Energy Transition Dialogue in Luxembourg 2022

30.06.2022

Claude Turmes

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Énergie et de
l'Aménagement du territoire
Département de l'énergie

Climate protection

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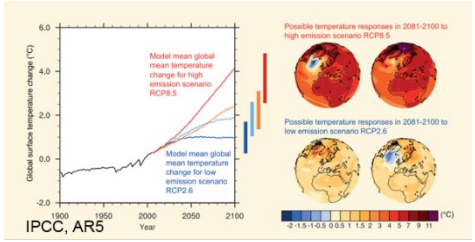
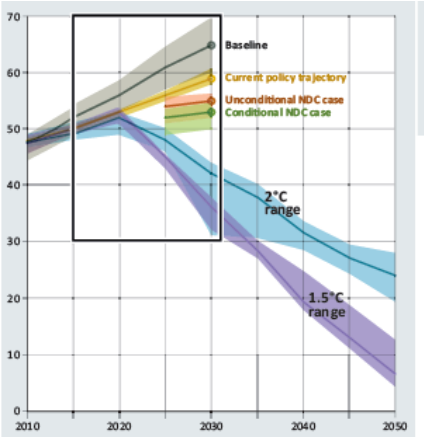
DU GRAND-DUCHÉ DE LUXEMBOURG

COP21 · CMP11
PARIS 2015
UN CLIMATE CHANGE CONFERENCE





The "carbon budget" approach

- Climate change is a question of CO2 concentration in the atmosphere: the world has a carbon budget of 890 Gt (60 Gt for the EU)

	CO budget globally from 2015	CO budget EU-28		
		Emissions share 2015	Share in population	
			2015	2050
	Gt CO_2	Gt CO_2	Gt CO_2	Gt CO_2
1.5°C for 66% of model runs	240	21,7	16,6	12,9
1.5°C for 50% of model runs	390	35,2	27,0	20,9
1.5°C for 33% of model runs	690	62,2	47,7	37,1
2°C at 66% probability	890	80,2	**61,5**	47,7
2°C at 50% probability	1.000	90,1	69,1	53,6
2°C at 33% probability	1.290	116,2	89,2	69,2
3°C for 66% of model runs	2.240	202,0	154,9	120,2
3°C for 50% of model runs	2.640	238,0	182,6	141,7
3°C for 33% of model runs	3.090	278,6	213,7	165,9

The climate impact of energy and emission pathways can be assessed on the basis of cumulative CO2 emissions

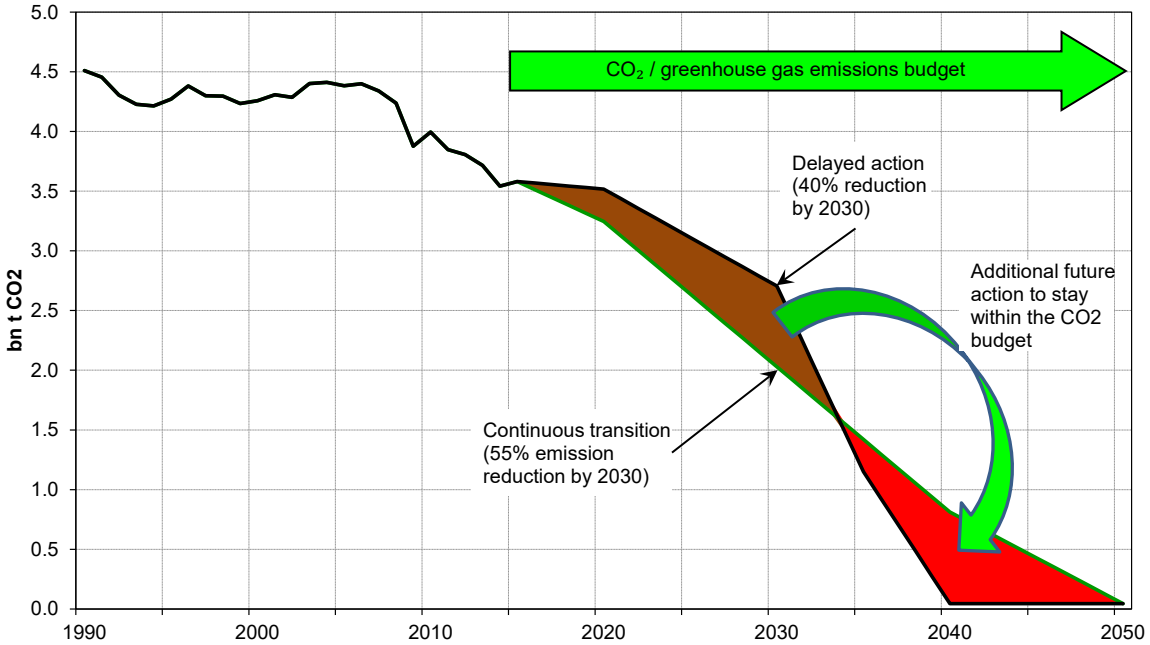
The IPCC provides CO2 emission budget specifications that are widely used in analytical exercises on Paris-compatible pathways (e.g. by IEA/IRENA)

The EU's fair share in the global budget is based on a per-capita (equity) basis on the post-Paris (post-2015) CO2 emissions

Felix Matthes, Öko Institut, Vision Scenario 2018

Au niveau européen : le Pacte Vert pour le climat

- Climate neutrality objective for 2050 at the latest (“Climate Law”).



