



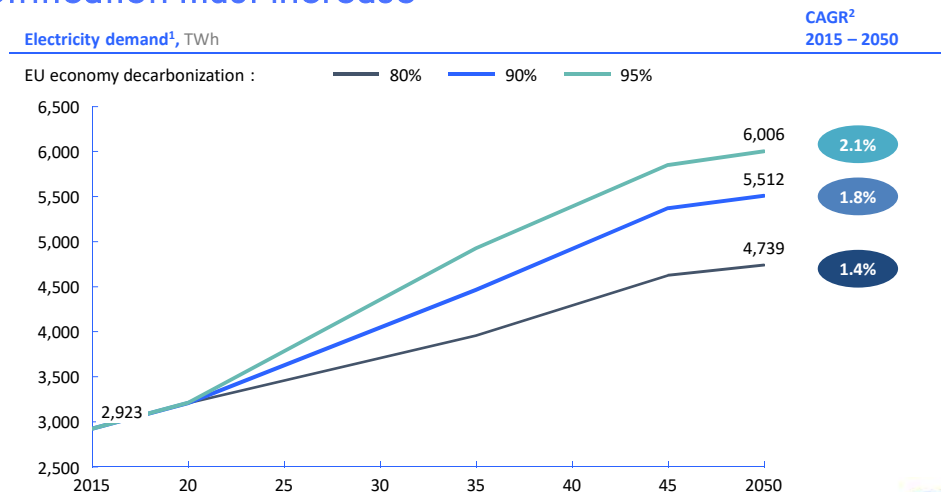
e-invest: the power sector investment challenge €100 bn per year and counting

Juan Jose ALBA RIOS
Chair of Eurelectric Markets & Investments Committee
Vice President, Regulatory Affairs, Endesa



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To achieve deep decarbonisation of the EU economy, electrification must increase



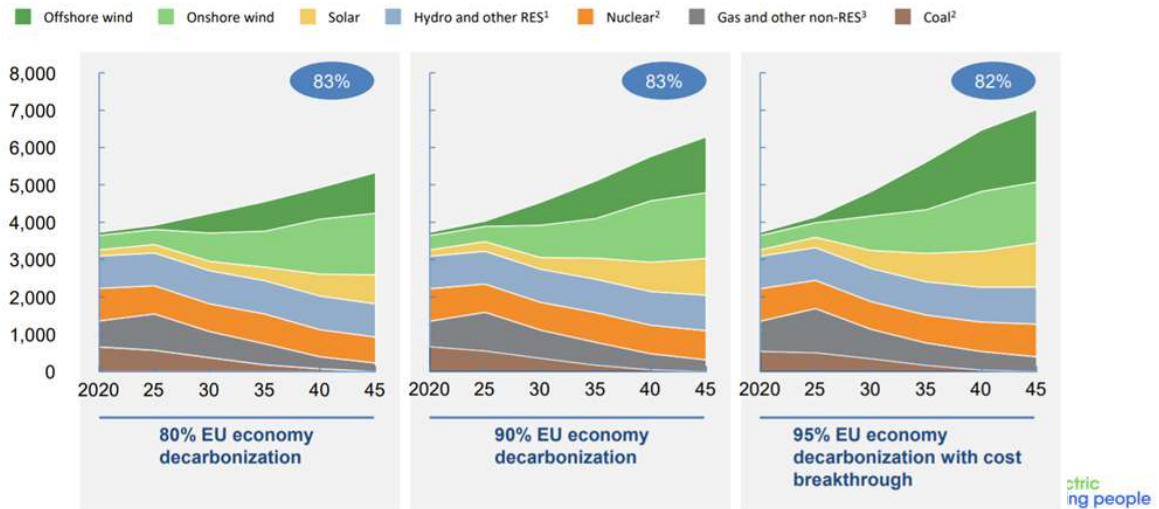
¹ Including indirect electricity demand for P2X and H2 production used in other sectors
² Compounded annual growth rate

