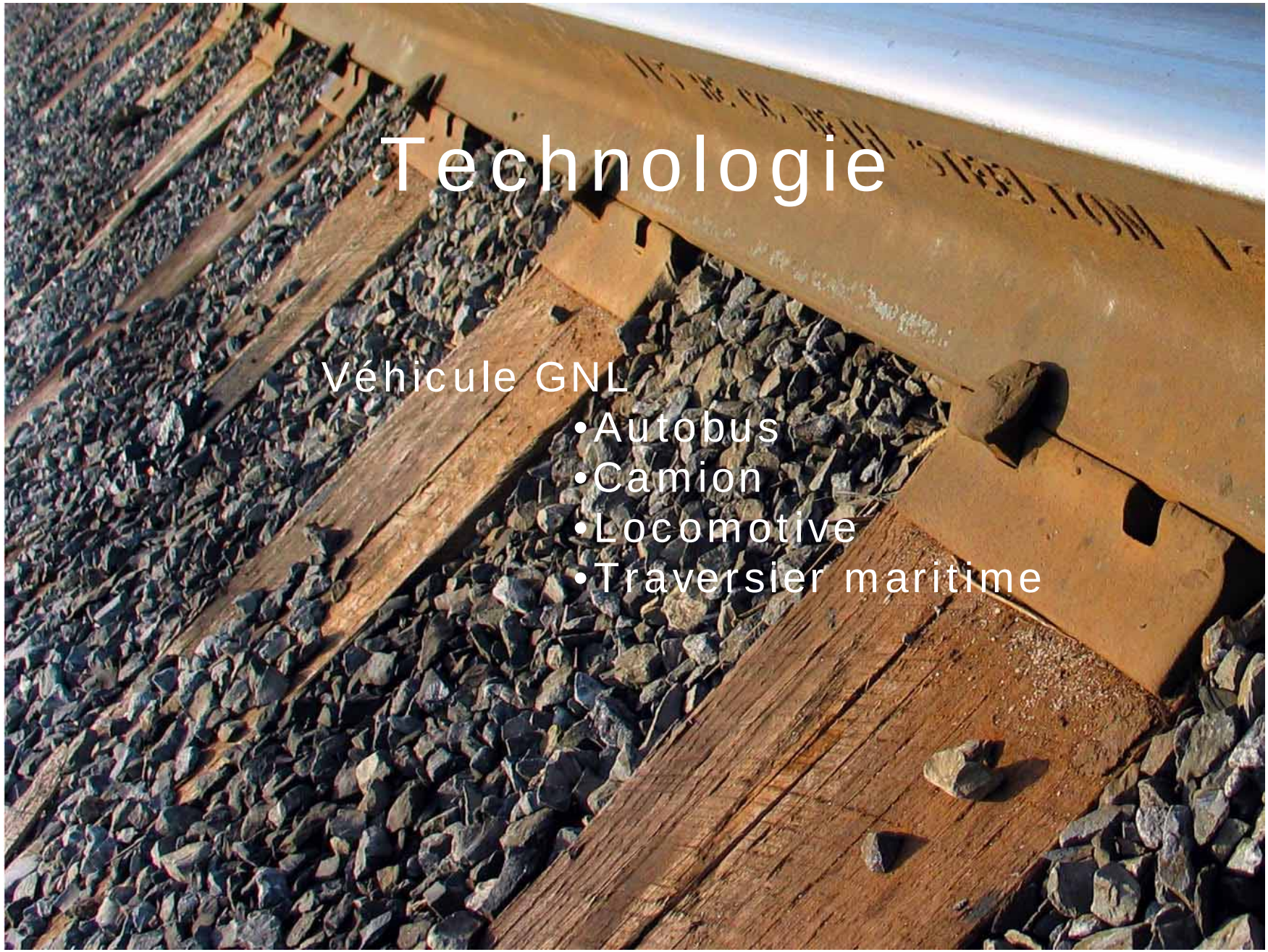
Bouletage
Réduction

Circofer
Fastmet

L'utilisation d'équipement industrielle performant de lit fluidisé, cristallisoir et évaporateur

