

## Innovation Toolkit focussing on greening the fleet

description – status - discussion

PLATINA II Advisory Committee  
Henk-Erik Sierink, WVU, 2.10.2014



PLATINA II is co-funded by the European Union

## Innovation Toolkit focusing on greening

### General approach

- Interactive innovation web-tool that facilitates and stimulates innovation uptake, focussing on greening
- Modular system; at the start focus on innovative possibilities with biggest potential (emissions reductions) and most realistic (best business case);
- Default settings or individual parameters (type of ship, etc.) to get rough estimate of emission reductions and the business case
- Relevant suppliers, constructors, etc. can showcase their products
- EICB will manage the open source web-tool



## Content

- Requirements for admission of technologies to the Toolkit
  - Proven Technology
  - Available Technology (Market)
  - Greening Technology
  - ❖ *Who should do the screening?*
- Involvement of industrial partners
  - First stage as information providers (innovation lab partners)
  - Future stages as co-Owners (and sponsors)
  - Involvement of other stakeholders (banks, policy makers, lobby,...)
  - ❖ *Which governance model is suitable?*
- Involvement of end-user
  - Testimonies and experience of end-users who already implemented GT solutions
  - ❖ *Is this of added value?*

3



## Development Path

- Stage I: rough analysis
  - Accurate information
  - Detailed/Tailor-made information
- Stage II: detailed analysis
  - Detailed business case calculation tool on business level (impacts, profits)
  - Total Value of Ownership (including social impact, external cost savings)

4



## Status of the Toolkit

- Beta version ready for feedback:  
<http://greeningtool.naiades.info>
  - 10/2014: dissemination by mail to well-known potential users/stakeholders
  - 20.11.2014: NAIADES Dialogue in conjunction with Barge to Business
  - 4.12.2014: NAIADES Dialogue in conjunction with CCNR Plenary Session
- Toolkit is 'freeware'; free to use
- EICB is providing support to PLATINA II consortium as technical consultant

5

platina2

## Partners involved



PLATINA II is co-funded by the European Union

6

[www.naiades.info](http://www.naiades.info)  
Opening your door to inland waterway transport in Europe

platina2

greeningtool.naiades.info/web/

IWT Greening tool | Features | Project Objectives | Get involved | Greening options | Disclaimer


# IWT Greening tool

## Web-tool for information about cost-effective greening technologies

Interactive web-tool for ship owners and policy makers looking for emission and fuel consumption reduction of inland waterways vessels based on retrofit options.


[Get started now](#) [Greening options](#)

### Features




**Fuel efficiency**

Compare in a few steps your current and future operational costs and fuel consumption after suitable greening options.




**Greening options**

Learn which retrofit greening options are the most effective for you and your vessel. See immediately the return of investment.



**Reduce pollution**

Learn about the emissions of your vessel after applying greening options. Learn more about global environmental impact of greening techniques, calculate the emissions of different vessel types.



**Results**

Change your choice of greening options at any time and review the results for your convenience and its effect on the emissions reduction.

### Learn more

The objective of the IWT Greening Tool is to offer vessel owners/operators, policy makers or other stakeholders state-of-the-art information about the different retrofit greening option technologies currently available or application on exiting vessels.

This tool will also give an estimation clear indication of the return on investment for different options as well as its potential impact on emissions based on the best available information. Greening technologies are constantly being developed and fine-tuned. Our team aims at keeping the information up-to-date by including the latest known results of ongoing research in the field of greening of the fleet.

greeningtool.naiades.info/web/greening-options

IWT Greening tool | Features | Project Objectives | Get involved | Greening options | Disclaimer

## Greening options

- Propulsion
- Fuel system LNG
- Fuel system Alternative fuels
- Exhaust system Emissions control technology
- Exhaust system Exhaust system
- Hydrodynamics
- Propeller upgrade Propeller optimisation
- Hull improvements Propeller outflow optimisation

The greening technologies are constantly being developed and fine-tuned. We aim at keeping the information up-to-date and at including the latest known results of ongoing research in the field of greening of the fleet.

### Propulsion

Technology	Description	Solutions
LNG <small>Fuel system</small>	<p>The lower carbon content of LNG compared to traditional ship fuels enables a 20% to 25% reduction of carbon dioxide (CO<sub>2</sub>) emissions. Using LNG as ship fuel will also reduce emissions of NO<sub>x</sub> and particulate matter (pm). It has the advantage of being less costly than diesel. LNG in it's most practical way comes with the dual fuel option, running on both LNG as well as conventional fuel. Dual fuel engines offer all the benefits of a gas engine whilst maintaining the ability to be operated as a conventional diesel engine when required.</p> <p>There are two types of dual fuel engines. Low pressure engines provides high energy efficiency at high load and low emissions but results in a challenge to control the methane slip, in particular at low load of the engine. A high pressure engine gives less issues with methane slip. However the NO<sub>x</sub> reduction is limited due to higher combustion temperatures. It would therefore require for example SCR technologies to bring down the NO<sub>x</sub> levels to the required emission standards (e.g. Stage 4B or Stage 5).</p> <p>It is possible to convert existing diesel engines into dual fuel engines. Room is required to retrofit onboard LNG tanks resulting in a loss of cargo capacity.</p>	<ul style="list-style-type: none"> <li>LNG DF 80-20</li> <li>LNG DF 80-20 + SCR</li> <li>LNG DF 95-5</li> </ul>
Alternative fuels <small>Fuel system</small>	<p>Gas to Liquids (GTL)</p> <p>Gas to liquids (GTL) is a refinery process to convert gaseous hydrocarbons into longer-chain hydrocarbons such diesel fuel. It is virtually sulphur-free and has significantly lower emissions of carbon monoxide, hydrocarbons, nitrogen oxide and particulate matter than conventional petroleum products. GTL can use the same infrastructure and engines as diesel.</p> <p>On the downside, GTL fuel lifecycle greenhouse gas emissions are approximately 25 percent higher than conventional oil.</p>	<ul style="list-style-type: none"> <li>FWE</li> <li>FWE + SCR</li> <li>GTL</li> </ul>

## Discussion topics

- Continuity after PLATINA II
  - Proposal: after PLATINA II EICB becomes administrator responsible for further development together with interested PLATINA II Partners
- Launching event
  - Maritime Industry (May 2015 Gorinchem)
  - Presentations of EC (t.b.c.), PLATINA II partners and EICB
- Business model to keep Toolkit alive and up-to-date after PLATINA II, Conditions for sponsoring/consultancy

9

platina2

## Contact

**Henk-Erik Sierink**  
Project Manager

Ministry of Infrastructure and the  
Environment  
Rijkswaterstaat - WVL  
Plesmanweg 1-6  
2597 JG Den Haag

tel: +31 (0) 70 456 1453  
Mobile: +31(0)6 - 15 35 97 73  
[henk-erik.sierink@minienm.nl](mailto:henk-erik.sierink@minienm.nl)



[www.naiades.info](http://www.naiades.info)  
Opening your door to inland waterway transport in Europe



PLATINA II is co-funded by the European Union

10

platina2

