

Greening the IWT fleet & innovation in France : issues and roadmap





State-owned company formed 2012, merging 9 local navigation services and the recently formed VNF.

Assignements :

- Develop logistics and freight transport,
- Participate in planning, economic and tourist development of the territories,
- Ensure hydraulic management and water resource management, preserve biodiversity.



Some numbers

staff

4 300 agents

6700 km network

1868 km of large-gauge waterways,
705 km of intermediate gauge tracks (III & IV),
4281 km of small-gauge waterways (I & II),
1647 km of inland waterways less than 250 T.

40 000 ha of public river real estate.

4000 works

356 navigation weirs,
>1600 locks, lock ladders, water slopes,
543 discharge structures (weir, siphons, valves, etc.),
80 guard doors,
3756 km of dikes,
316 various hydraulic systems (reservoir dams, gullies, pumping stations, bypass of locks, etc.),
27 channel tunnels and 117 canal bridges,
674 crossing structures (overhead cranes, turning bridges, aqueducts, etc.).

Types of units: 4 uses



Freight transport vessels



Sightseeing boats



River liners



Pleasure boats

Mapping of issues by type of boat



Type of boat	Use	Number of units (2018)	Average power	Average annual operation
Barges	Freight transport	400		
Self-propelled + pushers		800	500 kW	2 500 h
River liners	Cruise	188	1 400 kW	1 770 h (1)
Hotel barges		89	190 kW	560 h (2)
Sightseeing boats	Passenger transport	326	260 kW	4 320 h (3)
Private yachting	Pleasure	12 900		246 h (4)
Rental yachting		1 400	40 kW	1 344 h (5)

(1) Agis PF 2018 study: Average navigation 1720 h / year on the Seine and 1820 h / year in Rhône / Saône

(2) 2019 PH VNF sector study: 4 hrs / day for 7 cruising days over 20 operating weeks

(3) Naviwatt 2019 study: 8 rotations of 1 hour / day x360 days = 2,880 hours + 2 rotations of 2 hours / day x 360 days = 1,440 hours

(4) PP VNF 2019 study: 6h / day for 44 days of annual navigation

(5) VNF rental sectors study 2019: 32 weeks of 7 days with 6 hours of average navigation

2030 Fleet forecast - Challenges for all types of IW business



Increasing environmental requirements

Non-Road Mobile Machinery regulation

Local level : related constraints of local communities (Olympic and Paralympic Games 2024, image, citizens' expectations, Low Emission Zones).

→ - 35 % emissions by 2035

→ 0 % emissions by 2050

VNF's strong commitments to support and initiate the energy and environmental transition

May 29, 2019 symposium

"River transport at the time of energy transition".



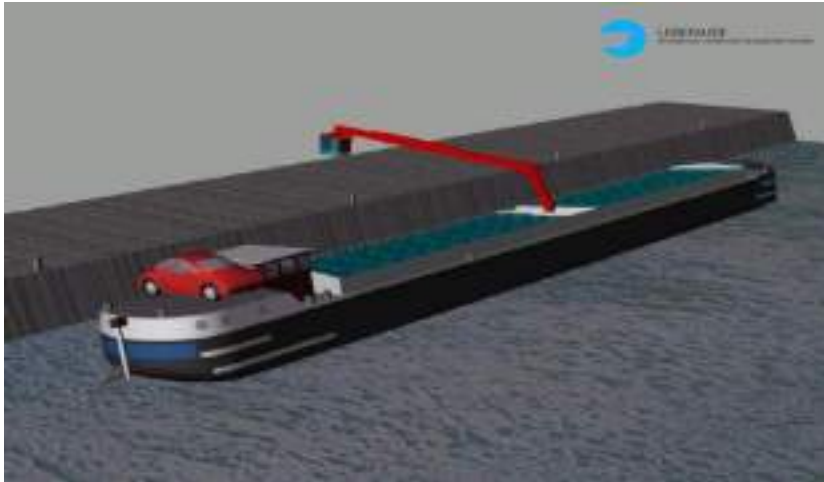
IWT commitments for Green Growth of (ECV).



BUT ALSO :

→ Make the industry more attractive → renewal of actors.

→ Adapt boats to infrastructure (ports, docks & parking areas, increase in the capacity of the navigable network, water levels).



FREIGHT TRANSPORT

- Adapting boats to shippers' expectations → heavy lifts, containers of all kinds, adaptability, stability, on-board handling.
- Preserving and renewing the fleet → hold offer responding to hold without disrupting the market.



PASSENGER TRANSPORT

take France to n°1 tourist destination on rivers.

Sustainability of a new technical development model.

Meet customers' expectations.

Sensitivity to news (attacks, COVID).

Transport system issues



Transport System Innovation Committee

The main issues are dealt with within 7 internal VNF task forces

1. Greening the fleet
2. Alternative energies and fuels
3. Electricity terminals
4. manless navigation
5. Digitization
6. Innovative Logistics
7. Waste unloading stations



GREENING

- Greening roadmap.
- Indicators by nature of pollutants.
- Technical sourcing and scientific partnerships.
- Knowledge of uses.
- Greening trajectory (s) and financial impact.
- Dissemination of best practices among operators (technical briefs, webinars).



ALTERNATIVE ENERGIES AND FUELS

- Alternative fuels refueling schemes (North, Seine and Rhône Saône).
- Prospective studies.
- Waterfront production?



ELECTRICITY TERMINALS

- Take into account local specific points.
- Investment and operating methods.
- Pricing and invoicing.
- Funding.



