

Winter outlook French Power

Bengt Longva

Senior Analyst StormGeo





Agenda

- Our Approach
- Consumption
 - France and its neighbors
- Wind, PV, and thermal capacity
- Assumptions Winter 24/25
- Scenarios
 - Normal
 - Cold
 - Warm
- Conclusions



Our Approach

// Fundamental Analysis

// Consumption models

// Renewable models

- Wind
- Solar
- Hydro

// Production stacks for countries Core Flow based area, UK, Italy and Switzerland

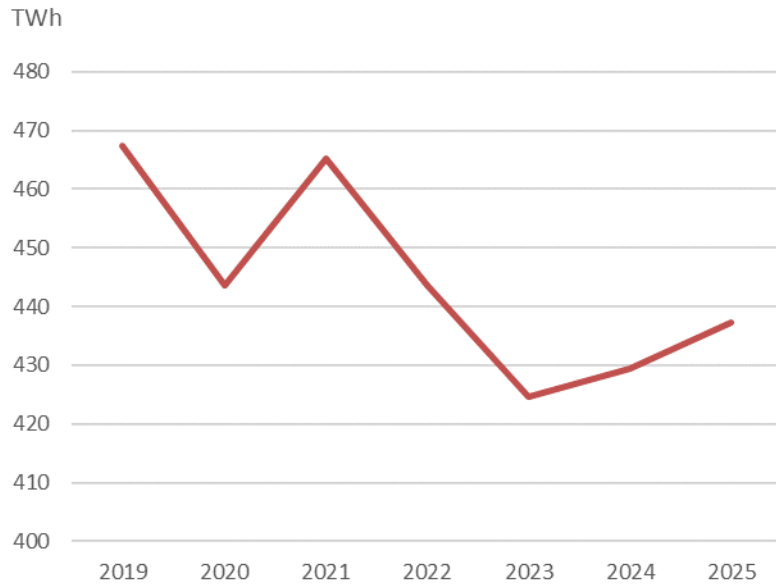
// Marginal costs as function of fuel market prices, emission costs, and efficiency

// Assuming JAO PTDF matrix for the CORE Flow Based Area and ATC/NTC capacities for countries outside CORE

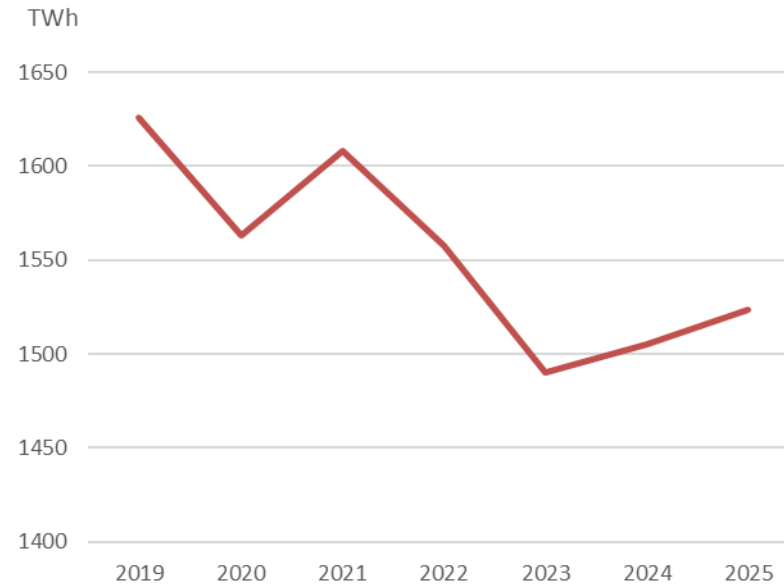
// Minimising cost for the power system by solving power balance, flows, and marginal prices for all countries simultaneously