"27-27-40" ARE NOT ENOUGH
2030 TARGETS SHALL BE REVISED UPWARDS

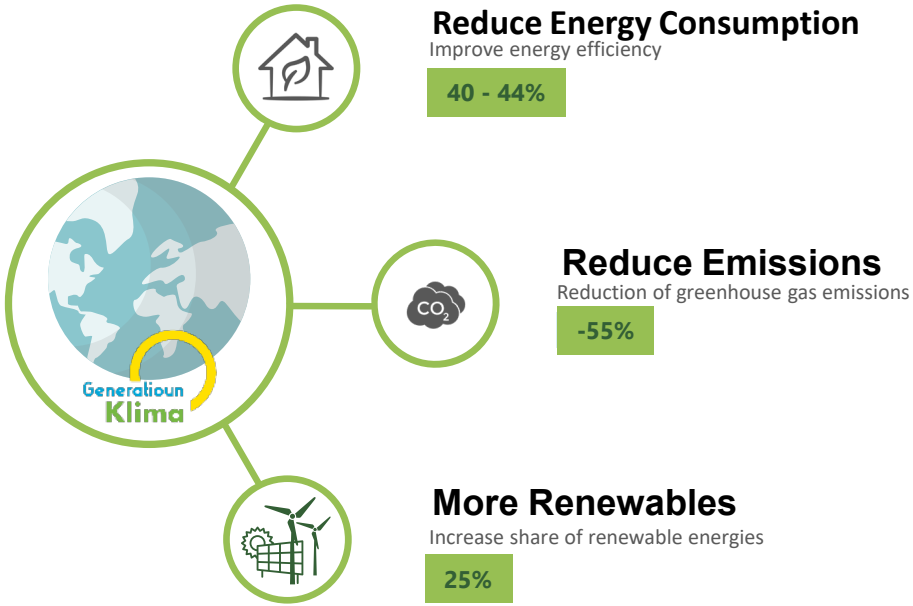
	Reference Scenario					Vision Scenario			
	2015	2020	2030	2040	2050	2020	2030	2040	2050
Share of renewables									
Power generation	29%	37%	43%	45%	53%	39%	70%	84%	100%
District heat*	26%	24%	23%	22%	22%	27%	60%	84%	96%
Final energy*	15%	19%	22%	24%	27%	19%	37%	65%	96%
Industry	*18%*	*24%*	*30%*	*34%*	*38%*	*24%*	*47%*	*67%*	*88%*
Tertiary	*18%*	*23%*	*28%*	*31%*	*36%*	*23%*	*48%*	*69%*	*99%*
Households	*25%*	*28%*	*29%*	*30%*	*33%*	*29%*	*55%*	*78%*	*100%*
Transport	*4%*	*7%*	*7%*	*8%*	*9%*	*7%*	*14%*	*57%*	*99%*
Primary energy	15%	17%	19%	21%	13%	20%	40%	70%	98%
Energy Efficiency	Change from Primes Baseline 2007**								
Primary energy	-	-18%	-23%	-	-	-23%	-44%	-	-
Primary energy imports***	17%	13%	13%	14%	17%	13%	10%	7%	7%
GHG emissions	Change from 1990								
Total****	-21%	-24%	-32%	-37%	-42%	-30%	-54%	-78%	-93%
CO2****	-21%	-22%	-30%	-35%	-42%	-28%	-55%	-82%	-99%

Notes: * The share of renewable energy sources includes indirect contributions from electricity, heat, hydrogen & synfuels. The statistically unaccounted ambient heat delivered by heat pumps represents additional contributions to the final energy supply from renewables. - ** The 2007 Primes Baseline projection for the EU-27 was adjusted for Croatia. - *** Excluding primary energy for non-energy uses, nuclear fuel was fully considered as imported primary energy. - **** Including international aviation and excluding LULUCF.

Felix Matthes, Öko Institut, Vision Scenario 2018

National Energy and Climate Plan (PNEC)

