

Power Generation



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National Grid

Power Generation – Factors We Consider



Climate Change Targets & Legislation

Government Policy & Initiatives

Market Intelligence and Project Status

Technology

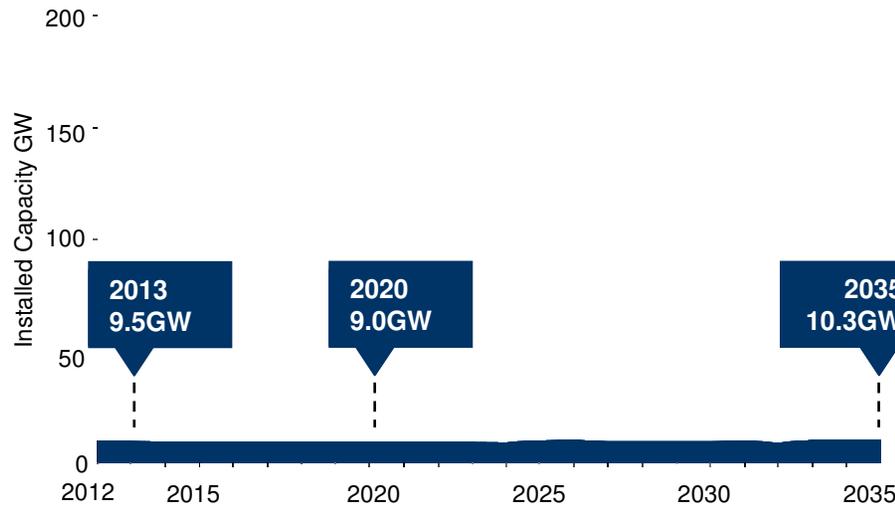
Power Generation Capacity – Part 1



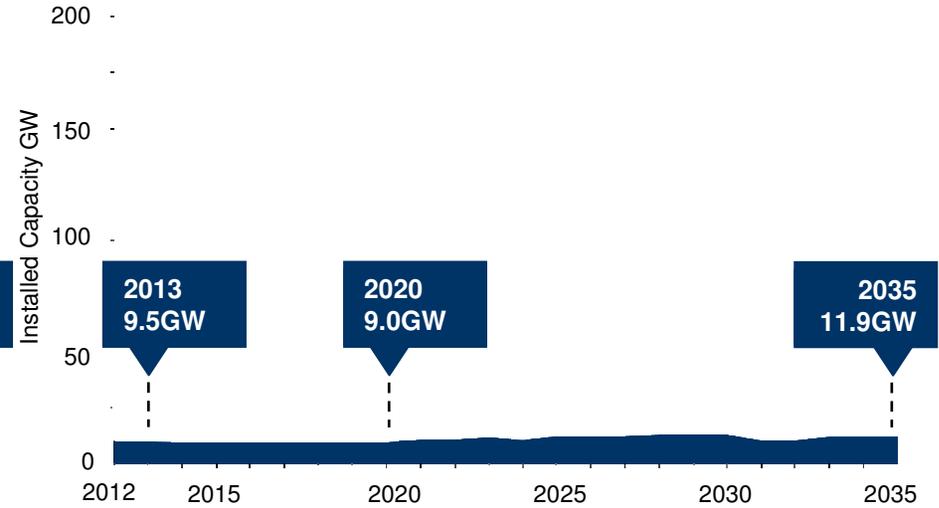
Nuclear, Coal, Gas/CHP and Carbon Capture & Storage