Consumption France and some neighbours

France

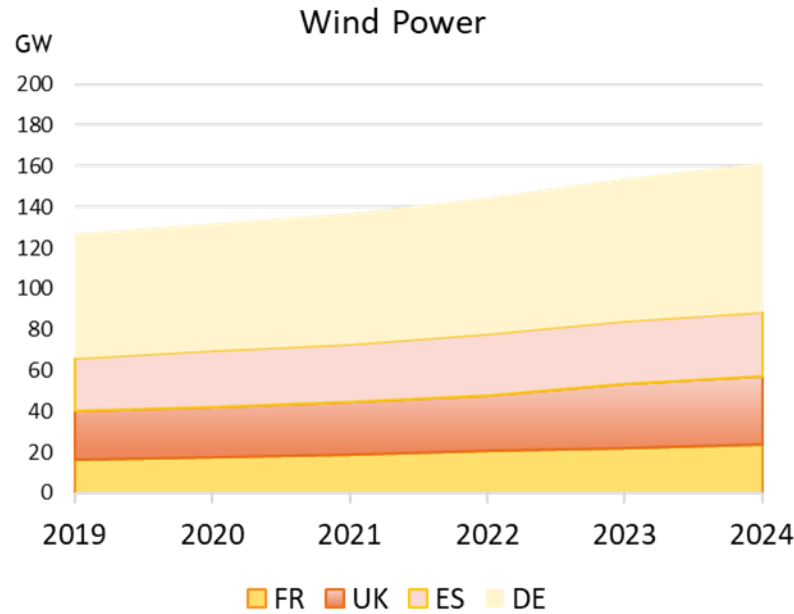
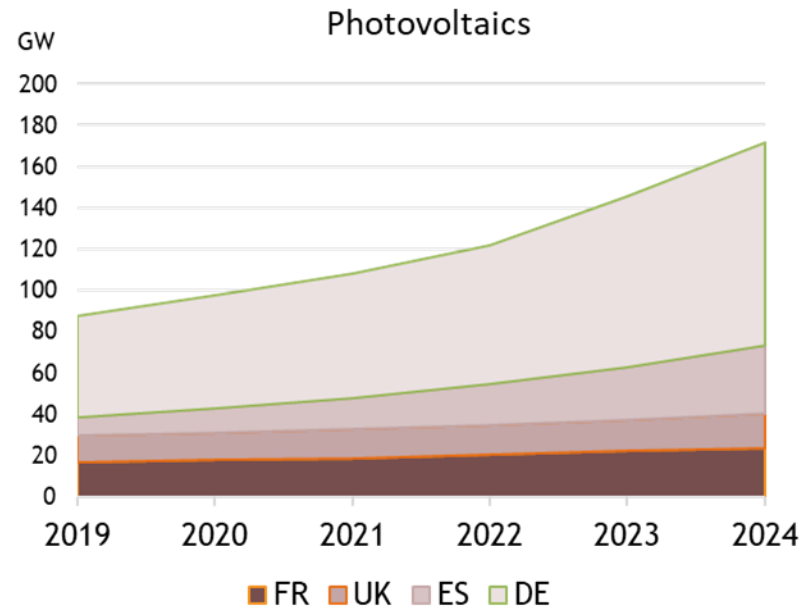


FR, DE, UK, ES



- // 2019 last “normal year”
- // 2022 Price shock and governmental interventions
- // 2023 – saved by the bell
 - // Winter temperature above normal
- // Consumption down roughly or close to 7% from 2019
- // 2024 – basic consumption close to the 2023 level
- // No signs of significantly increasing consumption
- // For Winter 2025 we assume the same basic consumption level as 2024

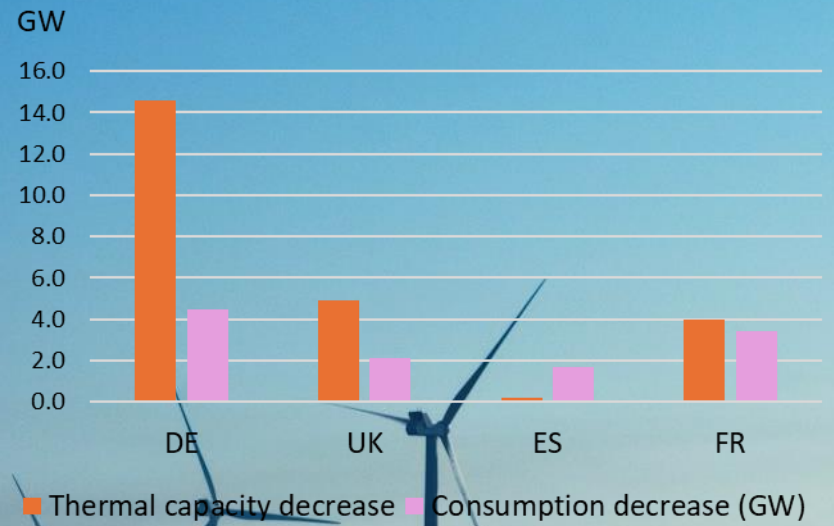
Installed Wind Power and Photovoltaic Capacity