Ambitious goals for 2030



Reduce Energy Consumption

Improve energy efficiency

40 - 44%

Reduce Emissions

Reduction of greenhouse gas emissions

-55%

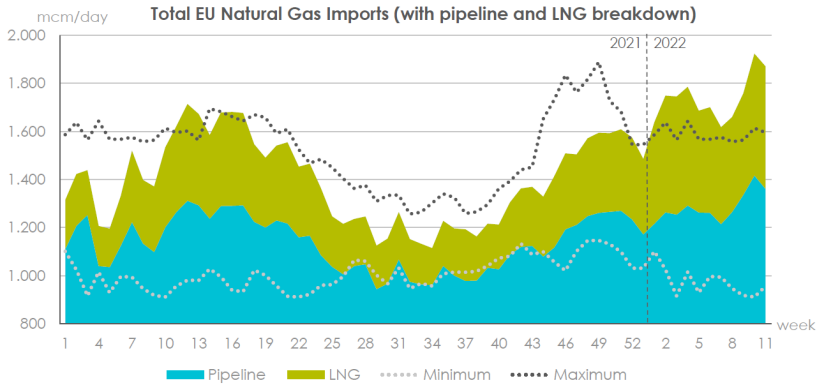
More Renewables

Increase share of renewable energies

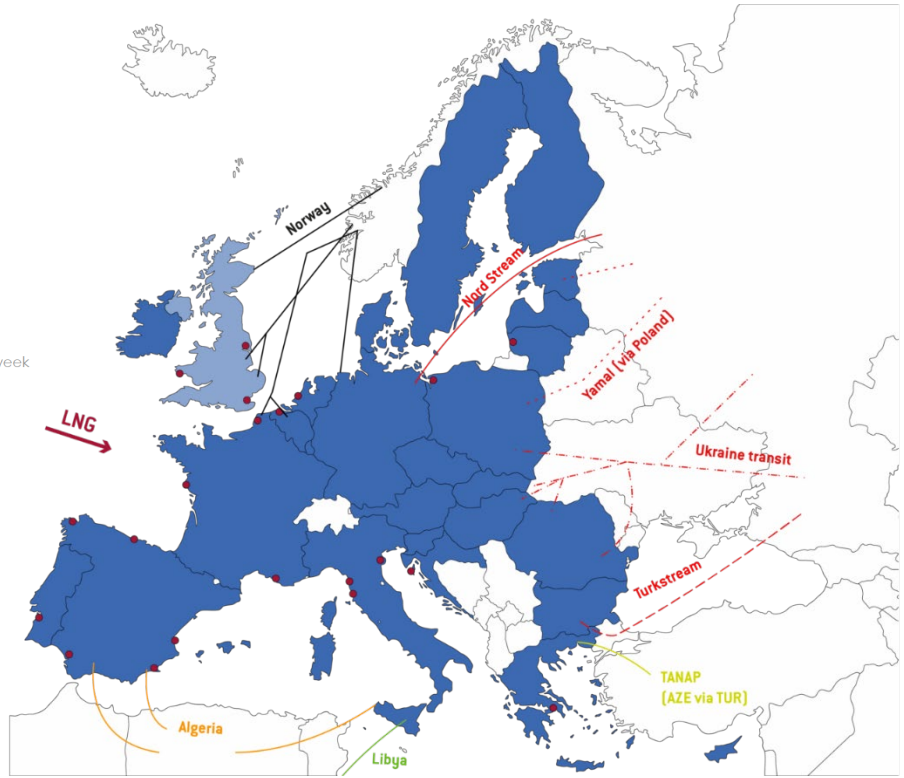
25%

Energy interdependence between Russia and Europe

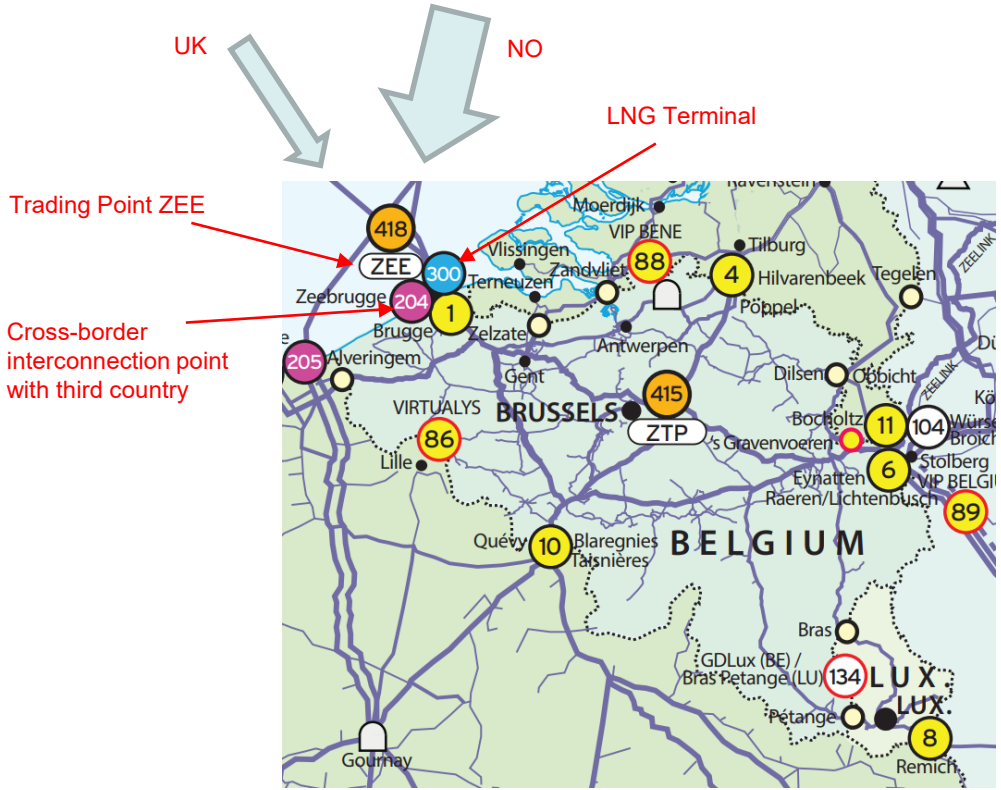
Gasimport - Europe

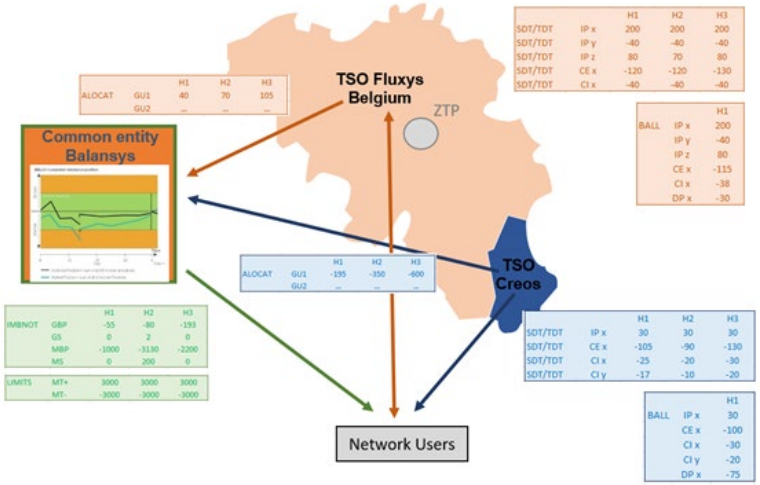


EU: EU27+UK; Minimum/Maximum calculated from period 2015-2020
Source: ENSTOG, Bruegel as of 23/3/22



Gasimport - Luxembourg





Gasimport and -consumption - Luxembourg

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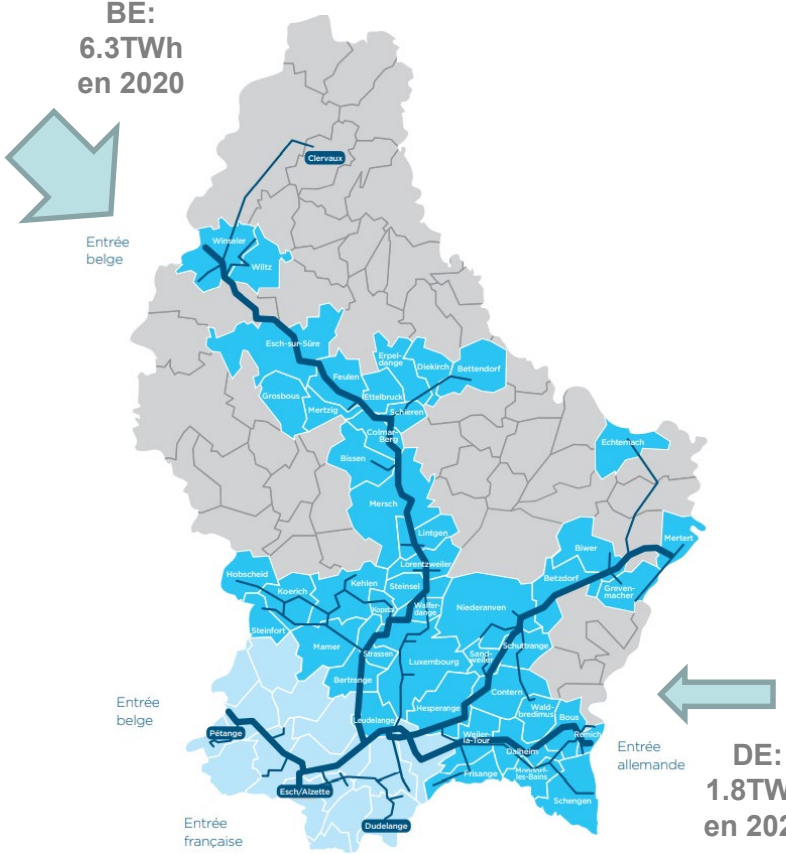
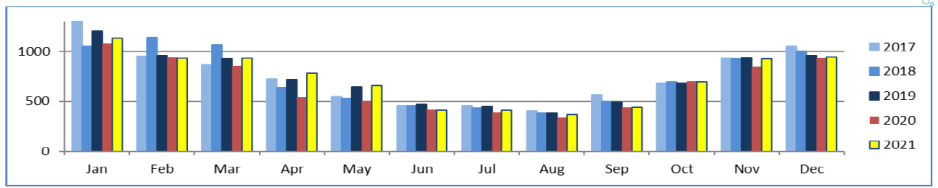
BE:
6.3TWh
en 2020