Source: Eurelectric, Decarbonisation Pathways, 2018



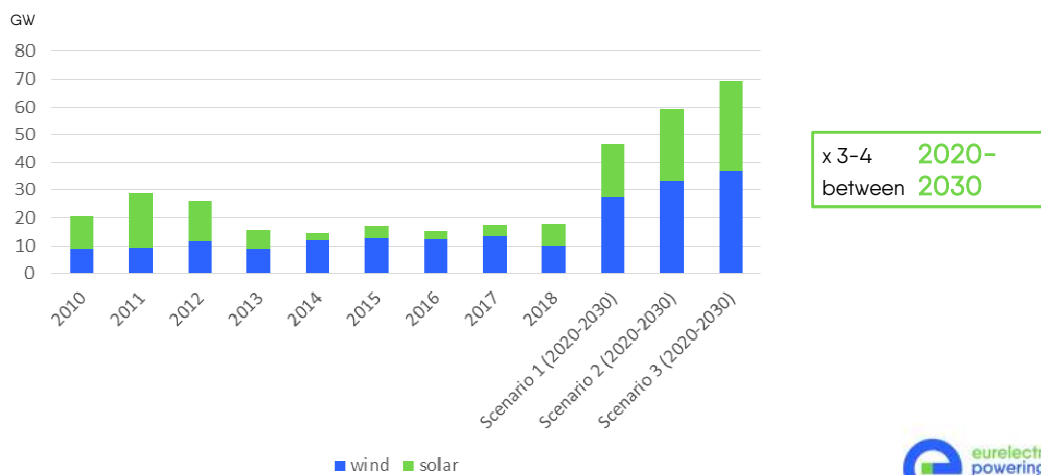
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In a fully carbon neutral power sector, 80% of the electricity will come from renewable sources

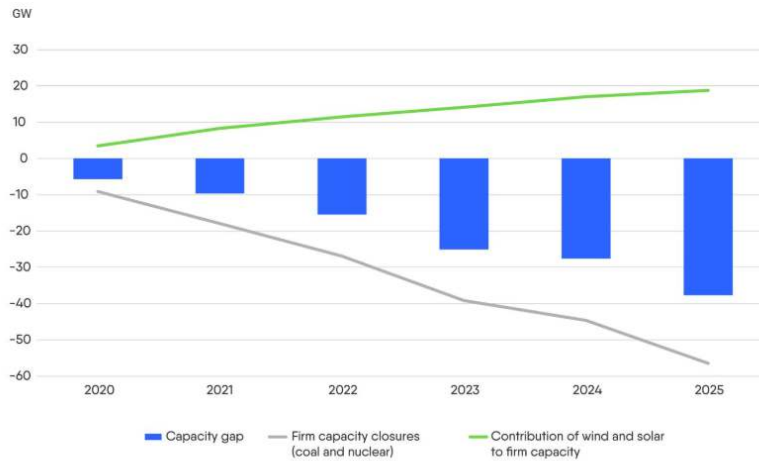


The build-out of RES needs to increase significantly

Yearly capacity buildout



In the medium term, the adequacy outlook in Western Europe needs close monitoring



Source: Eurelectric

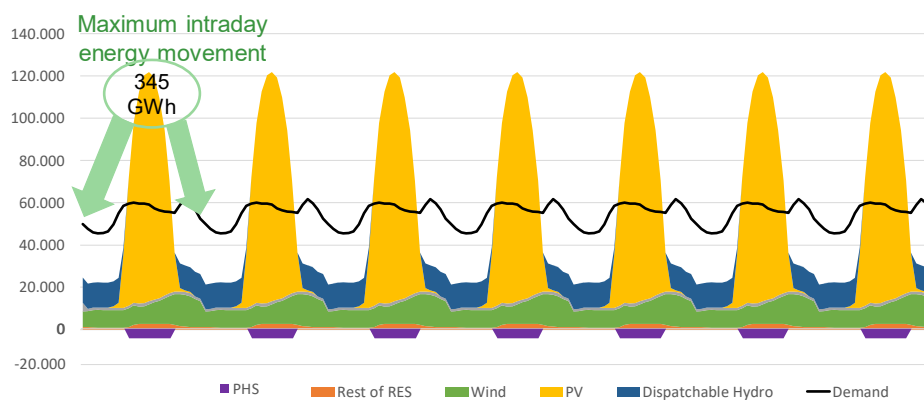
Source: Platts, European Power Daily



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The daily variations could be handled with known technologies...