- // 2019 -2024
- // Wind power 36 GW increase
- // Photovaltaic 90 GW increase

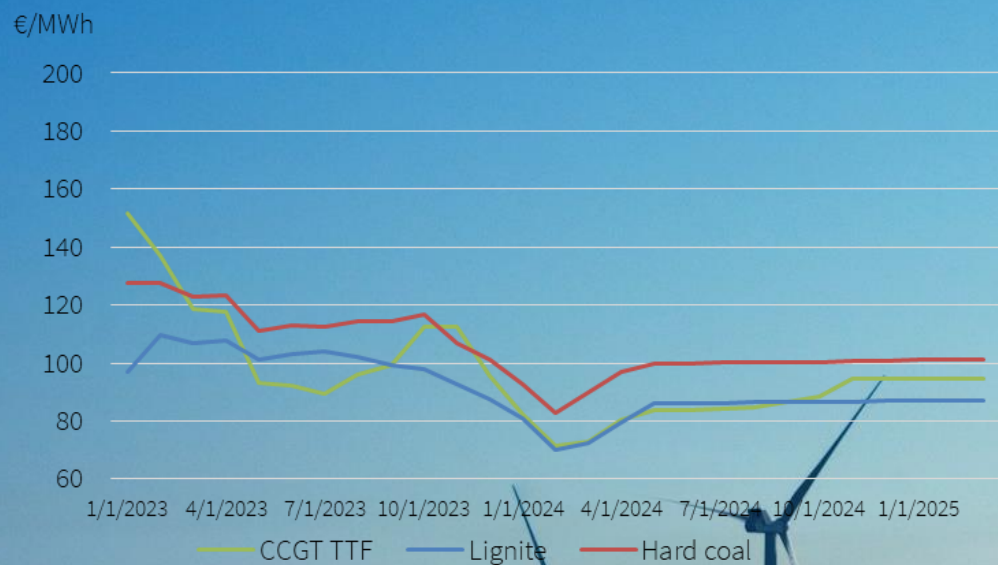
Installed Wind Power Capacity (GW)					
	ES	FR	DE	UK	Sum
2019	25.7	16.6	60.7	23.9	126.9
2020	27.7	17.6	62.2	24.5	131.9
2021	28.7	18.7	63.9	25.7	137.0
2022	30.2	20.4	66.2	27.5	144.2
2023	30.9	22.2	69.5	31.3	153.8
2024	31.5	24.0	73.5	34.0	163.0

Decrease in thermal conventional capacity (GW) since 2019



	DE	UK	ES	FR
Nuclear	9.5	3.4	0.0	
Lignite	2.4			
Hard coal	2.7	1.5	0.2	4.0
Thermal capacity decrease	14.6	4.9	0.2	4.0
Consumption decrease (GW)	4.5	2.1	1.7	3.4

Marginal costs conventional thermal power plants



Assumptions all scenarios Dec&Jan 2025

Marginal cost (reference plants)

- ✓ Brown Coal Condensing 87 €/MWh
- ✓ CCGT 94 €/MWh
- ✓ Hard Coal Condense 101 €/MWh

Normal series hydrology (last 20 years)

Production plant availability – installed power plant capacity minus reported outages + unexpected outages next winter