Power Generation Capacity: Nuclear

Slow Progression



Gone Green



■ Nuclear

Duration Of Life Extension For Existing Power Stations

Average 10 Year Life Extension

Average 7 Year Life Extension

Connection Date Of First New Power Station

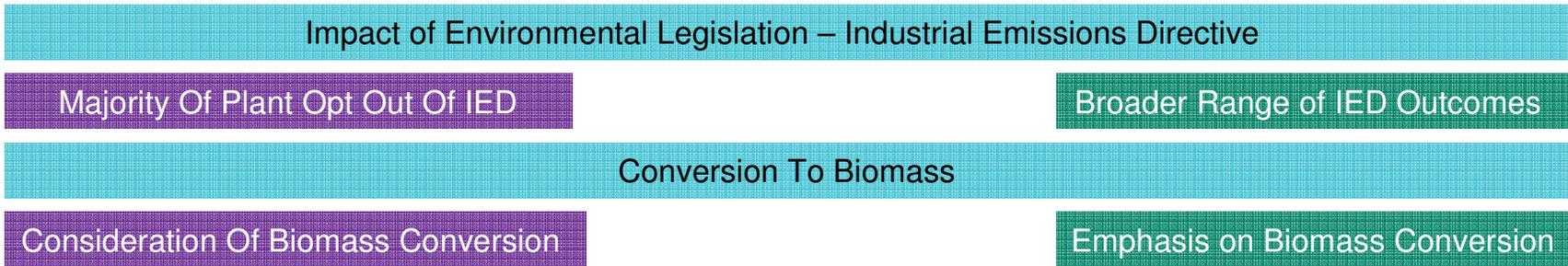
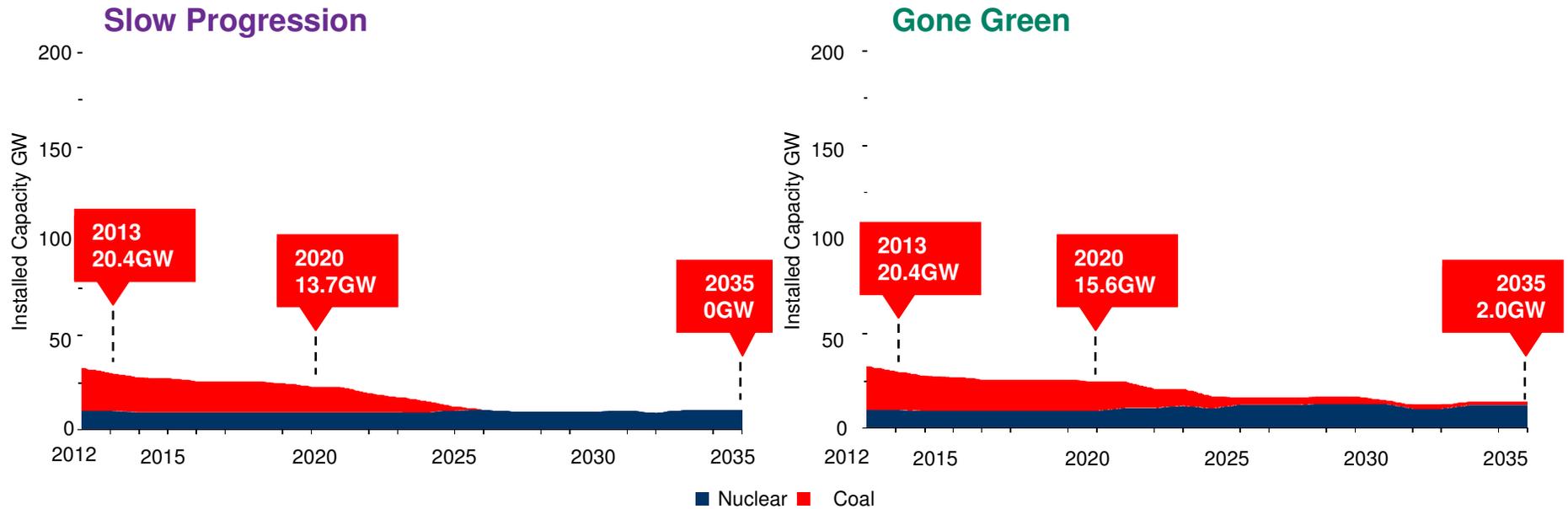
Connecting Mid 2020