Electrification of transport



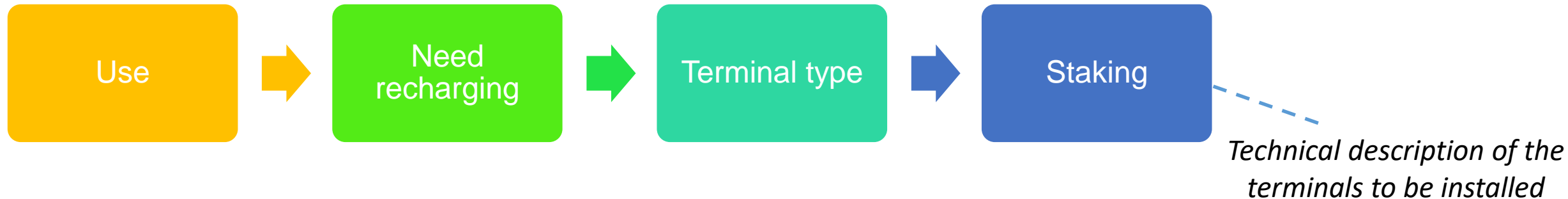
2 electrification requirements => Roaming

1. Shore connection (RQ)

= supplies the equipment and avoids the use of a generator.

2. **Electric (ME) or hybrid (MH) mobility**

= allows roaming of a 100 % electric or hybrid propulsion engine (gradual hybridization rate etc.).



Typical architectures 2 issues : batteries and their power supply



Evolution of battery supply means

2020 CCNR2 + GNR generator sets,
Low power terminals,
Photovoltaic panels (100kwh).

2030 Stage V + CA generator sets,
Medium power terminals,
Photovoltaic panels
Biogas engine, heat pump.

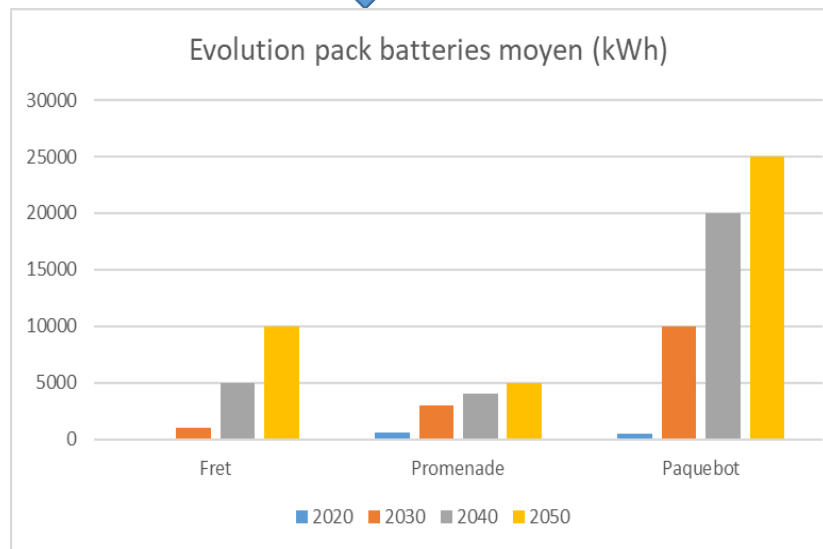
2040 Stage VI generator sets,
High power terminals,
Photovoltaic panels
Biogas engine, heat pump.

2050 High power terminals,
Photovoltaic panels,
Fuel cell.

Battery pack (€, V, m, S)



Electric motor (s)



Power,
speed,
autonomy,
efficiency

Deployment of terminals

State of art



area	Number of terminals	Characteristics	Specific works
Nord Pas-de-Calais	91	Mainly 16 and 32A sockets.	Renewal of the fleet to adapt the terminals to “roaming” needs.
Seine	13	16, 32 and 63A sockets.	Objective 100 terminals by 2024 integrated into the future VNF “Borne et eau” portal.
Strasbourg	10	32A outlets for rental pleasure craft charging.	Integrated into the future VNF “Borne et eau” portal.