• Scenarios

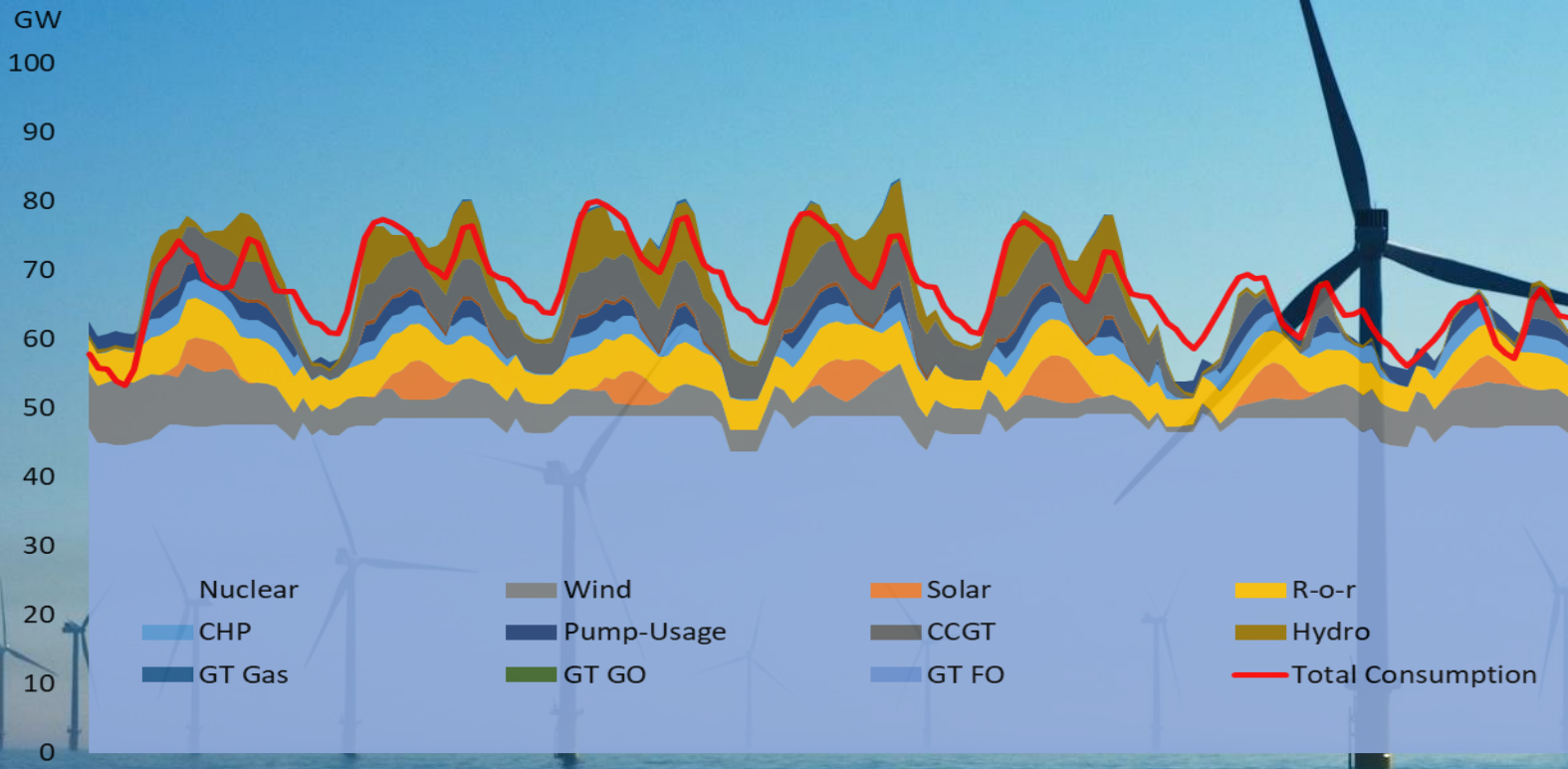
- ✓ Normal temperature, wind speed, and inflow
- ✓ Cold, weak wind and low inflow
- ✓ Warm, strong winds and high inflow