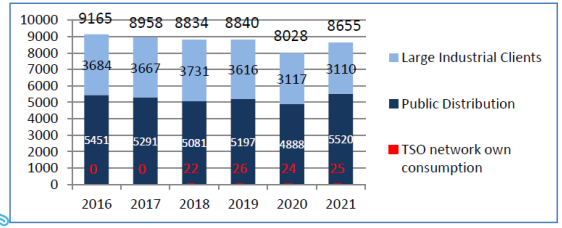


DE:
1.8TWh
en 2020

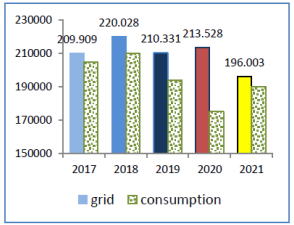
Gas consumption in Creos Luxembourg grid by month [GWh]



Gas consumption by customer type [GWh]



Peak gas grid and consumption [Nm3/h]



creos

Chiffres clés

Gaz naturel		2021
Capacité totale réseau gaz	Nm³/h	319.000
Pointe réseau gaz	Nm³/h	196.003
Volume transporté	GWh	8.655
Longueur réseau	Km	2.175,9

Gasimport and -consumption - Luxembourg

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	Volume d'énergie fournie (en GWh)					Nombre de clients
ANNÉE	2016	2017	2018	2019	2020	2020
Résidentiels	3 199	3 204	3 325	3 387	3 037	86 688
Professionnels (<280 GWh/an)	2 485	2 595	2 570	2 431	2 318	4 517
Industriels (>280 GWh/an)	2 633	2 583	2 634	2 554	2 185	5
Production d'électricité	816	672	619	503	467	61

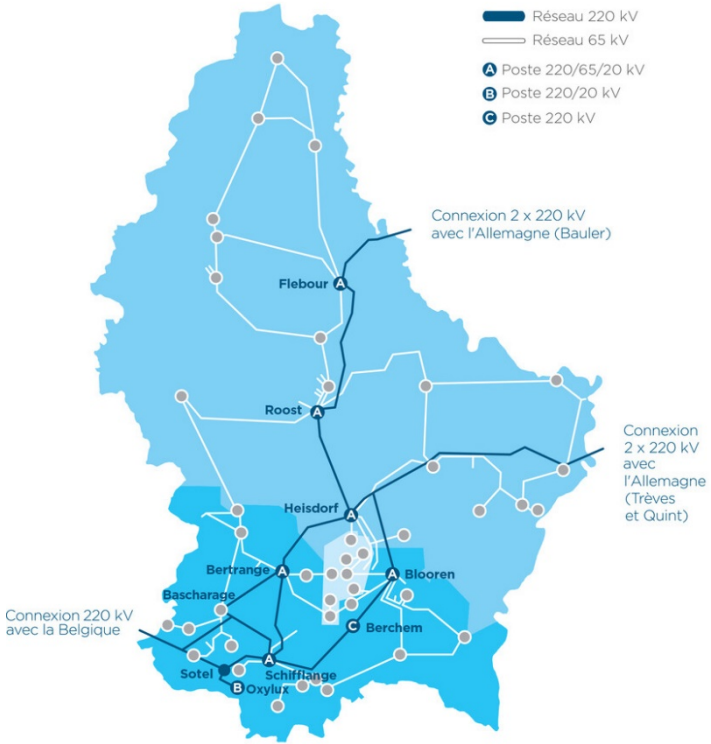
Volume [GWh]	2016	2017	2018	2019	2020
Belgique	6 483	7 251	5 980	7 632	6 255
Allemagne	2 681	1 706	2 854	1 207	1 773
TOTAL	9 164	8 957	8 834	8 840	8 028

Electricity import and -consumption - Luxembourg

LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG

	Volume d'énergie électrique fournie (en GWh)					Nombre de clients
ANNÉE	2016	2017	2018	2019	2020	2020
Résidentiels	903	917	934	947	954	262 258
Professionnels	1 651	1 673	1 712	1 743	1 640	61 811
Industriels	3 803	3 864	3 880	3 759	3 500	195

Volume importé [GWh]	2016	2017	2018	2019	2020
Belgique	313	532	386	240	390
France	1 139	888	1 302	1 338	1 155
Allemagne	4 314	4 302	4 137	4 029	3 584
TOTAL	5 765	5 722	5 825	5 607	5 129



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UEL

LCGB

CGFP

Accord

entre le Gouvernement
et l'Union des Entreprises luxembourgeoises (UEL)
et les organisations syndicales LCGB et CGFP

à l'issue des réunions du Comité de coordination tripartite
des 22, 23 et 30 mars 2022.

Luxembourg, le 31 mars 2022

SOLIDARITÉITS PAK
Fir Kaafkraaft a staark Betriber

- 1 -

Measures

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En adoptant les bons gestes au quotidien, je contribue de manière plus consciencieuse à la protection du climat tout en réduisant mes factures d'énergie.
Je peux économiser de l'énergie et de l'argent de différentes manières. Voici les conseils pour chauffer plus efficacement mon logement, consommer moins d'électricité et me déplacer de manière plus économique.

Je fais baisser ma facture de chauffage

L'augmentation des coûts de l'énergie est un problème pour de nombreux ménages. Grâce à quelques gestes simples, j'économise de l'énergie et je réduis mes frais de chauffage au quotidien.

En savoir plus

J'économise de l'électricité au quotidien

La consommation d'électricité peut représenter une part importante du budget d'un ménage et a un impact significatif sur l'environnement. En gérant mieux ma consommation d'électricité, j'évite les gaspillages inutiles et réduis mes coûts.

En savoir plus

J'économise du carburant pour mes déplacements

Je cherche à réduire ma consommation d'énergie dans le domaine de la mobilité pour économiser non seulement des frais de carburant, mais également pour contribuer à une meilleure qualité de l'air et à la protection de l'environnement.