Water and electricity terminals focus on the river Seine



2020: 13 stations in operation & 1/3 of the fleet registered

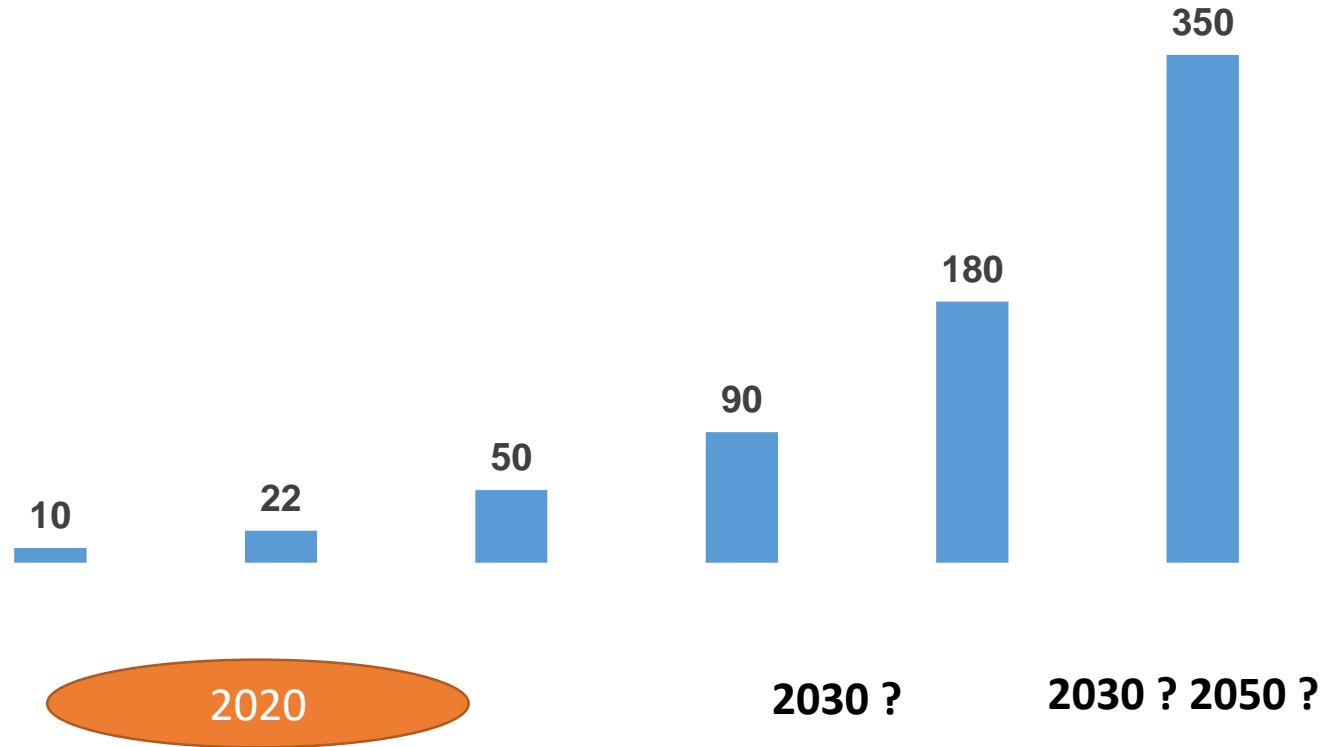


Supported project by the EU

⇒ 78 additional terminals will be deployed.

implementation of terminals

Power development on terminals (kW)



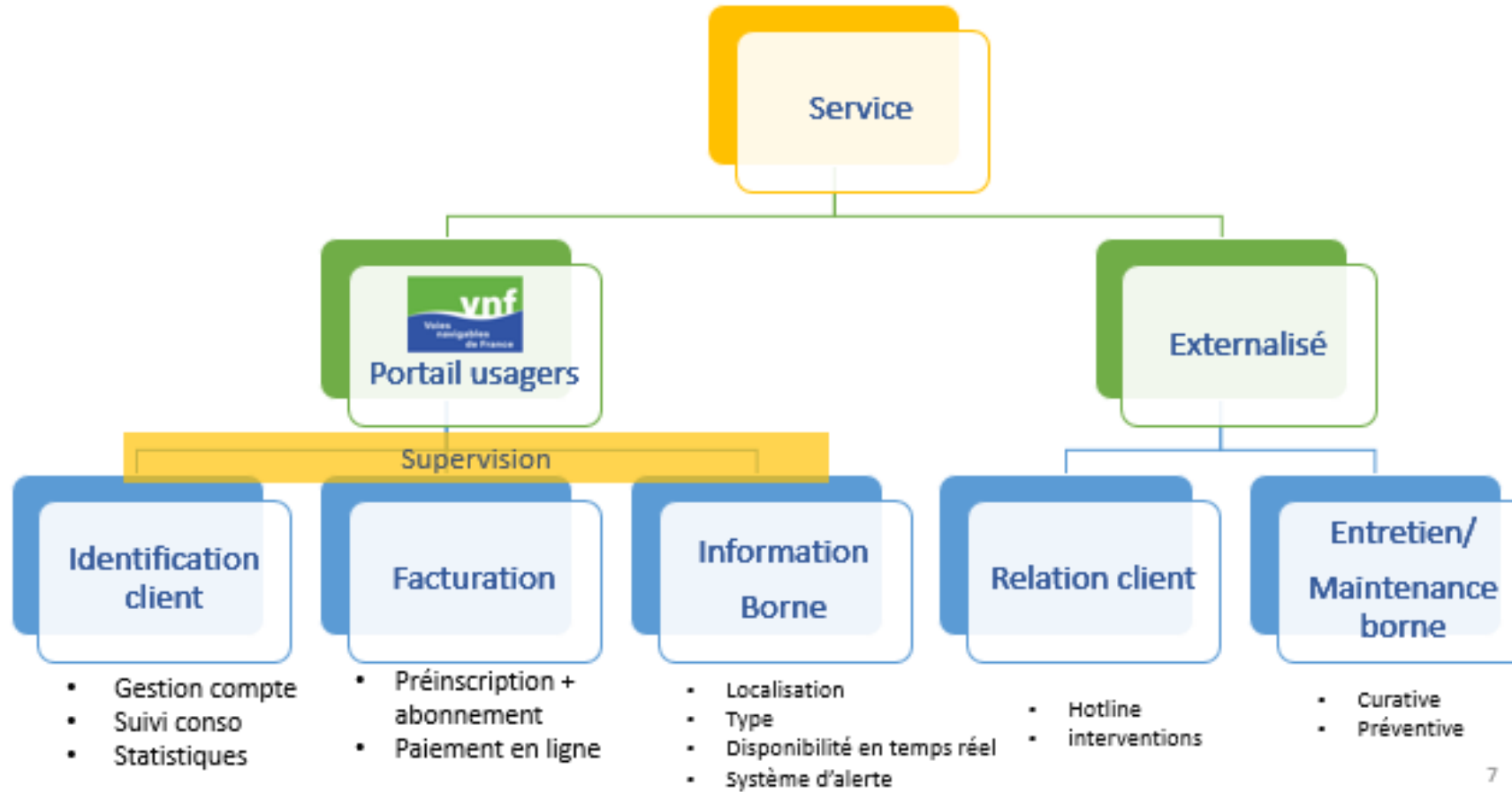
Planning

Charging type

AC/ DC

DC

Supervision and accessibility



ways to recharge?