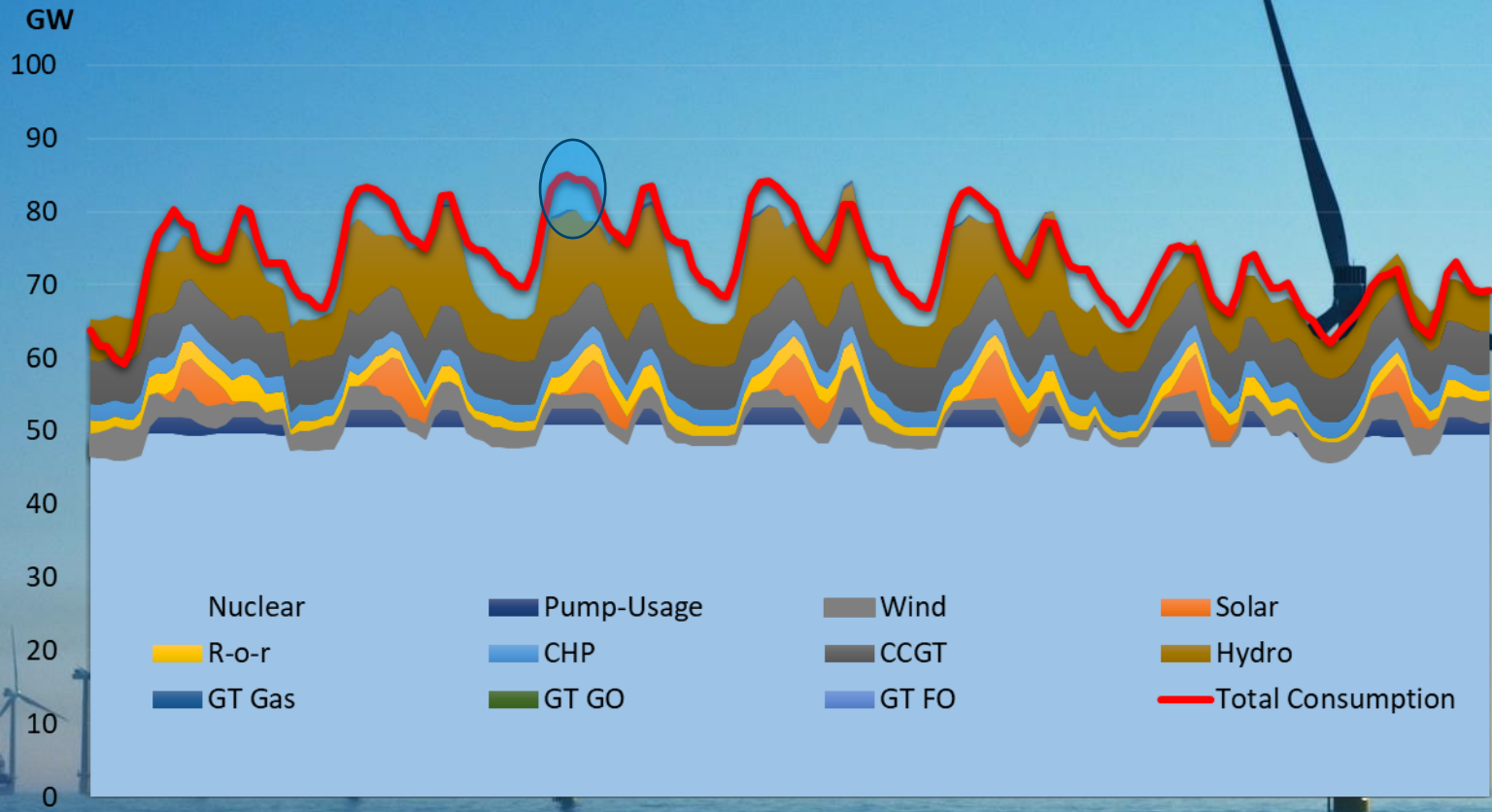
Normal Scenario - a week in January

Assumptions
 Normal temperature
 67 GW consumption
 4 GW Wind Power
 5 GW RoR
 49 GW nuclear availability