Connecting Early 2020

Contract for Difference – Strike Price

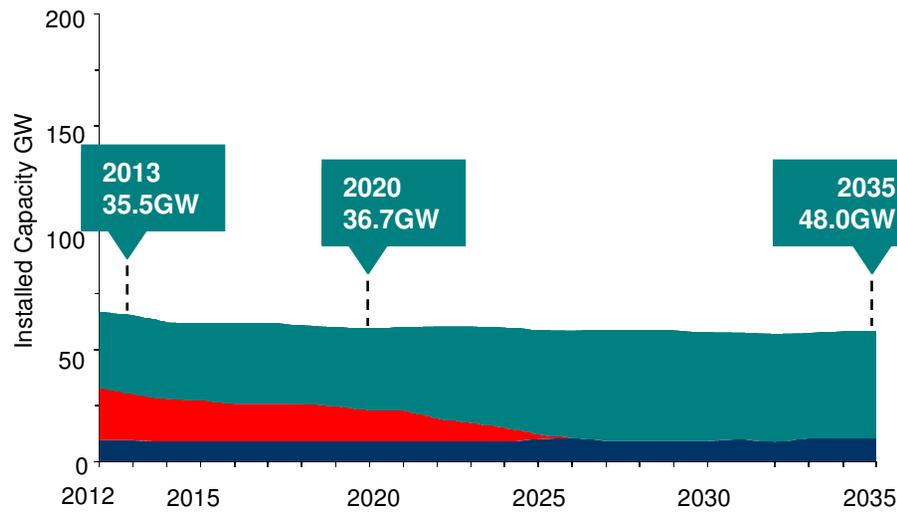
Announcement Pending

Power Generation Capacity: Coal

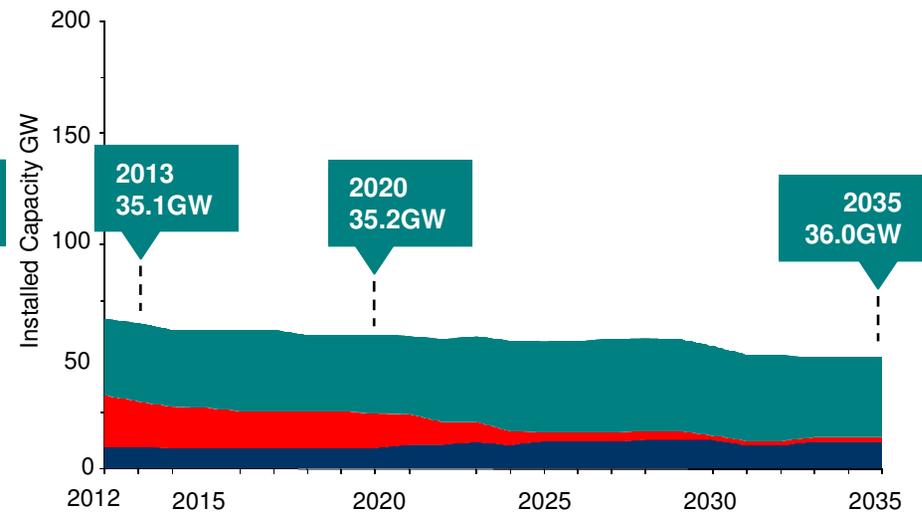


Power Generation Capacity: Gas/Combined Heat & Power (CHP)