En savoir plus

klima agence

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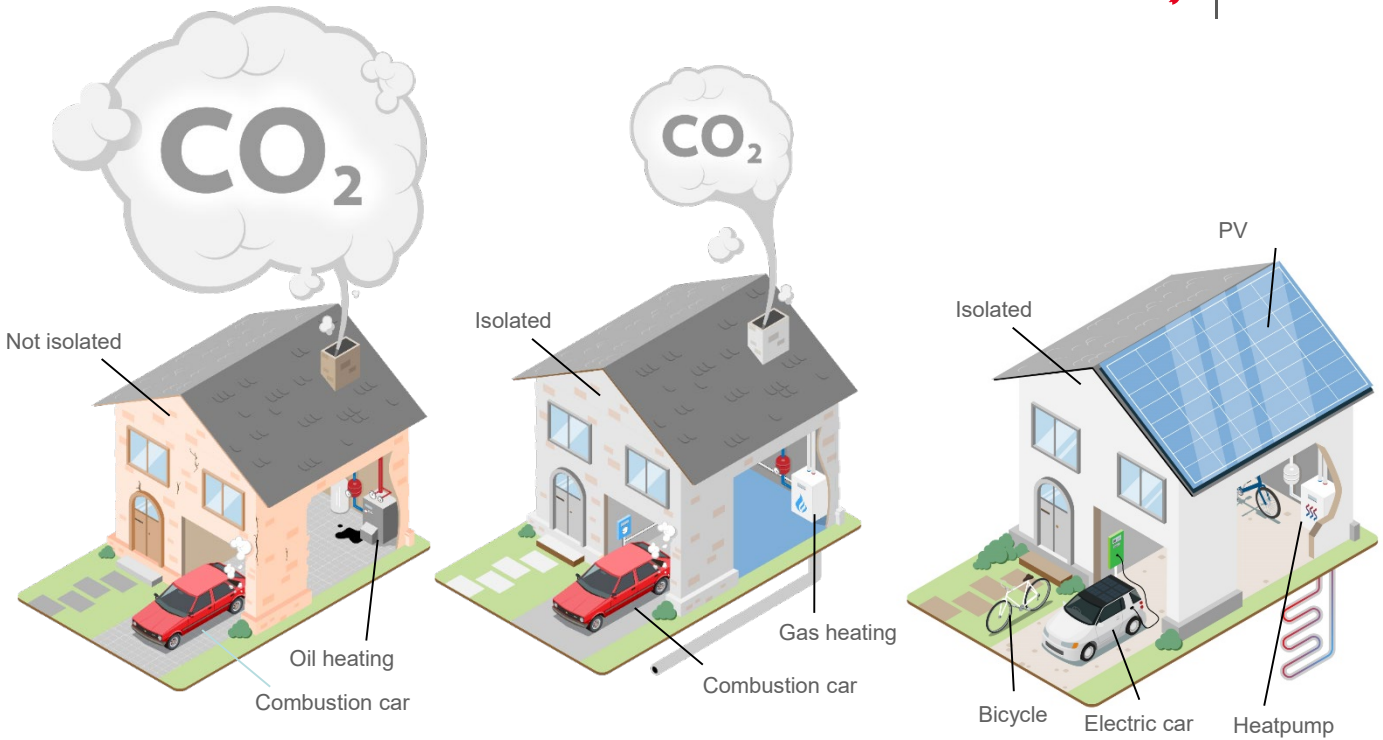
Votre partenaire en matière d'énergie et de climat

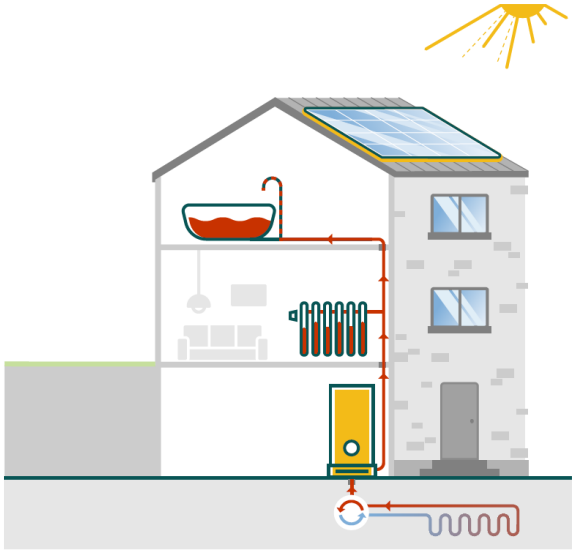
www.energie-spueren.lu



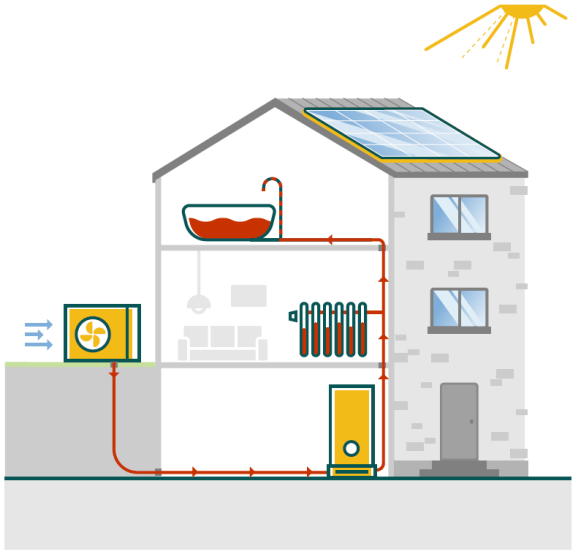
Old building Not renovated

Old building renovated

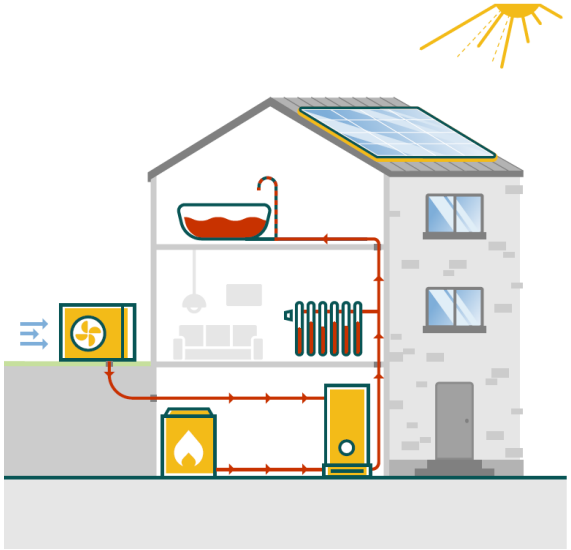
Climate neutral living



Geothermal heatpump



Air source heat pump



hybrid System
air source heat pump + gas heating

- Buildings
  - Zero-emission buildings (from 1.1.2023)
  - Renewable heating systems
  - Expansion of heat networks (waste heat + biomass)
  - Government subsidy programs (+ Social Top Up + fiscal incentives)
  - Renovation strategy