SRMC CCGT 94 €/MWh



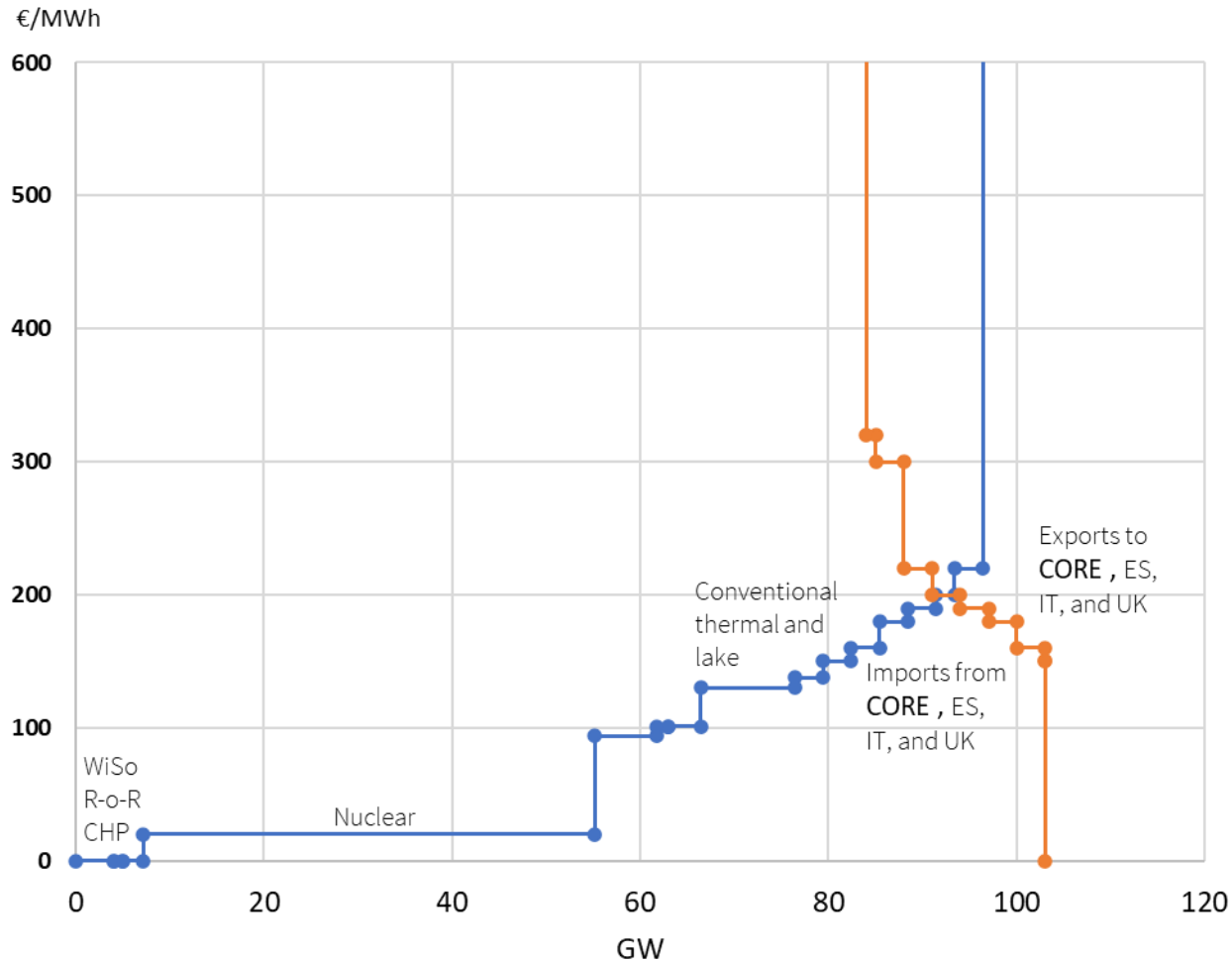
Cold Scenario - a week in January



Assumptions
 4°C below normal
 76 GW Consumption
 2 GW Wind Power
 3 GW RoR
 49 GW nuclear availability

