

Journée Méditerranéenne de l'air - les ports -



marseille

14 novembre 2017 - City Center Vieux-Port

Ensemble,
préservons notre air !



Région
Provence
Alpes
Côte d'Azur



Qualitair Corse



AirPACA
QUALITÉ DE L'AIR

Membres de



Aimo
France

Shore connection solutions

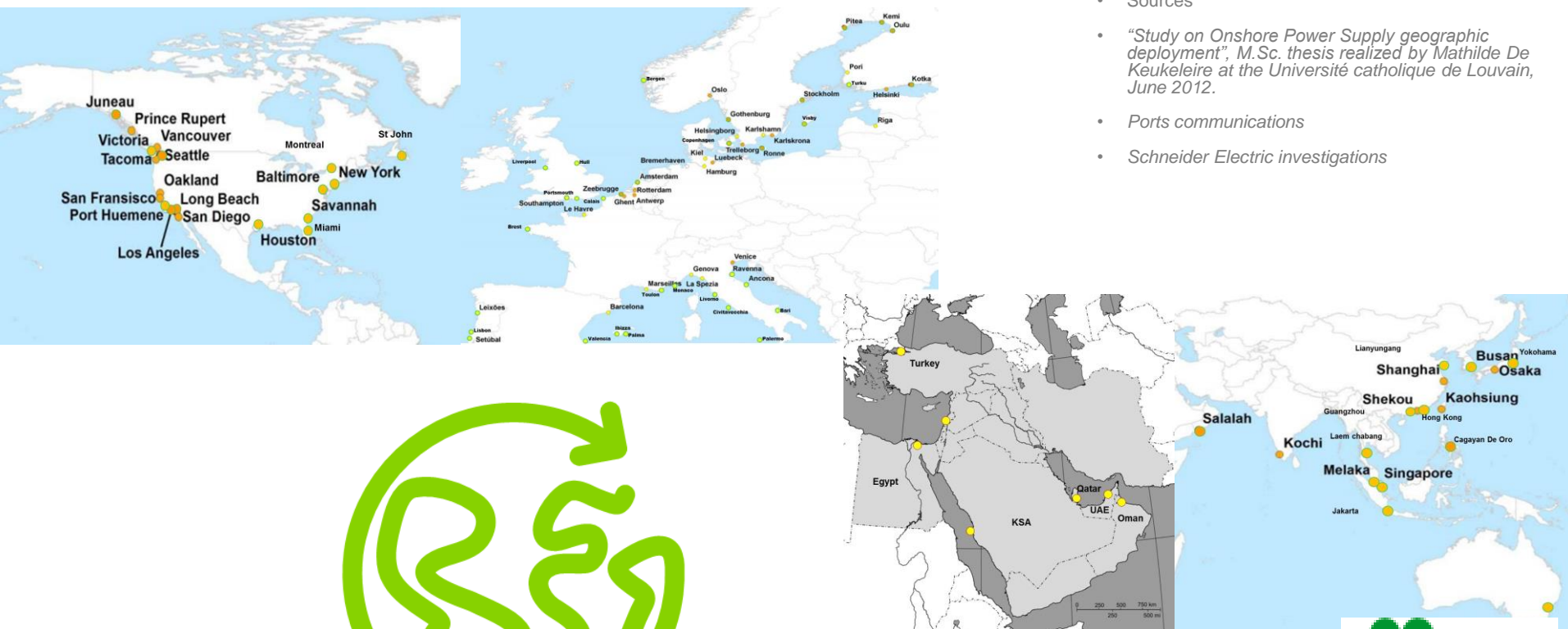
Plug in to green power

14 Novembre 2017



Hugues Berthet
Shore Connection
Business Development
Director

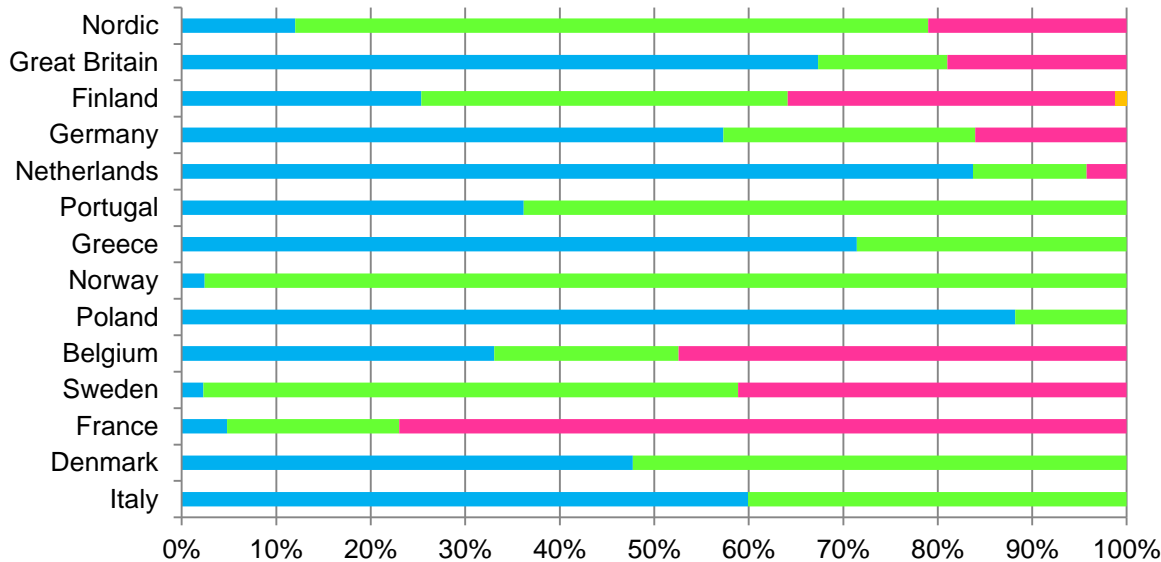
Notre Vision mondiale Shore Connection



- Sources
- "Study on Onshore Power Supply geographic deployment", M.Sc. thesis realized by Mathilde De Keukeleire at the Université catholique de Louvain, June 2012.
- Ports communications
- Schneider Electric investigations



Sources production électrique en Europe, Mix énergie



- 1. Fossil energy source and peat (Natural gas, coal, oil, peat, non-renewable waste and recycling fuels)
- 2. Renewable source of energy (Hydro power, biofuel, wind power, solar power, renewable waste and recycling fuel)
- 3. Nuclear power
- 4. Non Identifiable

Energy Mix 2014	Italy	Nordic	Denmark	France	Sweden	Belgium	Poland	Norway	Greece	Portugal	Netherlands	Germany	Finland	Great Britain
1. Fossil energy source and peat (Natural gas, coal, oil, peat, non-renewable waste and recycling fuels)	60%	12%	48%	5%	2%	33%	88%	2%	71%	36%	84%	57%	25%	67%
2. Renewable source of energy (Hydro power, biofuel, wind power, solar power, renewable waste and recycling fuel)	40%	67%	52%	18%	57%	20%	12%	98%	29%	64%	12%	27%	39%	14%
3. Nuclear power	0%	21%	0%	77%	41%	47%	0%	0%	0%	0%	4%	16%	35%	19%
4. Non Identifiable	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%

Ref : entsoe (european network of transmission system operators for electricity) 2014
 Nordic = Denmark, Finland, Norway, Sweden, Estonia

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Shore Connection, solution attractive grâce au mix énergie

Mix Emissions CO2 Pays & Navire (g/kWh)

(g/kWh)	CO2 Emission	CO2 emission	(g/kWh)
