



Association Mondiale pour les Infrastructures Maritimes et Fluviales AIPC.N - PIANC

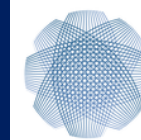
**Énergie renouvelable et efficience
énergétique des ports: état de l'art**

M. Juan-Manuel Suárez – Coordonnateur





RAPPORT DE L'AIPCN À propos de l'AIPCN

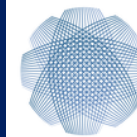


Port du futur
Hub d'innovations

Association mondiale pour des infrastructures de transport maritimes et fluviales, fondée en 1885.

- ☐ **Organisation de coopération apolitique et à but non lucratif. Agréée par 65 États, 450 sociétés et plus de 2.000 membres**
- ☐ **Objectif: conseiller les acteurs du secteur dans la conception, le développement et la maintenance des infrastructures de transport maritime et fluviales**
- ☐ **Lieu d'échange des bonnes pratiques entre experts internationaux**

pianc.org



Accompagner les acteurs portuaires dans leur transition énergétique

L'état de l'art

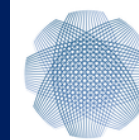
Planification

Évaluation

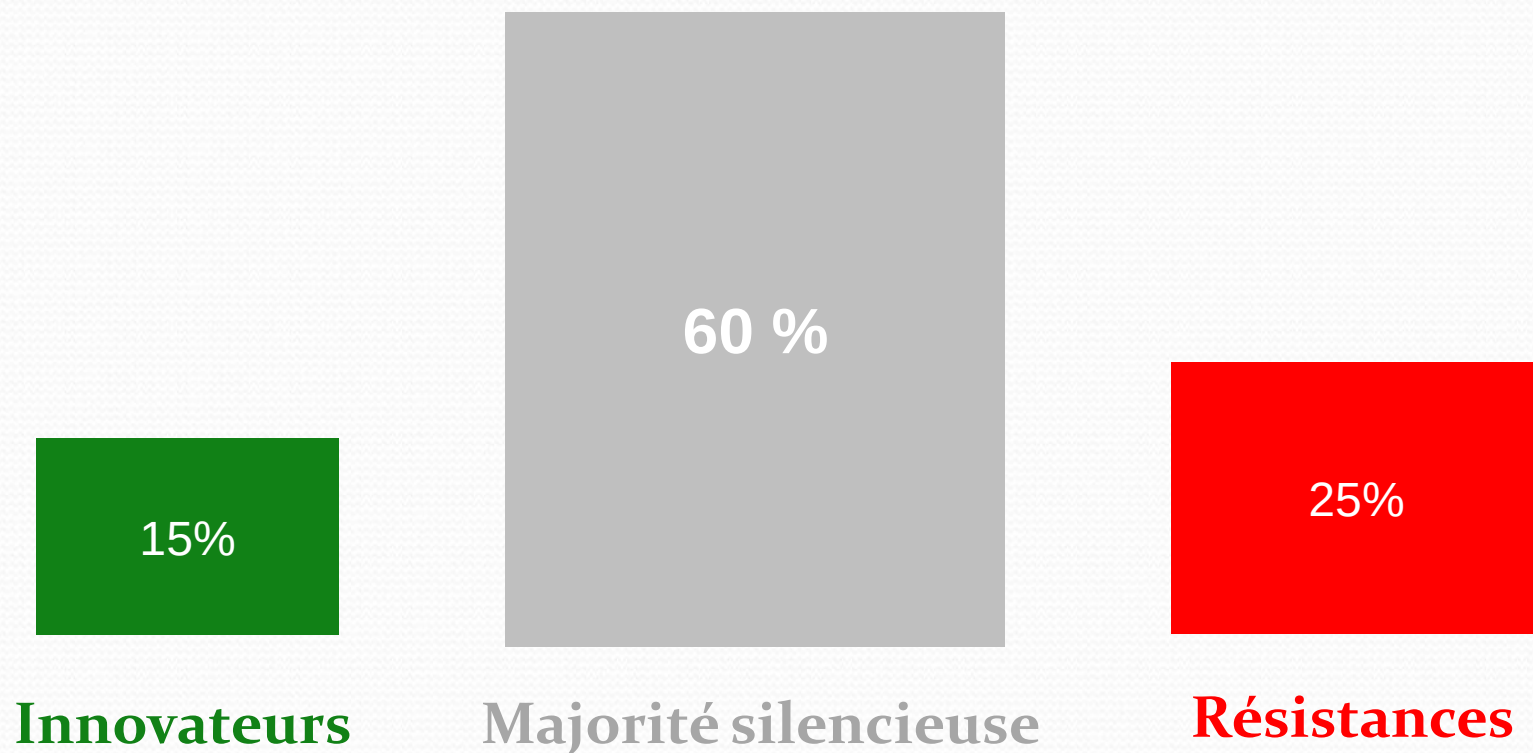


I. L'ÉTAT DE L'ART

Enquêtes 2017

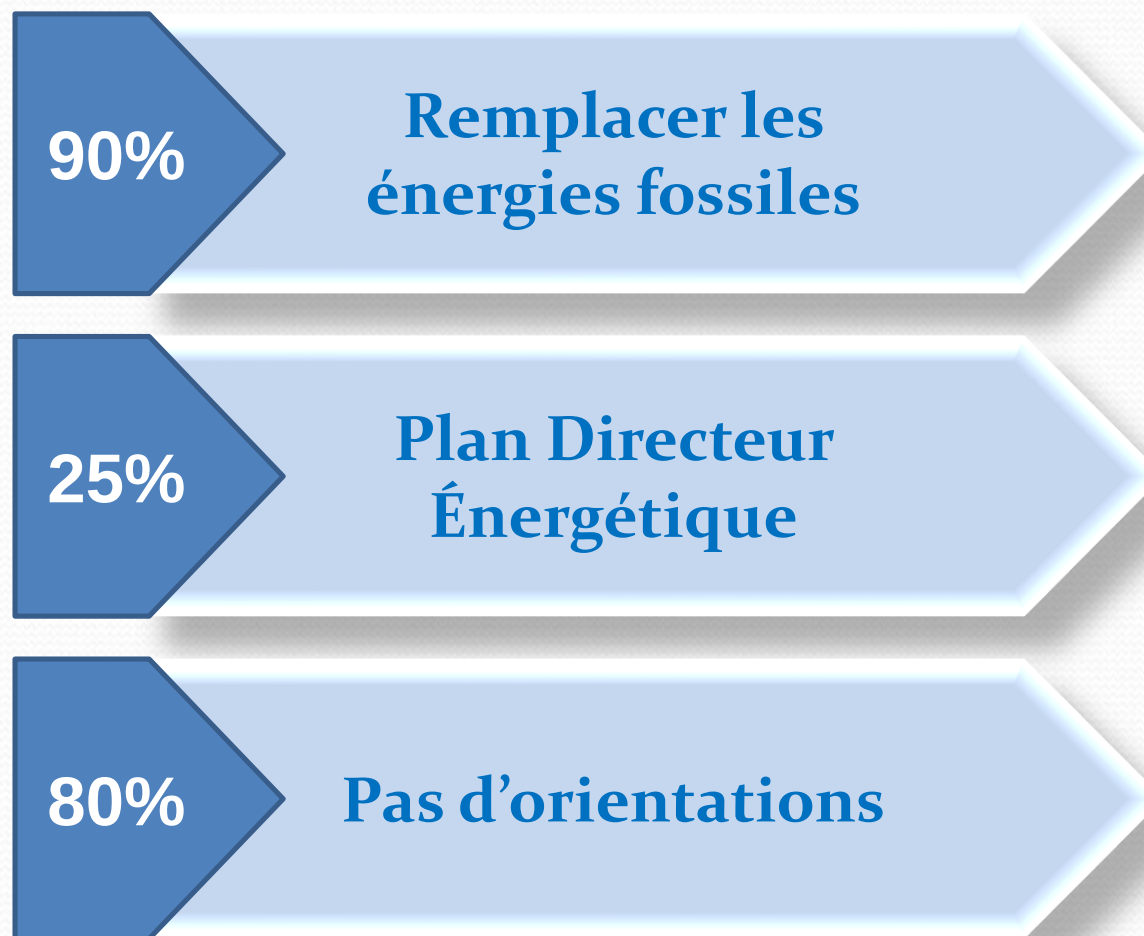


Port du futur
Hub d'innovations