SRMC CCGT 94€/MWh

A cold Wednesday in January hour 19



// 4 degrees colder than normal

// Consumption 85 GW

// Nuclear 48 GW

// Wind Power 1 GW

// CCGT 6.5 GW

// Coal 1.8 GW

// Hydro 17 GW

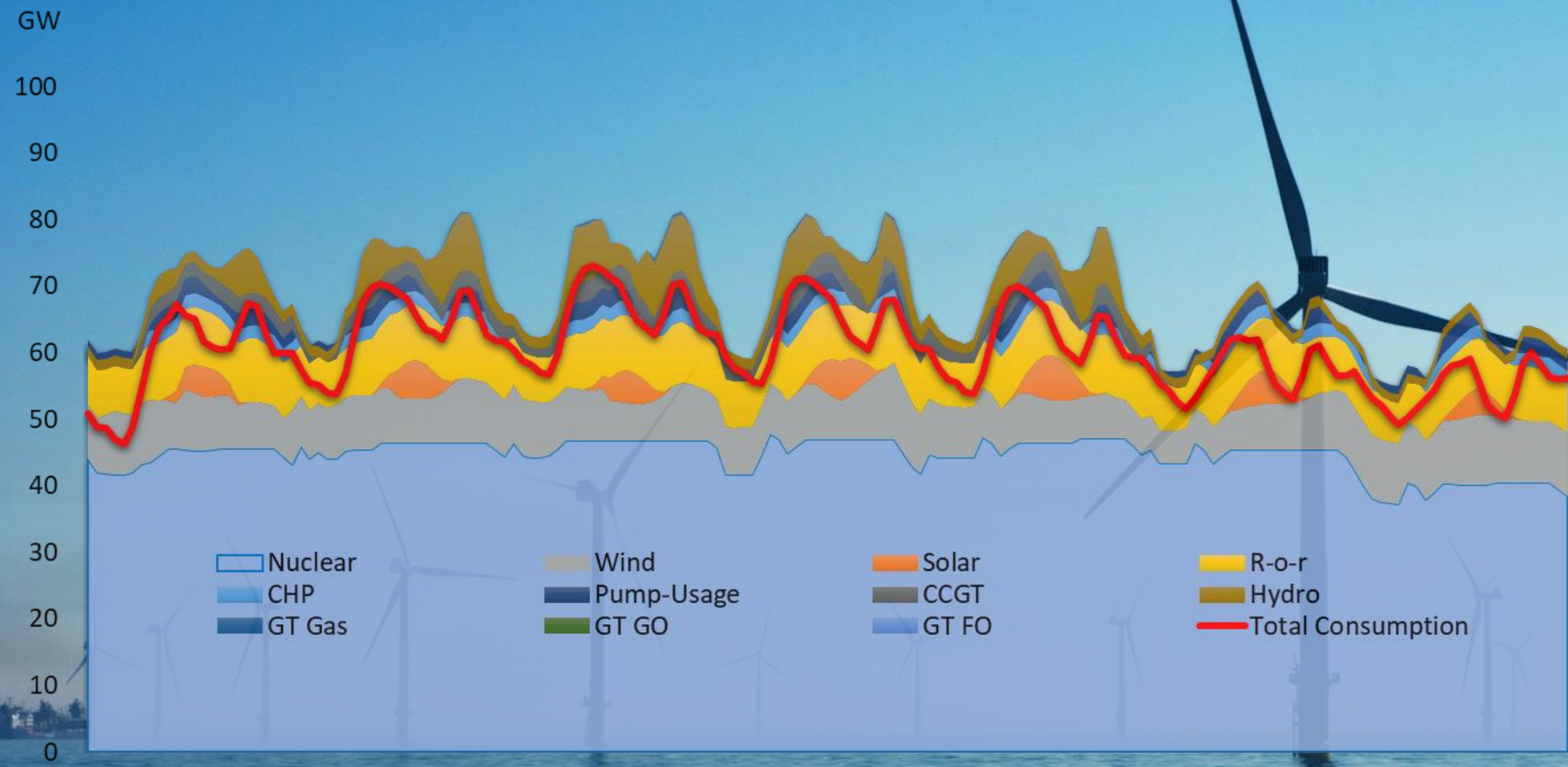
// Gas Turbines 3 GW

// 14 GW interconnector capacity

// Marginal price at roughly
200 €/MWh

// Dependent on power balance
in neighbour countries (and
CORE) in addition to France

Warm Scenario – a week in January



Assumptions
 5°C above normal
 60 GW Consumption
 8 GW Wind Power
 7 GW RoR
 47 GW nuclear availability
 SRMC CCGT 94€/MWh

Some conclusions Dec 24-Feb 25

- As installed WiSo Capacity is up increased downside
- Given production capacity estimates next winter Germany is more strained then before – upside increased
- If we are running different scenarios we find a forecast just below 100 €/MWh (given our estimated available production capacities)