Klimabonus

Protection de la biodiversité

Aides maintenues telles quelles

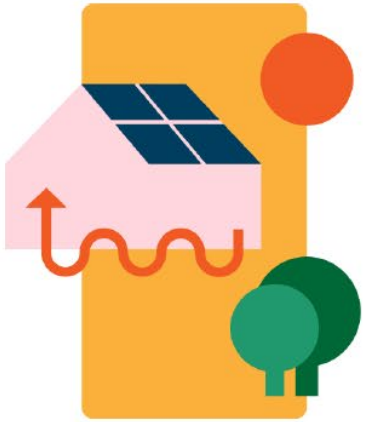
Mobilité durable

Aides maintenues et prolongées

Habitat durable

Aides simplifiées et renforcées

- **logements existants**
- nouvelles constructions



Énergies renouvelables

Aides simplifiées et renforcées

Measures

- Transport
  - Urban planing
  - Soft mobility
  - Public transport
  - Electric mobility

PNM
2035
Plan national
de mobilité

Infrastruktur
effikass notzen

Measures

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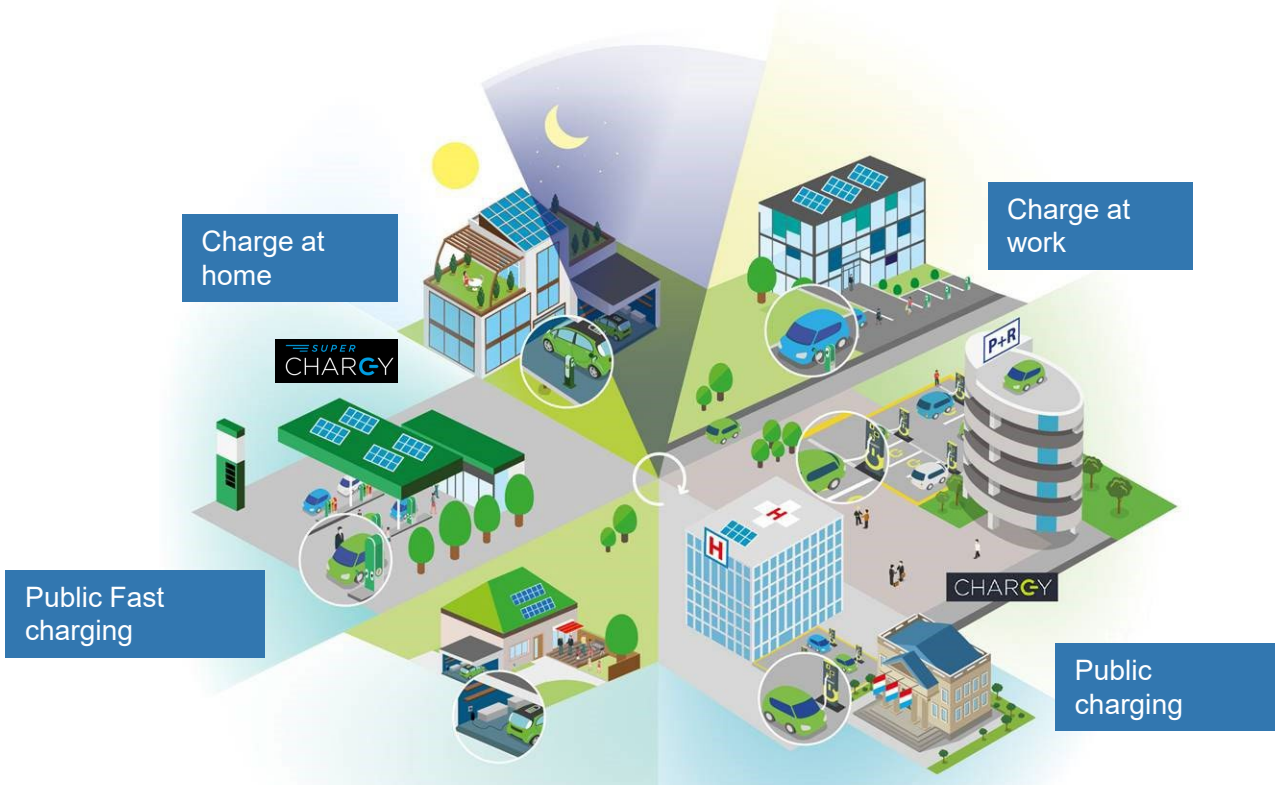
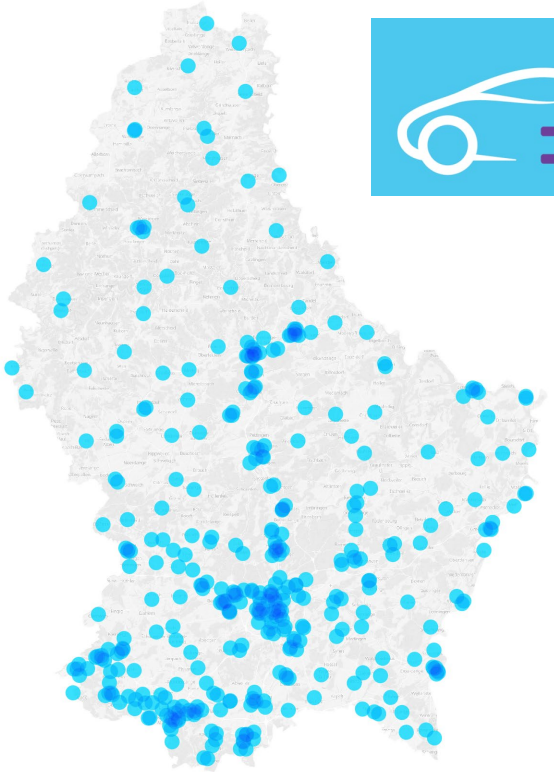