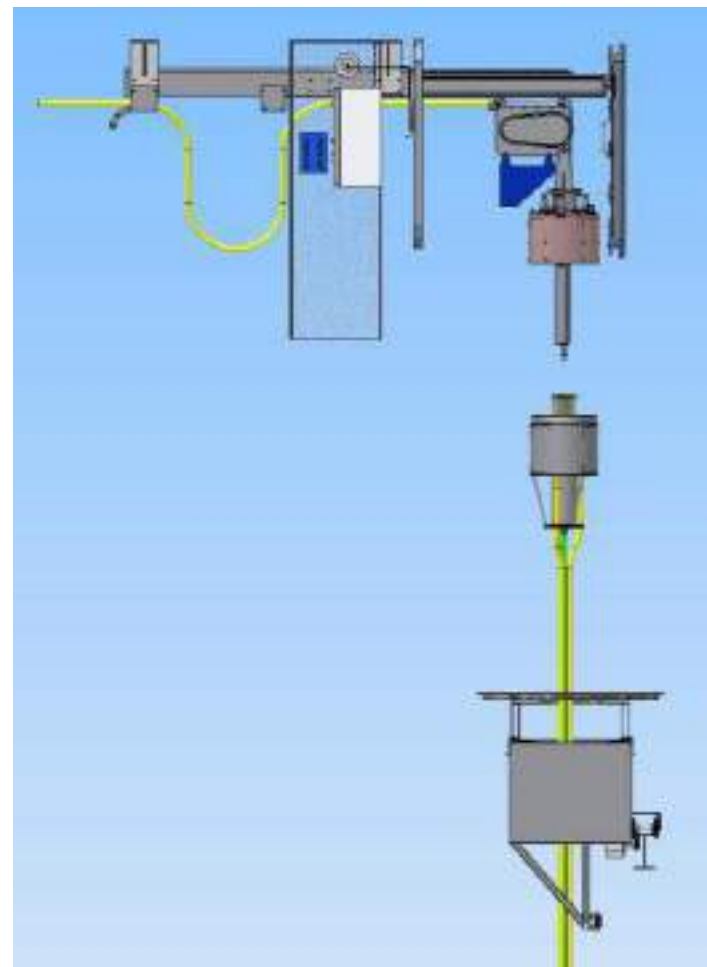
Three-phase marshal socket
<80kW



CCS socket up to 350 kW

But also....