Slow Progression



Gone Green



■ Nuclear ■ Coal ■ Gas/CHP

Lifespan of Existing Power Stations

Most Existing Plant Open Out To 2020

Plant Closures Off-Set By New Plant

Level of Renewable Generation

Renewable Mix & Utilisation of Gas Plant

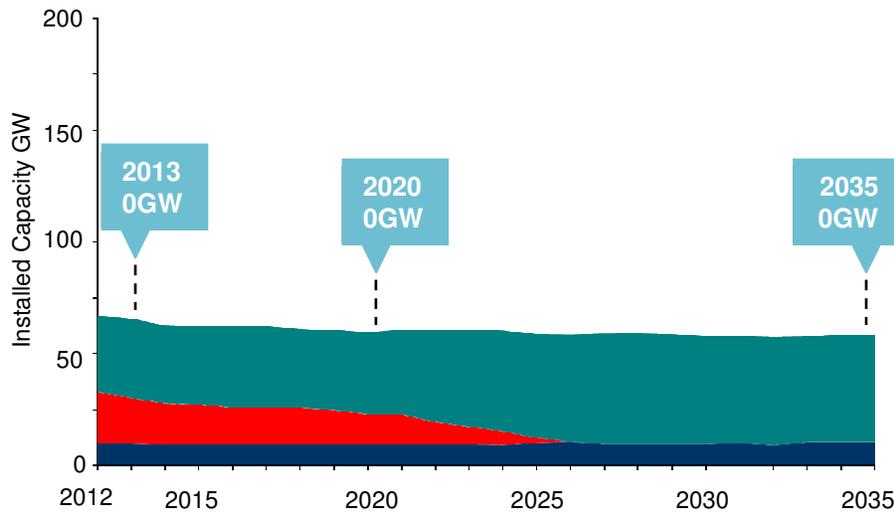
Emphasis On Renewable Generation

Capacity Mechanism

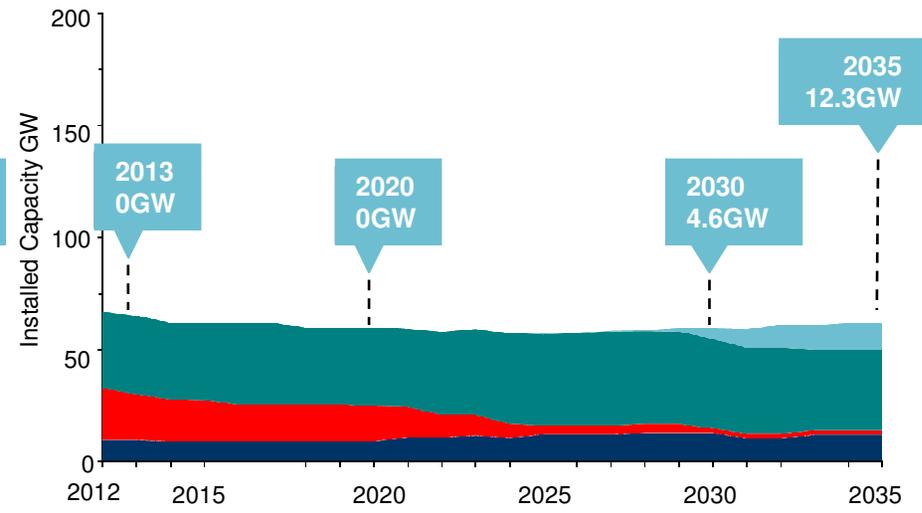
Payment Received Under Capacity Mechanism – 1st Auction in 2014 for 2018/19

Power Generation Capacity: Carbon Capture & Storage (CCS)