Belgium	253,61	Auxiliary engines using 0,1% sulphur marine gas oil (MGO)*	645
Denmark	328,84		
Finland	177,79		
France	92,40		
Germany	503,42		
Greece	904,18		
Italy	404,65		
Netherlands	432,86		
Norway	4,54		
Poland	810,42		
Portugal	505,74		
Sweden	43,60		
Great Britain	496,28		

En France, connecter un navire au réseau électrique réduit les émissions de CO2 de 86%

Emissions CO2

Source : eea.europa.eu 2015

Mix Emissions Nox, Sox, PM Pays & Navire (g/kWh)

Production / emissions	NOx (g/kWh)	SO2 (g/kWh)	PM (g/kWh)
Emission from Auxiliary engines using 0,1% sulphur marine gas oil (MGO)*	13,2	0,2	0,3
Nordic Energy Mix	0,32	0,07	0,03
Reduction emission	98%	65%	90%

Emissions NOx; SO2, PM



* Source : Feasibility Study of Cold-ironing Technology in Copenhagen
 FABIO BALLINI - UNIVERSITY OF GENOVA, Italy 2013
 CO2 emission from the 70 cruise vessels with a total of 308 calls visiting the Port of Copenhagen in the summer season of 2012 (May-October) ~ energy demand 31674 MWh

Emissions des navires et coûts: CO2, NOx, SO2, PM



Ferry

12h/j/365j, Puissance : 3MVA

Hypothesis		Emissions From Ship Referencial	
	CO2	645	g/kWh
	Nox	13	g/kWh
	SO2	0,2	g/kWh
	PM	0,3	g/kWh

Result		Ship Emission simulation		At berth	
	CO2	8475,3	Ton	Power	3 MVA
	Nox	170,82	Ton	Time at berth	4380 Hours
	SO2	2,628	Ton	HLSMGO	500 €
	PM	3,942	Ton	Electricity	0,08 €
	LSMGO (200g/kWh)	2628	Ton	→ Fioul Price	1 314 000 €
	LSMGO (250g/kWh)	3285	Ton	→ Fioul Price	1 642 500 €
	LSMGO (300g/kWh)	3942	Ton	→ Fioul Price	1 971 000 €
	Energy Consumed	13140	MWh	→ Electricity Price	1 051 200 €

-47%



L'expérience Schneider Electric

Pour répondre aux attentes clients

Une solution innovante et durable :

- ❑ Favorisant la transition énergétique
- ❑ Améliorant la qualité de l'air
- ❑ Réduisant la pollution sonore
- ❑ Smart Port projets d'innovation Smart City

Une solution simple, sûre, fiable et efficace :

- ❑ Produits standards de l'offre Schneider Electric
- ❑ Système global plug and play, TVD
- ❑ Optimisation Capex et l'Opex