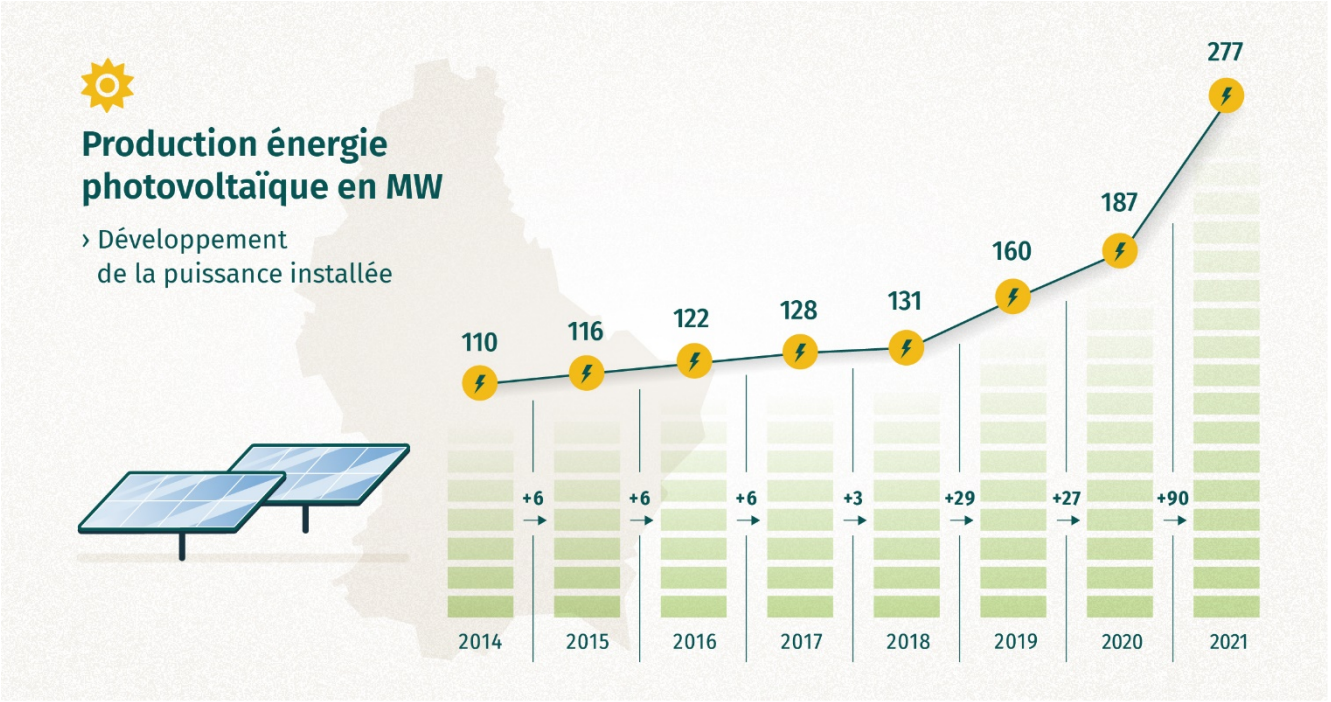
SuperChargy



INITIATIV STROUM BEWEEGT
Elektresch an d'Zukunft

Chargy

- Industry
  - Efficiency obligations for industry
  - Efficiency obligations for energy suppliers
  - Climate pact for companies
  - Partial financing of additional costs for industry in switching from fossil fuels to renewable solutions (contracts for difference)
  - Long-term contracts for the purchase of electricity from renewable energies (Long Term PPA)
  - Derisking for investment and efficiency measures in renewable energies


Production énergie photovoltaïque en MW
› Développement de la puissance installée
110
116
122
128
131
160
187
277
+6
+6
+6
+3
+29
+27
+90
2014
2015
2016
2017
2018
2019
2020
2021

Renewable Energies

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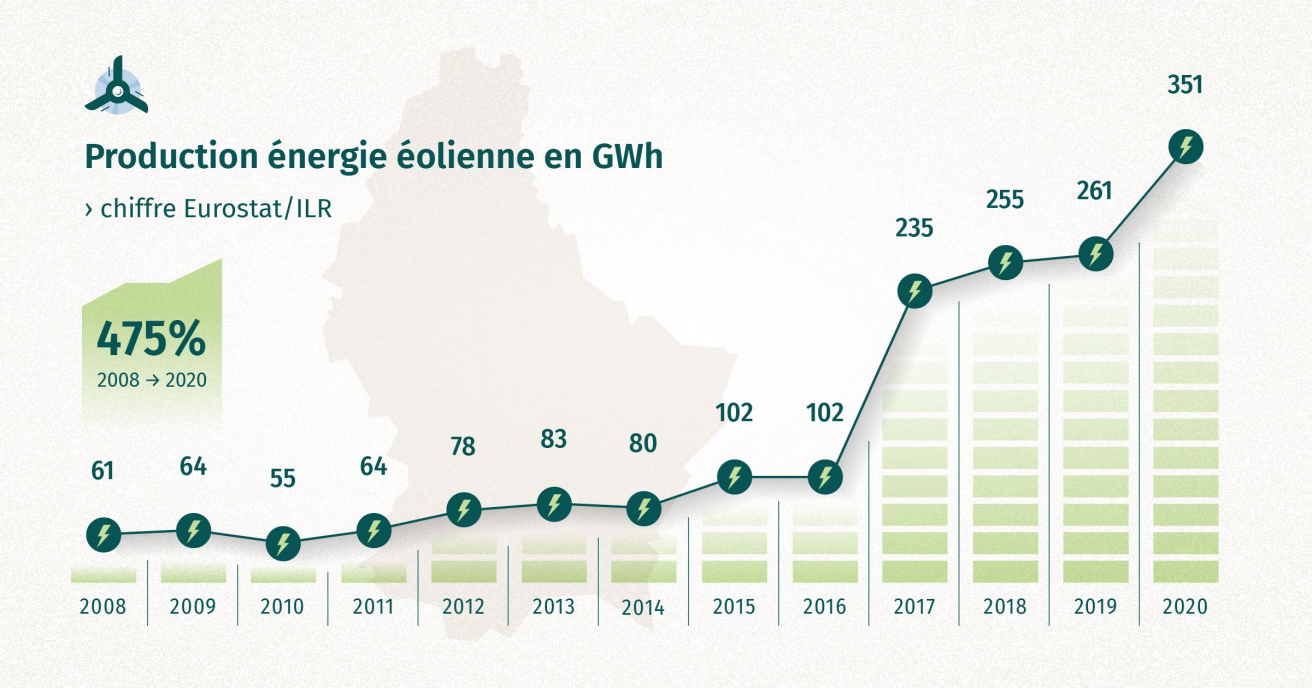