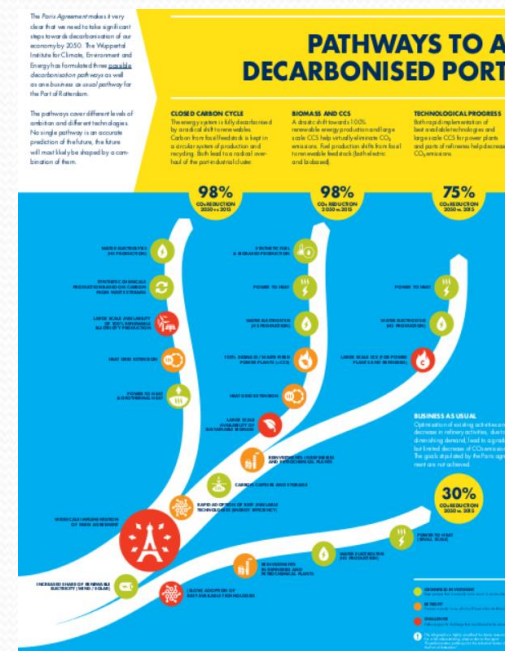
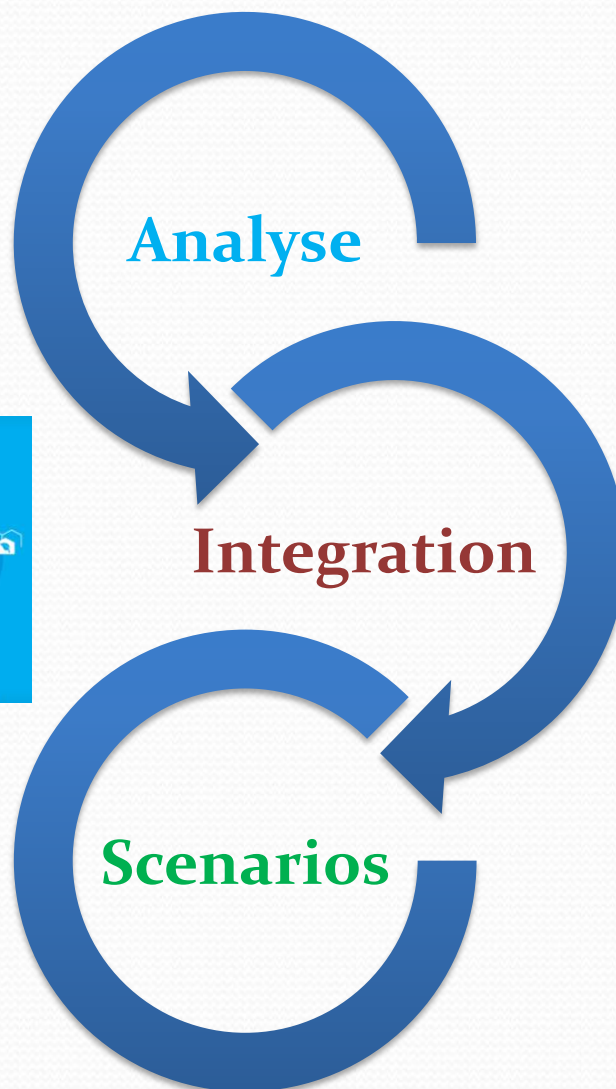
Hamburg, Rotterdam, Long Beach, Esbjerg

Planification stratégique insuffisant



II. PLANIFICATION

Plan Directeur Energétique



Voies de décarbonisation:
Wuppertal institute
Port de Rotterdam 2017

ROI

4 – 10 ans

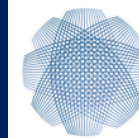


Avantages	Inconvénients
Offshore et Onshore	Connexion au réseau
Facile à mettre en œuvre	Manque de place
Énergie de Qualité	Variabilité

Civitavecchia, Italie – Conversion des vagues en énergie : 20% des besoins du port