Ferries in Norway

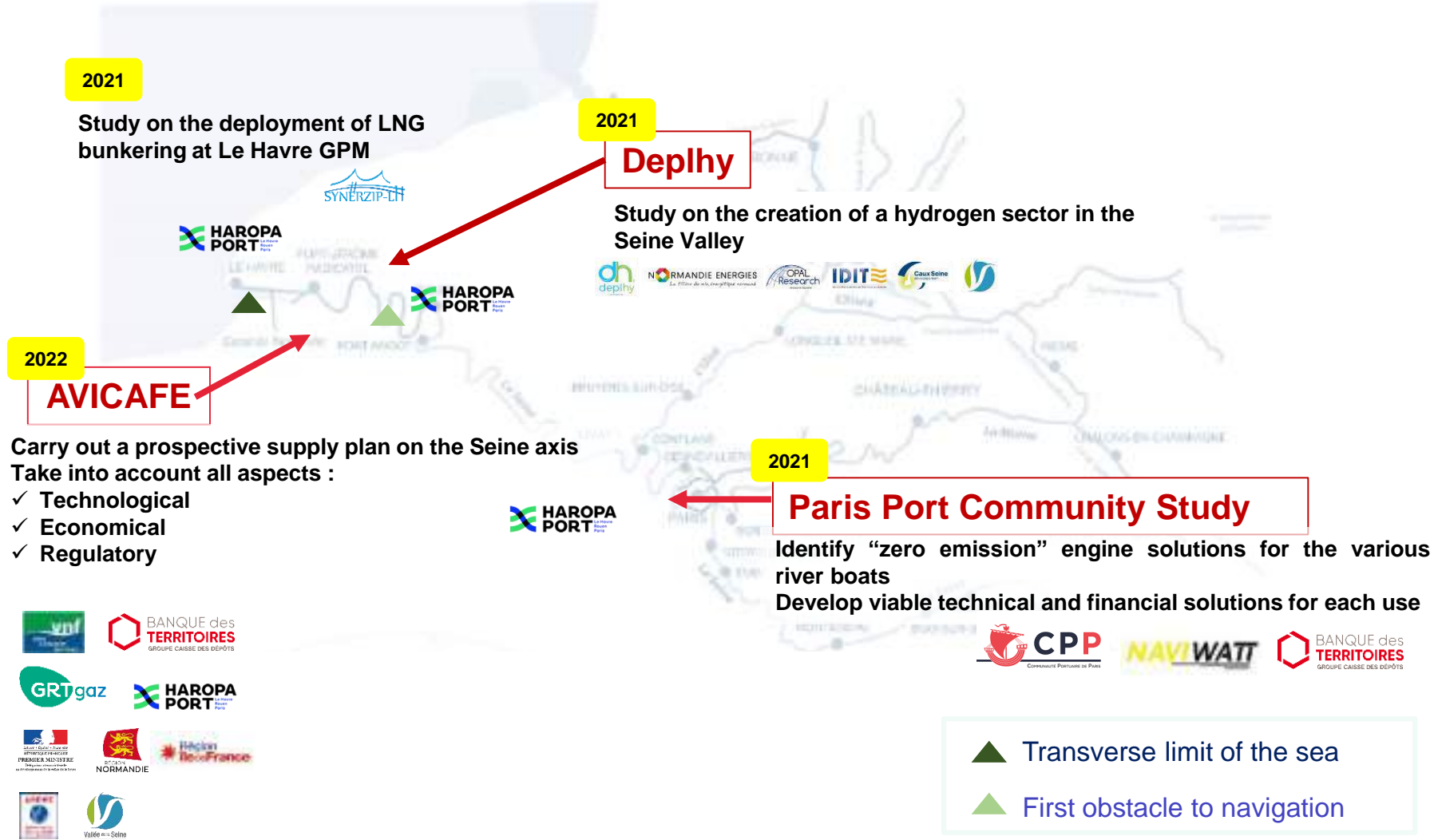


@NG3

 Cable handling, navigation automation.

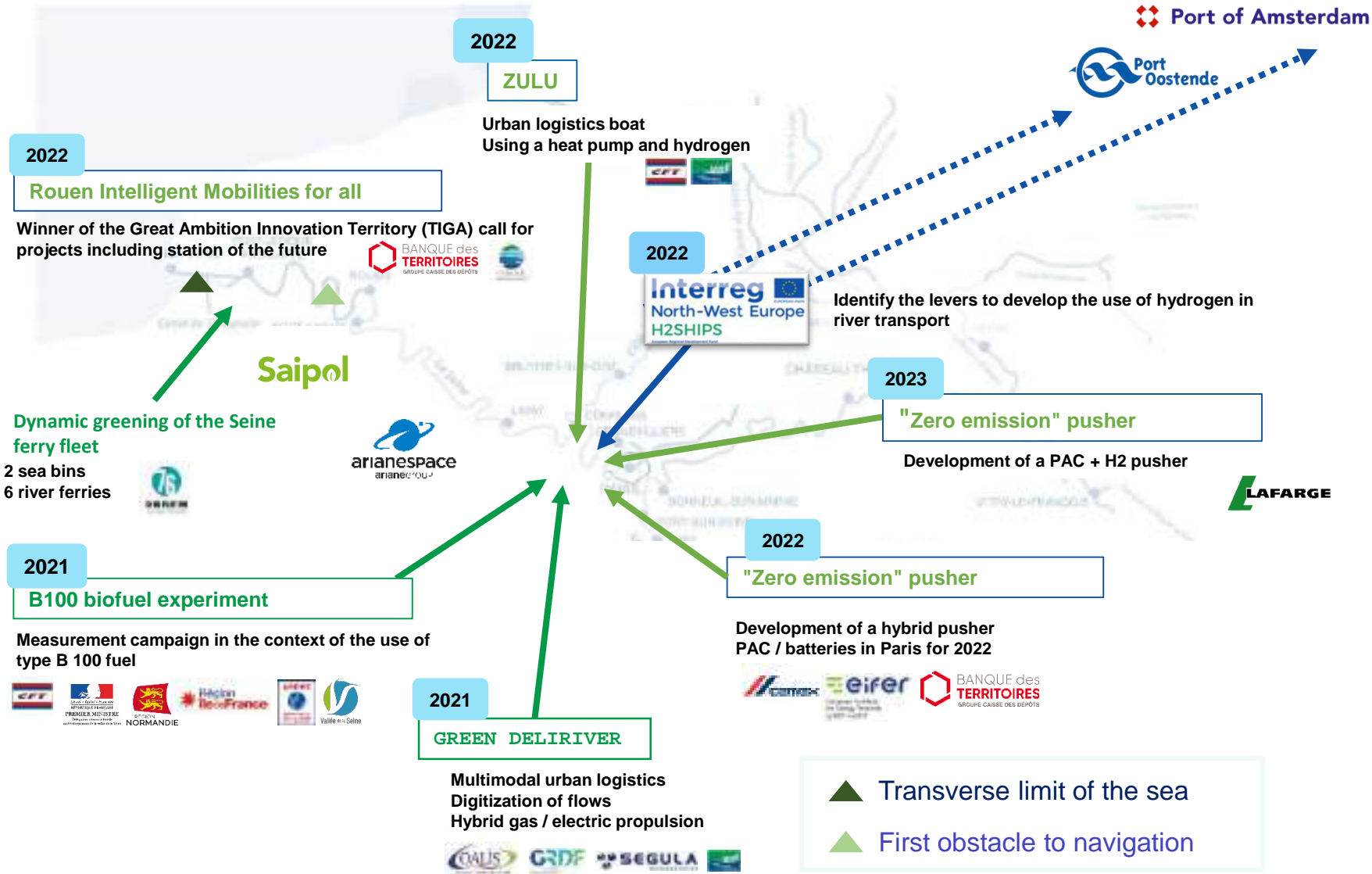
Energetic transition

Local approaches



Energetic transition

Support local initiatives



VNF partner of the IAJ Paris 2024

Support the emergence of new solutions




Thruster eclectique
HY GENERATION



H2 river shuttle

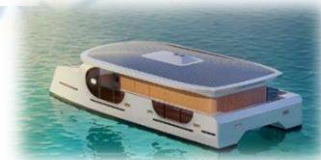
Hydrogen mobility
 innovative hulls
 Navigation aid
 Optimized energy management