Slow Progression



Gone Green



■ Nuclear ■ Coal ■ Gas/CHP ■ CCS

Commercialisation Of Carbon Capture & Storage

CCS Not Commercially Viable for Coal & Gas

CCS for Coal, Gas and Biomass

Contract for Difference – Strike Price

Announcement Pending

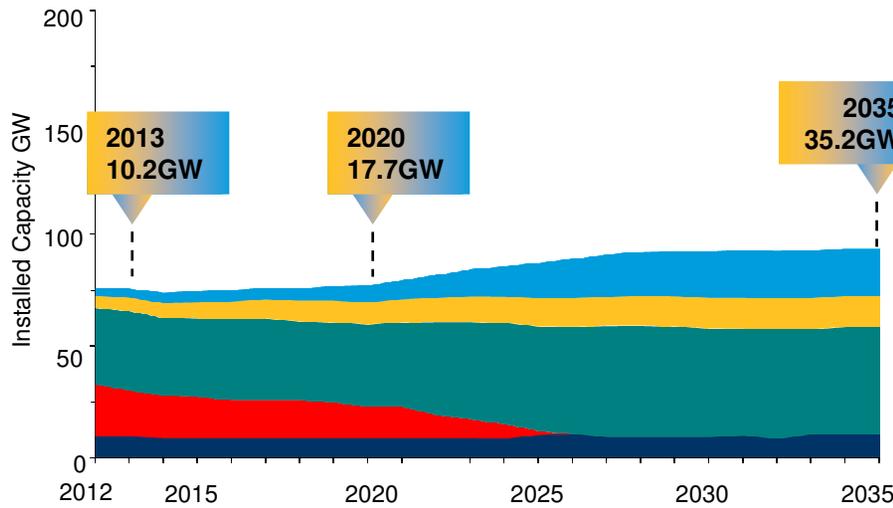
Power Generation Capacity – Part 2



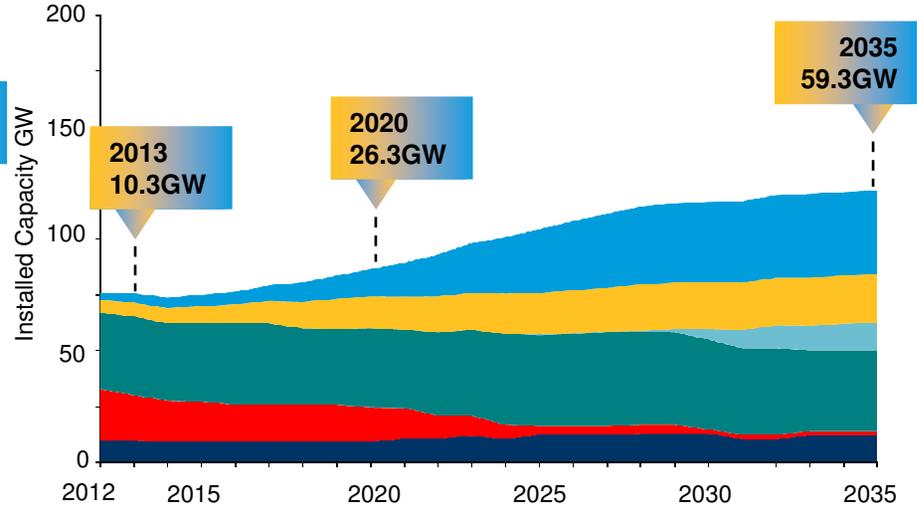
Wind, Other Renewables, Interconnectors & Others (Pumped Storage & Oil)

Power Generation Capacity: Wind – Onshore & Offshore

Slow Progression



Gone Green



■ Nuclear
 ■ Coal
 ■ Gas/CHP
 ■ CCS
 ■ Onshore Wind
 ■ Offshore Wind

Level of Renewable Generation and Associated Technology

Increase Over Period and Compared to 2012 Scenarios

@ 2020 - 10.1GW (Onshore) & 7.5GW (Offshore)
 @2035 - 13.9GW (Onshore) & 21.3GW (Offshore)

Onshore Wind: Higher Increase Compared to 2012 Scenarios
 Offshore Wind: Lower Levels @ 2020 Compared to 2012 Scenarios

@2020 - 14.2GW (Onshore) & 12.1GW (Offshore)
 @2035 - 21.8GW (Onshore) & 37.5GW (Offshore)

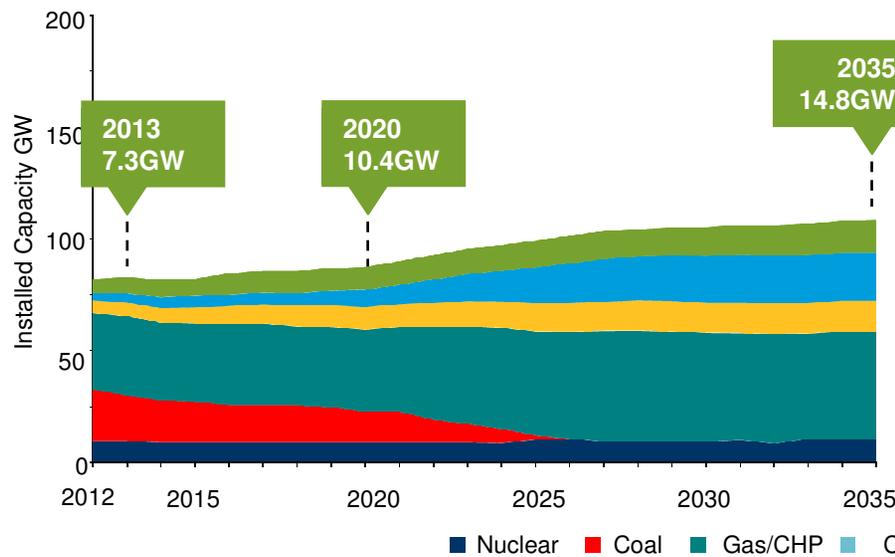
Contract for Difference – (Draft) Strike Price