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Département de l'énergie

Renewable Energies - Cooperation

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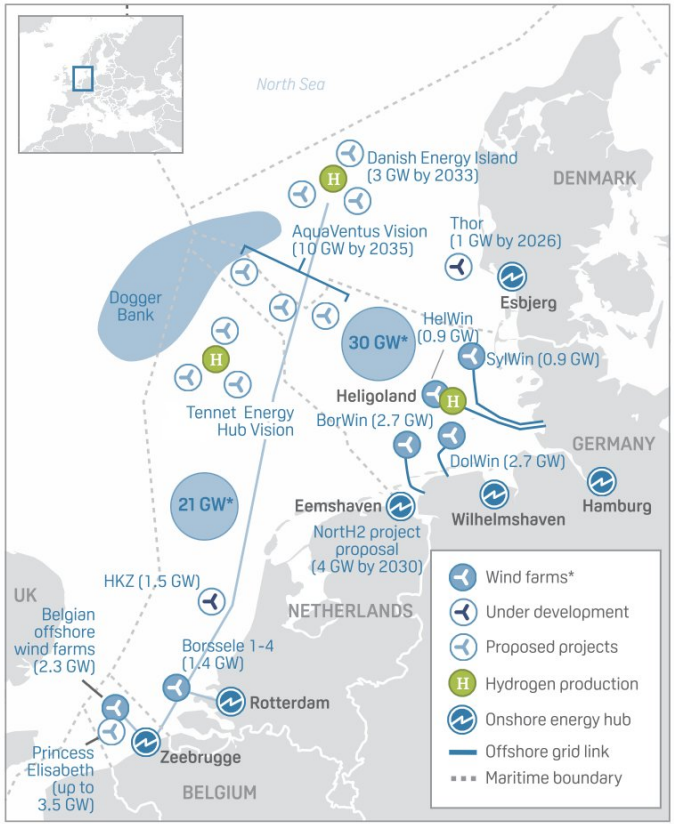
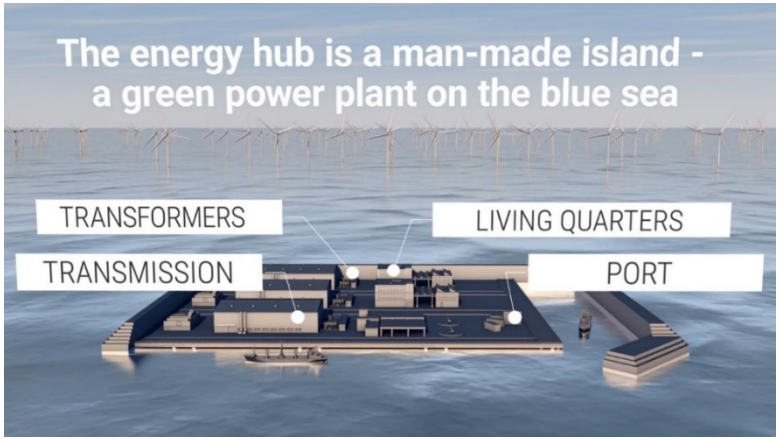
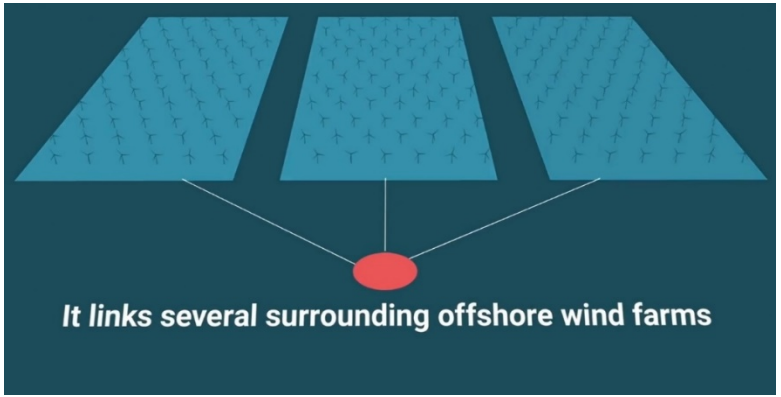


Note: Schematic map of major proposals, not to scale; 2030 national targets*
Source: S&P Global Commodity Insights





Luxembourg's green hydrogen strategy

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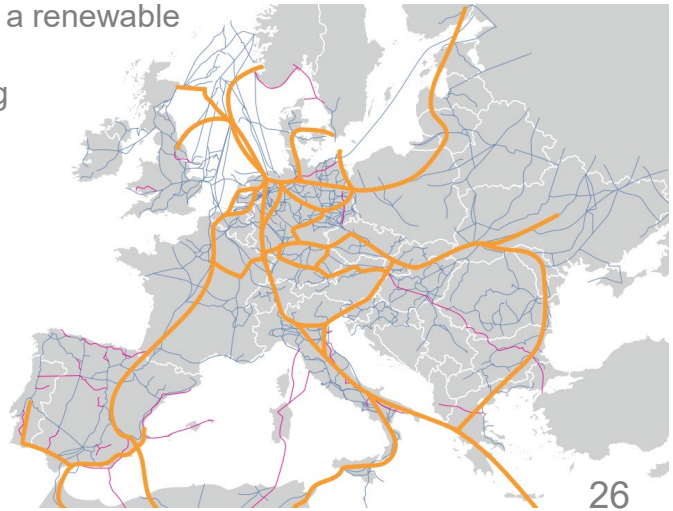
7 strategic measures

1. **Focus on renewable hydrogen:** Contribute to the definition of the legal, regulatory and supervisory framework at EU level
2. **Focus on cooperation:** Cooperate with EU Member States and third countries
3. **Identifying opportunities in Luxembourg:** Research and innovation
4. **Getting down to business:** Flagship projects to be studied and implemented
5. **Prioritize the scope of action and use:** Towards a targeted decarbonization by renewable hydrogen
6. **Creating an attractive framework:** Developing the instruments for a renewable hydrogen market
7. **Implement and continuously improve:** Taskforce H2 Luxembourg



Source: https://www.nsenergybusiness.com/features/renewable-hydrogen-infrastructure/attachment/transnational-hydrogen-backbone-europe-hydrogen-europe/

Additional measures required

- Circular economy
- Reduction of the number of cars
- Diet change
- Communication on lifestyle changes

Example of a transformation: Foetz

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- 2021

LUXEMBOURG IN
TRANSITION

- 2047

Thank you