Croizat, urban port of the future
 Floating urban logistics depot



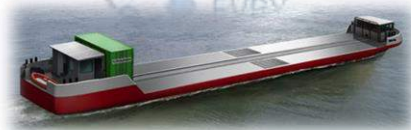
H2 shore generator



H2 refueller



CUBE JO
 Intermodal container
 Advanced digitalization of workflows



ZULU
 H2 urban logistics boat

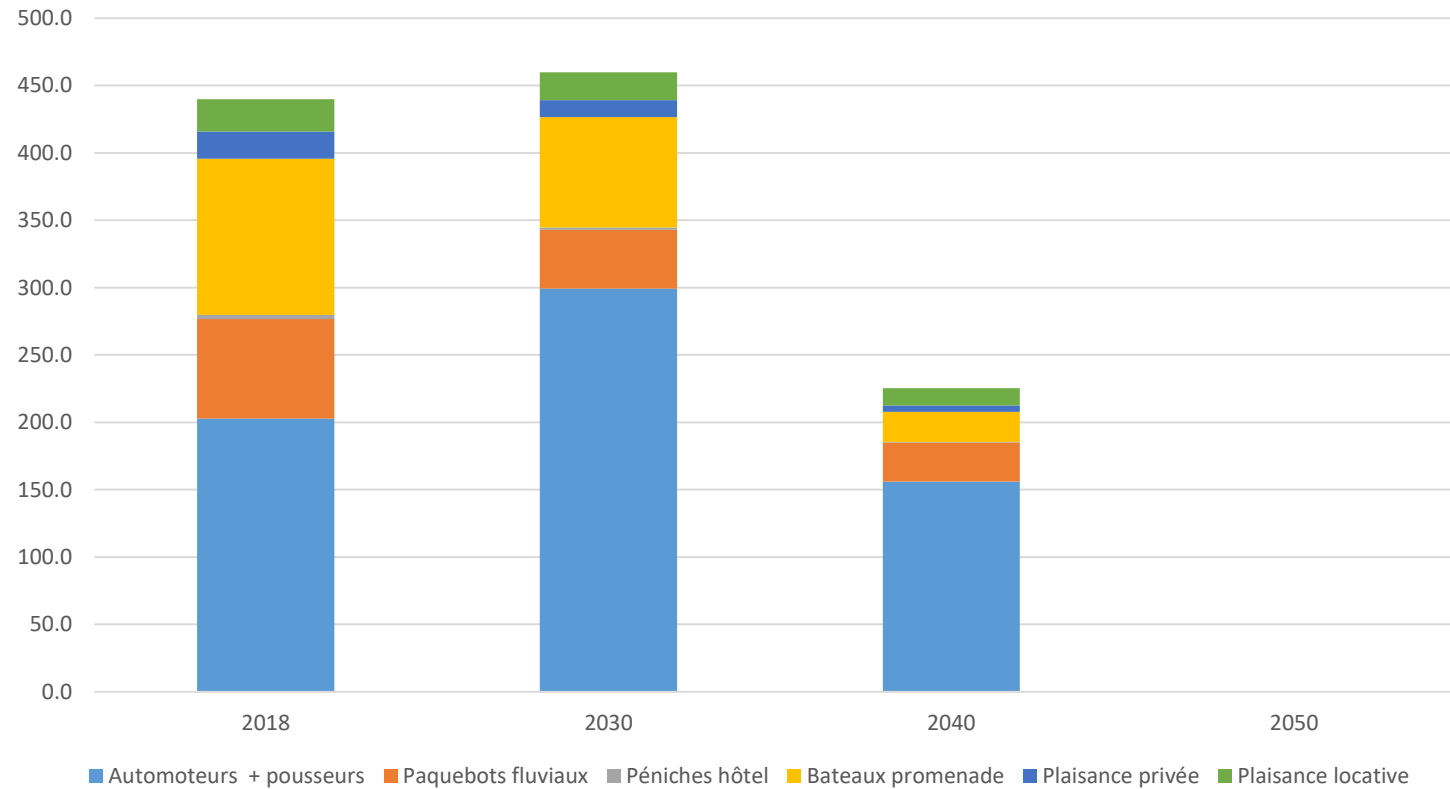



Thruster eclectique
FinX



Forecast evolution of CO2 emissions (in kt) by type of IW sailing

CO2 emissions forecast (en kt) for each type of IW fleet



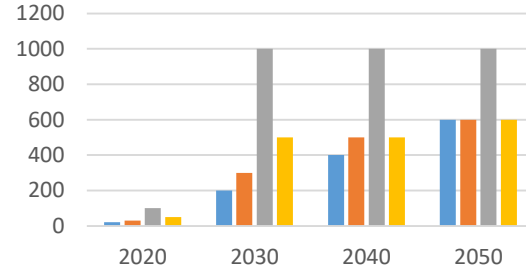
Vision 2050 : macro-trajectory of implementation