Onshore Wind - £100 to £95 MWh (2014/15 & 2018/19)

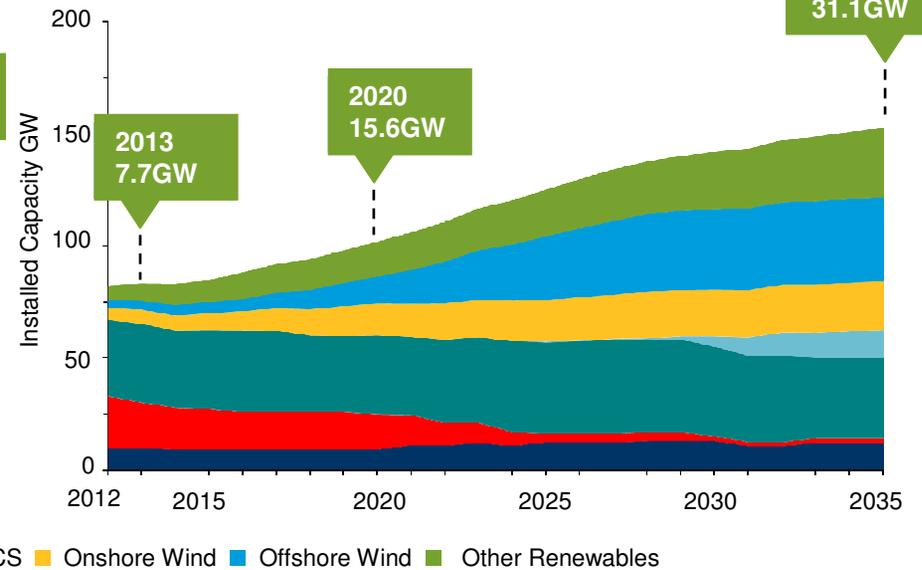
Offshore Wind - £155 to £135 MWh (2014/15 & 2018/19)

Power Generation Capacity: Other Renewables – Biomass, Hydro, Marine & Solar PV

Slow Progression



Gone Green



■ Nuclear ■ Coal ■ Gas/CHP ■ CCS ■ Onshore Wind ■ Offshore Wind ■ Other Renewables