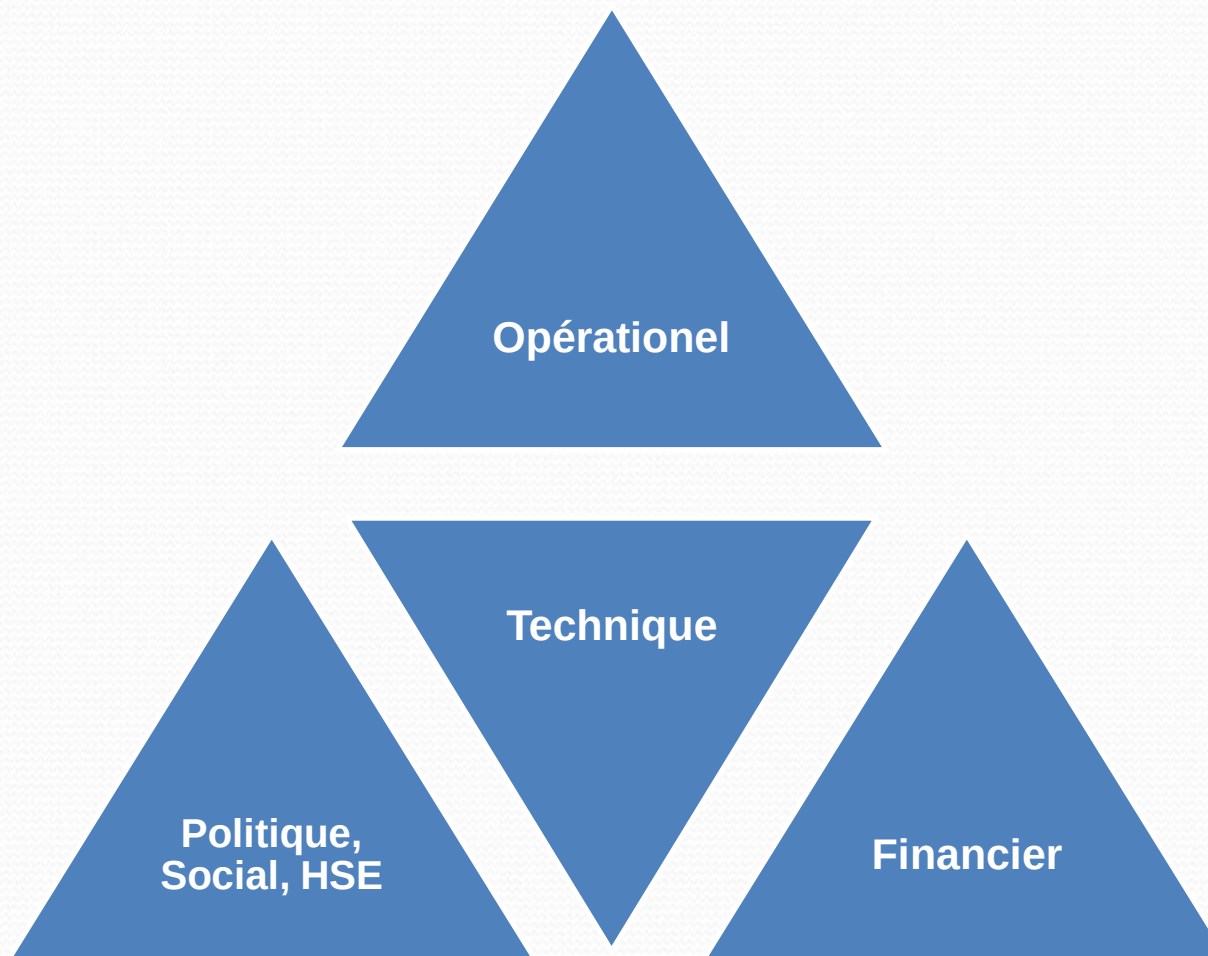


III. ÉVALUATION Énergie Renouvelable



Port du futur
Hub d'innovations

Systeme d'aide à la décision



70%

Identifié des
opportunités



Shore-to-Ship

Smart
Grids

Systèmes
de stockage
d'énergie

Efficacité
Énergétique

Eau
chauffée à
faible
valeur

Traitement