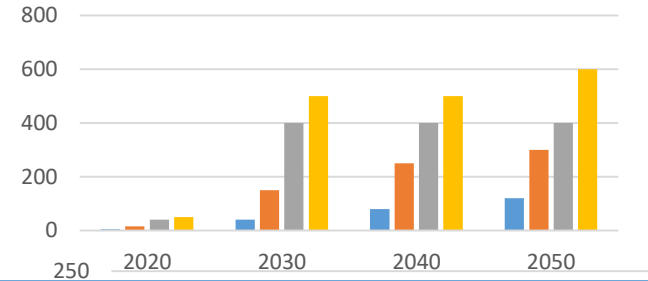
Freight transport



Number of operations

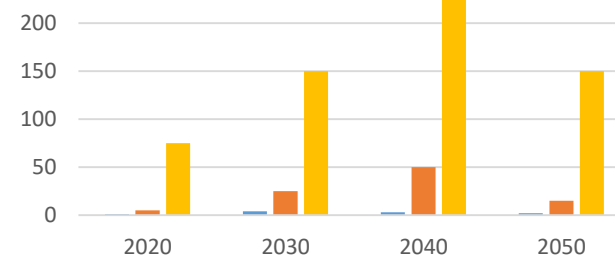
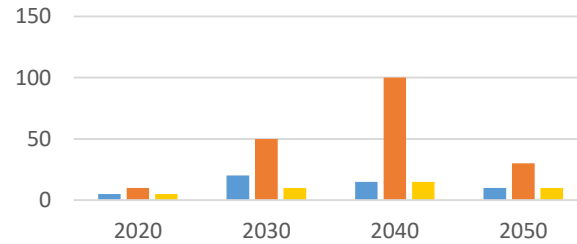


Investment needs (M €)



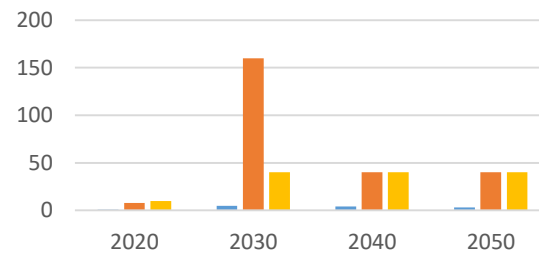
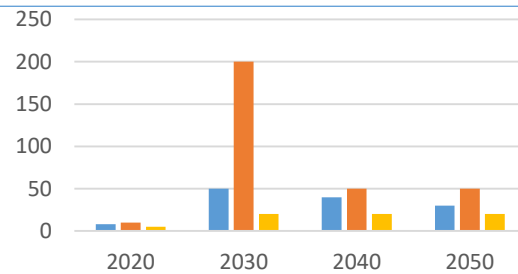
€ 1 billion euros global financing need by 2030

Cruise



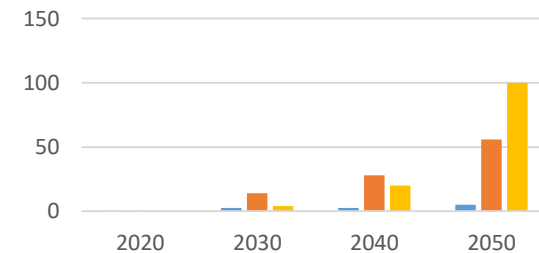
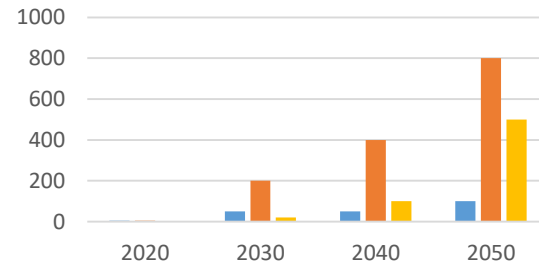
€ 260 million euros global financing need

Passenger transport



€ 200 million euros overall financing need by 2030

Pleasure



€ 20 million euros overall financing need by 2030

TO CONCLUDE SUCCESS FACTORS



- **Technical availability (technologies and energy)**
 - Alternative fuels refueling schemes → supply vs operators' requirements.
 - Sourcing and technical and scientific partnerships.
- **Operator membership**
 - Financing / economic sustainability.
 - PAMI one-stop shop: increase in aid intensities, administrative simplification for carriers
 - Green certificates revisions + implementation of an ECC program.
 - Progressive support for operators (preliminary personalized study, first-level guide, adapted service centers).
 - Experiments on a VNF fleet (VALSAONA multifunction pontoon).
 - Economic environment (crisis, floods, attacks etc.).
- **Regulations**
 - Low emissions zones, EC regulation, Restricted Areas Decree.



HOW TO FINANCE?



Plan overview

- EU approved subsidy plan launched May, 2018.
- Beneficiaries
 - Historically dedicated to freight carriers.
 - Since 2018 : gradual opening to design offices, site, equipment supplier, passenger carriers.
 - Since July 2020 : habitable rental pleasure boats and sightseeing boats of at least 12 passengers.
- Gradual participation of other public actors (regional councils in particular) aiming to increase the overall budget of the plan :
 - **10 M€** in 2013 – 2017,
 - **24 M€** for the 2018 - 2022 plan (to September 2020),
 - **Target € 30 million by the end of 2021.**
- Evaluation of files according to 4 criteria (validation by jury 3 times a year) :
 - Relevance and impact of the project.
 - Aid impact.
 - Maturity.
 - Presentation quality.