Energy and supply in a EU country in 2050



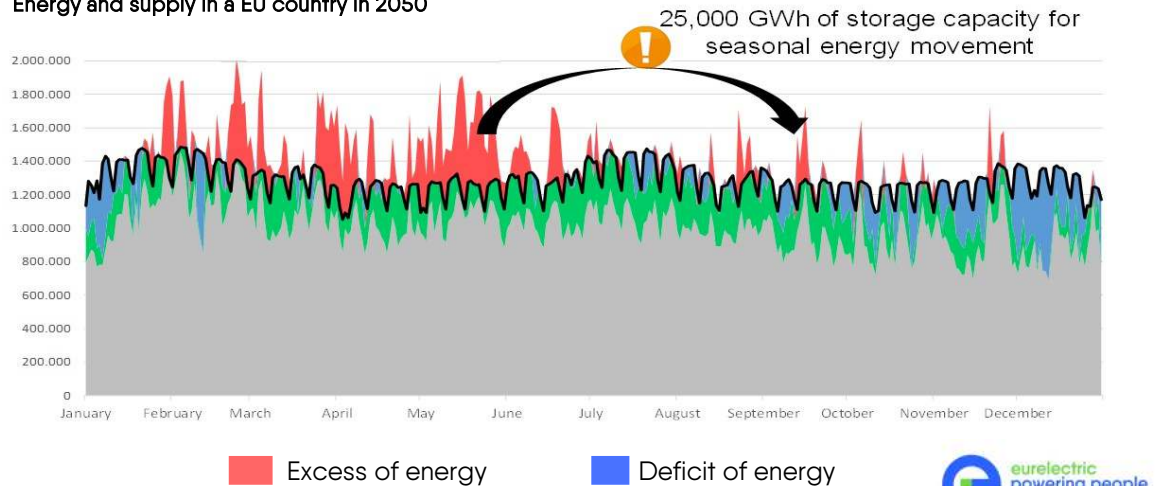
Source: Eurelectric



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Investments in seasonal storage facilities will be critical

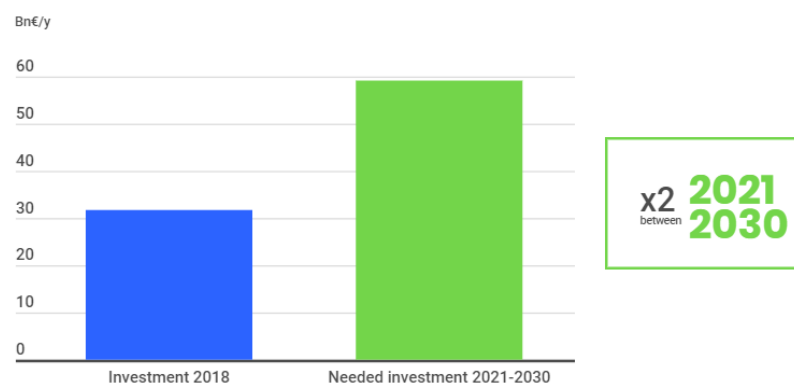
Energy and supply in a EU country in 2050



Source: Eurelectric

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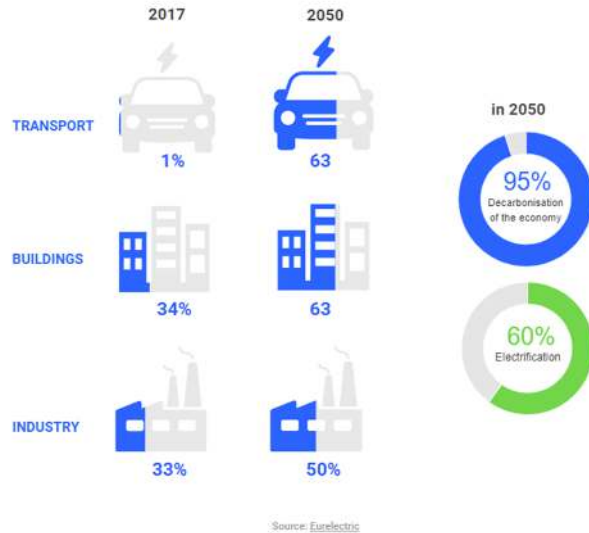
And investment in electricity grids must double



Source: IEA (WEI 2016, 2017, 2018 & 2019), EC Long term Strategy

eurelectric powering people

Decarbonisation and electrification requires investments by customer in EVs, Heat Pumps, new industrial processes



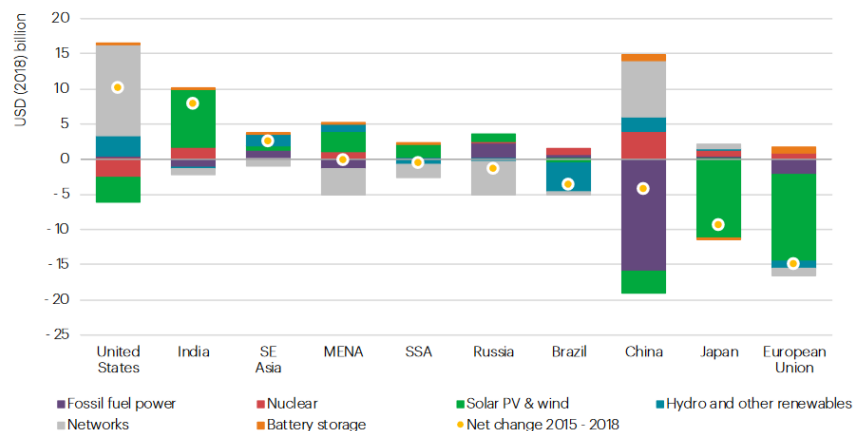
- Customer choices are key
- x40 EVs in 2030
- x21 charging points in 2030
- Heat pumps ~18% of space heating market in 2030
- Investments in new industrial processes (e.g. steel, chemicals,...)