des
déchets

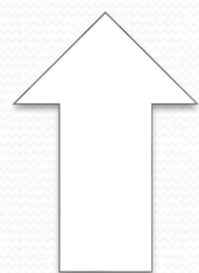
GNL

Felixstowe: Réduction de 15% de GES en 7 ans

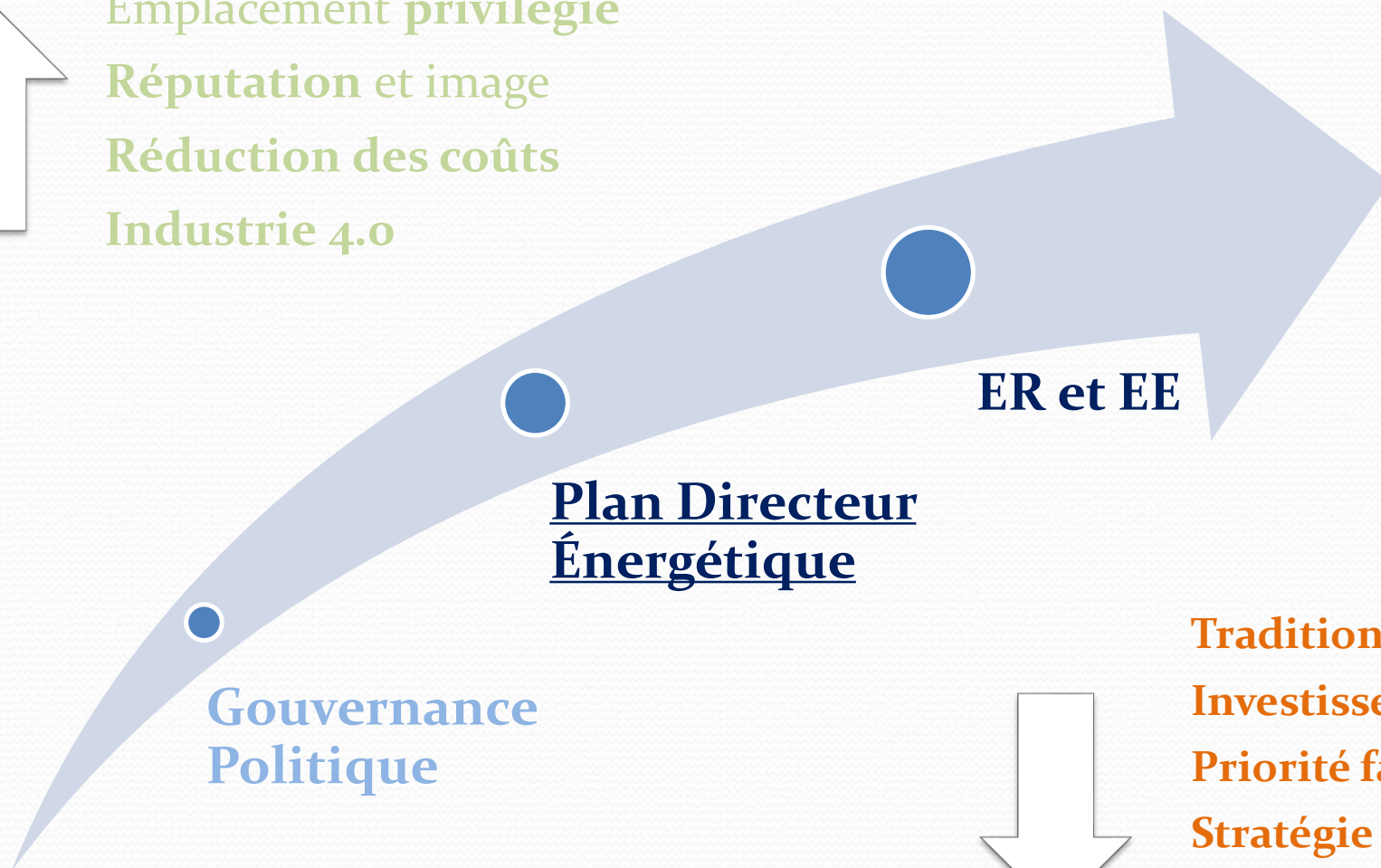


CONCLUSION

GT159 Recommandations



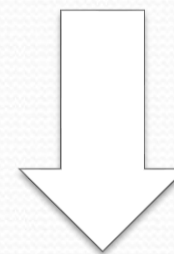
Emplacement **privilegié**
Réputation et image
Réduction des coûts
Industrie 4.0