Measures overview

4 shutters :

- **Part a** - improve the performance of the environmental fleet of the fleet.
- **Part b** - better integrate the river link into logistics chains.
- **Part c** - supporting the renewal of actors and the sector.
- **Part d** - promote the emergence of innovative solutions.

10 measures for :

- Purchase, boat building.
- Modernization (environmental, logistics, etc.): engine changes, floor changes, etc.
- Studies (technical feasibility / design / R&D).

Some key figures :

- Average help : 44 000 €.
- Average investment : 390 000 €.
- 285 files validated since 2018.

PAMI TARGETS



- Reduce fuel consumption;
- Reduce polluting emissions;
- Encourage the use of renewable energies;
- Optimize on board energy management;
- Make it possible to capture new traffic;
- Increase IWT traffics with seaports;
- Improve IWT fleet's logistical performance;
- Support the renewal of shipowners in the sector;
- Promote the emergence of innovative solutions.



The Modernization & Innovation Assistance Plan covers 2 topics and 4 components

Support environmental performance

Framed by Articles 25, 36, 38,41 and 49 of the Regulation (EU) N ° 651/2014 of the commission of June 17, 2014 known as RGEC 2014.

PART A - IMPROVING THE PERFORMANCE OF THE FLEET

- A1 - Reduce consumption and polluting emissions.
- A2 - Reduce and treat releases to water or waste.
- A3 - Adapt boats for better hydrodynamics.
- A4 - Optimize energy management on board.

PART D - PROMOTING THE EMERGENCE OF INNOVATIVE SOLUTIONS

- Experiment with an existing or new technology that has not been tested in the specific context of river transport,
- Design new technologies to respond to a specific problem in the river sector.

Support logistic integration of IWT

Framed by PAMI's own notification

PART B - BETTER INTEGRATING IWT INTO THE LOGISTICS CHAIN

- B1, B2, B3 – Adapt, build or acquire boats to capture new traffic or perpetuate existing traffic or better serve seaports.
- B4 - Acquire instruments and software to aid in navigation or in operating the boat.

PART C - SUPPORTING THE RENEWAL OF STAKEHOLDERS AND THE SECTOR

- Encourage the acquisition of the first boat for new river transport companies.



RELEVANCE + PROJECT IMPACT (10 POINTS) :

- Does the project meet the objectives of at least one of the sub-components of the plan?
- Analysis of the volume of additional or sustainable traffic,
- Taking into account the impact of the project on the capacity (in particular overcapacity) of the hold in the basin.
- Analysis of the environmental performance resulting from the project.

IMPACT OF THE AID (4 POINTS) :

- How much can VNF's help actually trigger the project?
- For this, presentation of a provisional financing plan and a certificate of accounting situation.

MATURITY OF THE PROJECT (4 POINTS) :

- Project progress.
- Is the transporter ready to launch the investments, or is he filing a case to reserve credits in the medium-term investment hypothesis?
- To do this, request proof of reservation (site or other service provider).

QUALITY OF PRESENTATION OF THE FILE (2 POINTS) :

- Clarity and precision of the data provided on: the technical, logistical, financial and human characteristics of the projects.
- It is a question of having precise summaries allowing to identify effectively and quickly the interest of the projects.

General figures



Jury	Amount of subsidies granted	Number of files selected
1 (sept 2018)	3 168 679.64 €	71
2 (juin 2019)	2 660 941.99 €	80
3 (déc 2019)	1 591 871.76 €	24
4 (juin 2020)	1 722 192.40 €	45
5 (novembre 2020)	2 944 309.07 €	65
Grand total	12 087 994.87 €	285

Year	Amount of subsidies paid
2018	846 k€
2019	2 631 k€
2020	3 484 k€
Total	6 960 k€ (48 % of cases initiated)



**Porteur
de projet**



**1 seule convention globale de
financement**





- Until 2018 → plan budget distributed between VNF (75 %) and the French transport ministry (25 %).
- Since 2018, several regional councils or public partners have supported VNF by mobilizing financial resources towards the PAMI (heterogeneity of criteria and conditions).

Breakdown of 2018 - 2022 envelopes

Partners	2018	2019	2020	Forecast end of 2021
French transport ministry	3.7	3.7	3,7	4.5
Ile-de-France region	1.5	1.5	1,5	4
Provence Alpes-Côtes d'azur region		1.1	1,1	1,1
Normandy region			0,4	0,8
ADEME		4.26	4,26	6,26
National Rhône Company				0.4
New Aquitaine region				0.1
Occitanie region				0.5
Voies navigables de France	12.5	12.5	12.5	12,5
TOTAL (M€)	17.7	23.06	23,46	30,16

+ Discussion in progress with HAROPA, Auvergne Rhône Alpes, Burgundy, Hauts-de-France regions.



VERT Vert le fluvial - Webinaire #3



SAVE The DATE

Lundi 28 juin 2021
De 9h15 à 12h30

Électromobilité fluviale : enjeux et perspectives d'une solution plus verte




Webinaire organisé en partenariat avec



Invitation et programme à venir.
Contact: vertlefluvial@mcf.fr

VNF Cargo
3 129 abonnés
1 mois - 🌐

[Save the Date] La 14ème édition de Riverdating, le RDV européen du #Transport #Fluvial, se tiendra du 12 au 14 octobre 2021, à Lyon, en co-exposition avec le salon Pollutec.

Retrouvez tous les acteurs, toutes les actualités et les atouts de la logistique fluviale !

Les inscriptions seront bientôt ouvertes.