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But power sector investments in Europe decreased in 2018...

Change in power sector investment in major countries and regions, 2015-18



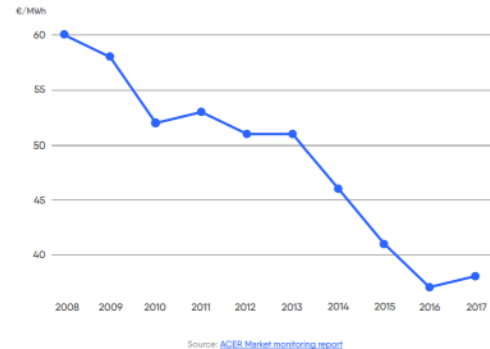
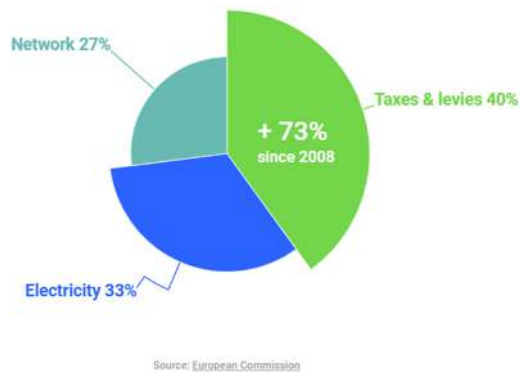
IEA, World Energy Investment, 2019



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Give consumers a choice and allow for long-term price signals

Stop burdening the electricity bill with taxes & levies



Allow markets to provide long-term price signals and put a value on firm capacity



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Tackle market interventions

MENÚ BUSCAR elPeriódico EDICIÓN CATALUNYA EDICIÓN GLOBAL INICIAR SESIÓN

ECONOMÍA BYZNESS TECNOLOGÍA MOTOR AUTOMOBILE BCN FIRA BCN MWC ZONA FRANCA EMPRENDEDORES INNOVACIÓN VALOR

1 EN AGOSTO

El precio de la electricidad toca máximos del 2018

Este miércoles y jueves la electricidad alcanza los precios más altos del año, 70,9 y 69,6 euros por MWh

La ministra Teresa Ribera antes del 19 de septiem

Slovakia is revamping support of renewable energy sources

New legislation keeps a controversial tariff paid by electricity producers

Source: The Slovak Spectator

Bulgarian Export Potential and Losses from Sales During the Export Ban (Jan 13 to Feb. 8)

BG border with	Export NTC (Avg. MW)	Export flows (Avg. MW)	Max Export Potentially lost (Avg. MW)	Avg. Price in the Region (Euro/MWh) ¹	Max Loss from the Ban (Million Euro/Day)
RO	300	56	244	80	0.47
GR	315	73	242	80	0.46
MK	150	107	43	80	0.08
RS	150	131	19	80	0.04
Total	915	367	548	80	1.05

¹It assumes the average day ahead HU price (Jan. 13-Feb. 8) minus the average day ahead spread HU-BG recorded during 2016 (€/MWh)

Data Source: ENTSO-E Scheduled Commercial Exchanges; ENTSO-E Day Ahead NTC

S&P Global
Platts

Support the deployment of RES

WIND

Germany's Onshore Wind Market Struggles to Rebound After Permitting Setbacks

Onshore wind installations crashed to their lowest level in nearly 20 years in Germany in the first quarter of 2019. Can the world's third-largest wind market recover?

JASON DEIGN | MAY 29, 2019

Source: gtm

French Offshore Wind Farm Clears Final Legal Hurdle

June 7, 2019, by Adnan Durakovic

Source: offshorewind.biz



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Recommendations



- **Implement the CEP** and continue working towards a European market
- Provide risk-hedging instruments with **long-term price signals**
- Improve power system **planning tools** for system adequacy
- Consider capacity markets to **deliver carbon-neutral firmness**



- **Stop penalising electricity** with taxes and levies
- Facilitate investments in electrification to decarbonise other sectors: energy efficiency, standards
- Address social acceptance for RES and network projects



- **Improve network regulation** to incentivise RES integration, innovation, smart grid technologies
- Use smart meters to introduce **smart network tariffs**

Take advantage of **legislative initiatives and reviews**: sustainable finance, state aid guidelines, EU ETS stability reserve, alternative fuels infrastructure, just transition funds, etc.



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