Gouvernance
Politique

Plan Directeur
Énergétique

ER et EE

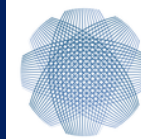


Traditionnel
Investissement
Priorité faible
Stratégie
Compétences



CONCLUSION

Tendances



Port du futur
Hub d'innovations



Faible empreinte
carbone



Port of
Rotterdam

Transformation
d'huile en
biocarburant



Décarbonisation
du fret maritime

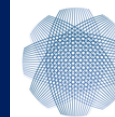


SUSTAINABILITY NEWS 12 March 2019

**IKEA, CMA CGM and The
GoodShipping Program join
forces to test sustainable
marine bio-fuel oil**



Énergie renouvelable et efficacité énergétique des ports: état de l'art



Port du futur
Hub d'innovations

PRESS RELEASE

19 March 2019

NEW PIANC PUBLICATION AVAILABLE



PIANC

The World Association for Waterborne
Transport Infrastructure



Title: 'Renewables and Energy Efficiency for Maritime Ports'

Author's: MarCom Working Group 159

Price: € 170.00 (167 pages)

Available at: <https://www.pianc.org/publications/marcom/wg159>

Introduction:

This report analyses the state-of-the-art related to the implementation of renewable energy devices and energy efficiency measures in port infrastructure. WG 159 distributed a questionnaire to port authorities and port operators worldwide to understand how facilities use electricity, the planning tools utilised and the technology used at port terminals.

Based on the questionnaire and the expertise of the Working Group members, the report provides guidance for evaluating and implementing Renewable Energy (RE) resources like wind, solar and ocean. The report discusses Energy Efficiency (EE) technologies and cost-effective solutions for port facilities.

The objective is to identify RE resources and EE measures through Energy Masterplans that can be implemented by Port Authorities and Terminal Operators leading to energy systems that minimise power consumption and reduce CO₂ emissions. The vision is to develop self-sustainable ports using RE and EE technologies.

The report focuses on:

- providing a critical review of the current state-of-the-art in the field of renewable energy devices which can be implemented with or within port infrastructure
- providing general criteria to assess the overall potential renewable energy which can be harvested in the entire port area, with the purpose of reaching a reasonable share of the yearly energy consumptions of port infrastructure with 'CO₂-free' solutions; and
- providing general advice for the implementation of both commercial and experimental projects related to the direct connection and/or integration of renewable energy devices to maritime port infrastructure, taking into account port engineering aspects, environmental, operational constraints, electrical aspects, economic and financial aspects and efficiency of the systems.

With special attention to:

- the analysis of the implementation of RE and EE technologies
- the opportunities in the Energy Efficiency sector
- the development of Energy Management culture
- the need for implementation of Energy Masterplans

The report provides a general approach to RE and EE opportunities from a strategic perspective and describes the best available technologies at present. The report does not address a detailed analysis of all these technologies because they are advancing quickly. The continuous evolution of RE and EE technologies may require periodic updates to this report.

The contents of the report are applicable not only for project planners (greenfield and brownfield projects) but also for port authorities and terminal operators.

NOTE: The objective of this report is to provide information and recommendations on good practice. Conformity is not obligatory and engineering judgement should be used in its application, especially in special circumstances. This report should be seen as an expert guidance and state of the art on this particular subject. PIANC disclaims all responsibility in case this report should be presented as an official standard.

PURCHASE NOTE: that for only € 15.00 (€ 35.00 for students) you can become an individual member of PIANC. Individual members receive a login and password to access the member-only page on our website. There you can download all published (English) PIANC reports **FOR FREE**. You'll also receive the new PIANC YEARBOOK as a hard copy. (<http://www.pianc.org/individualmember.php>)

PIANC, Boulevard du Roi Albert II 20, B 3 – B 1000 Brussels – Belgium

T + 32 2 553 71 61 – F + 32 2 553 71 55 – e-mail: info@pianc.org – www.pianc.org

<https://www.pianc.org/uploads/publications/reports/PRESS-RELEASE-WG-159.pdf>

Port du Futur – Lille - 25 Septembre 2019

M. Juan-Manuel Suárez

AIPCN GT159 – Coordonnateur

jm@port.eco