Matière première pour la pétrochimie

Production de gaz CO, CO_2 et de H_2



Technologie

Véhicule GNL

- Autobus
- Camion
- Locomotive
- Traversier maritime

Figure 2. The LNG car/passenger ferry M/F Glutra

Type of vessel	Location	Year	Engine	Storage
"Accolade II" Bulk carrier	Adelaide, Australia	1982	Dual Fuel 2 engines	CNG
"Klatawa" Car/passenger ferry, 26 cars, 146 passengers	Vancouver, Canada	1985	Dual Fuel 2 engines	CNG
"Kulleet" Car/passenger ferry 26 cars, 146 passengers	Vancouver, Canada	1988	Dual Fuel 2 engines	CNG
Canal boat	Amsterdam, Netherlands	1992	Dual Fuel 1 engine	CNG
Canal boat	Amsterdam, Netherlands	1994	Dual Fuel 1 engine	CNG
Tourist boat	St. Petersburg, Russia	1994	Dual Fuel 2 engine	CNG
	Moscow	1999	Dual Fuel 2 engines	CNG
"Elisabeth River I", Passenger ferry, 149 passengers	Norfolk, Virginia, USA	1995	Gas engine 2 engines	CNG
"Glutra" Car/passenger 100 cars, 300 passengers	Molde, Norway	2000	Gas engine 4 gen. sets	LNG

LNG Projects
Barcelona Garbage Trucks

LNG RAILWAY APPLICATIONS

Union Pacific Railway

Russian Locomotive

AIRBORNE L-NGVs

Russian LNG Proof of Concept ..1983

Russian Tupolev on LNG

N.W.Airlines Supersonic Transport Concept

1984

LNG IN THE UK
Over-the-Road Haulers & a Network of Fuel Stations

Long distance haulage: CNG & LNG

JAPAN

KOREA

BANGLADESH


CNG

THE TOP TEN COUNTRIES WORLDWIDE

Country	NGVs*	Fuel Stations*	% Price Nat.Gas of Petrol
Argentina	1.4 mil	1.370	27,5%
Brazil	898.200	1.050	45.9%
Pakistan	475.000	500	51,0%
Italy	382.000	510	40,0%
India	222.300	190	33,3%
USA	130,000	1.300	72,7%
China	97.200	355	48,6%
Ukraine	67.000	150	34,1%
Egypt	59.400	90	31,6%
Colombia	47.900	90	41,5%

•Rounded up figures

Data source: The GVR, June 2005

NGV Diversity: the Possibilities are Endless!

Clean sweeper

Motorcycle

Canal boat

Russian Tupolev

NGV Ice cleaner

Specifications

2007 CIVIC GX NGV

HONDA

OTHER MODELS

TRIM DESCRIPTIONS | FULL SPECS

All | GX

Printer-Friendly Format

The Civic GX, rated as an Advanced Technology Partial Zero-Emission Vehicle (AT-PZEV) in all 50 states, is powered by compressed natural gas (CNG) and does not use gasoline. The GX sports a 113-hp, 1.8-liter engine, and comes standard with an efficient 5-speed automatic transmission that offers more gear ratios for quick acceleration and enhanced fuel economy. It's also equipped with a 4-wheel independent suspension system, cruise control, air conditioning with air filtration, and power windows, mirrors and door locks. In addition to the anti-lock braking system with Electronic Brake Distribution (ABS with EBD), this package also offers front and front side airbags, and side curtain airbags to help protect you in the event of a moderate-to-severe side impact.

Filières régionales

Industrie du froid (réfrigération et la climatisation)

Industrie de culture en serres (chauffage et CO_2)

Centre et Industrie de l'innovation du gaz naturel

Conclusions


Le commencement