Government Incentives

Modest Levels of Biomass & Solar PV

Increased Emphasis on Biomass & Solar PV

Technology Development

Slow Development of Marine Technology

Commercial Deployment of Marine Technology

Contract For Difference – (Draft) Strike Price

Biomass Conversion - £105 MWh

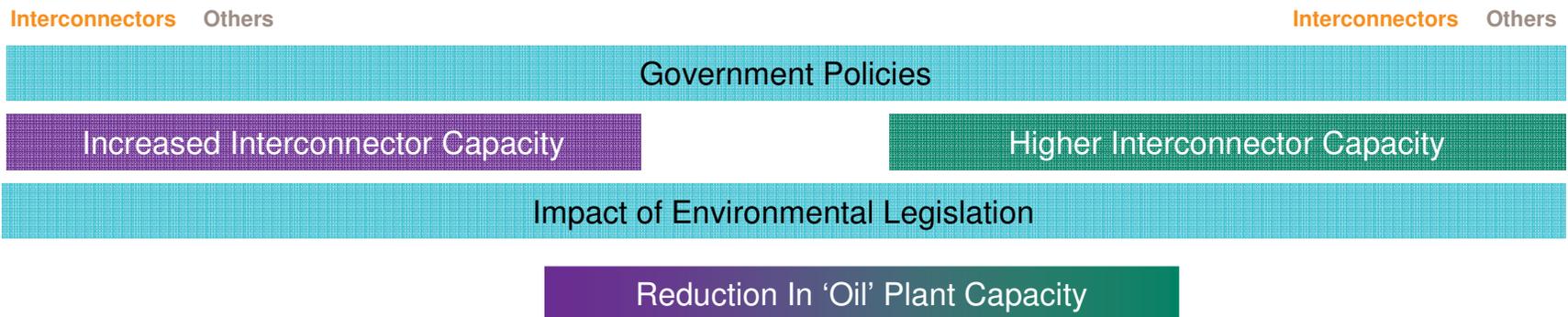
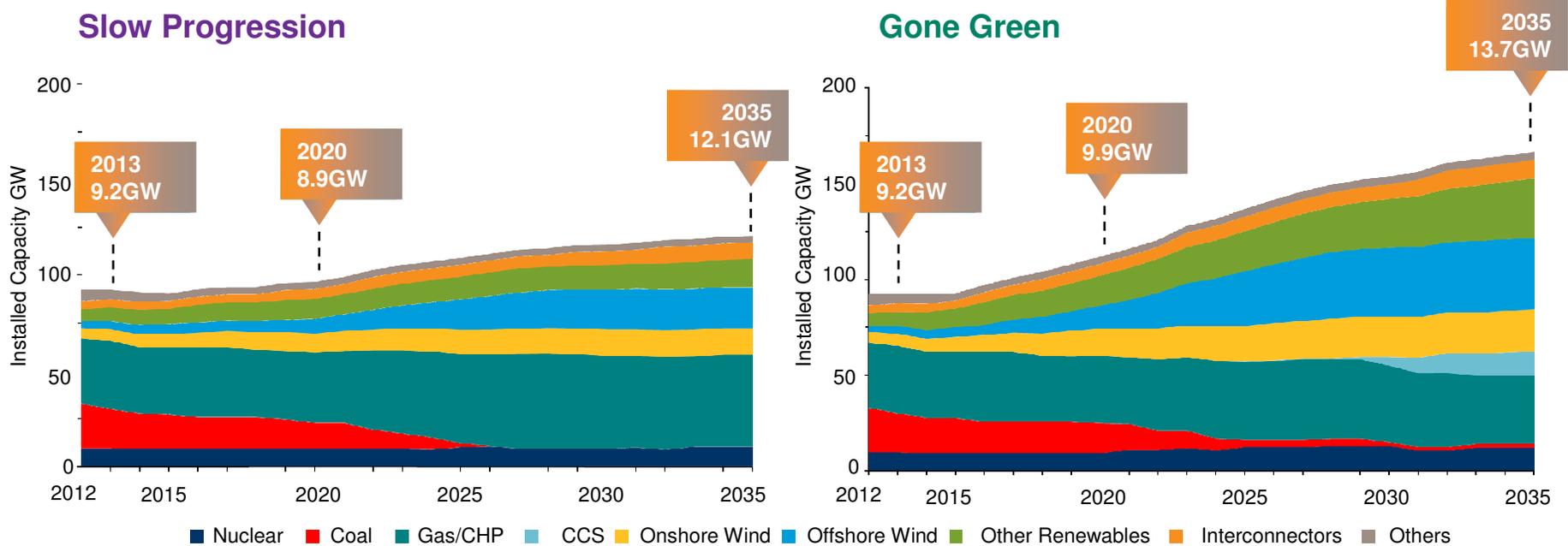
Dedicated Biomass CHP - £120 MWh

Hydro - £95 MWh

Wave & Tidal - £305 MWh (≤30MW)

Solar PV - £125 to £110 MWh (2014/15 & 2018/19)

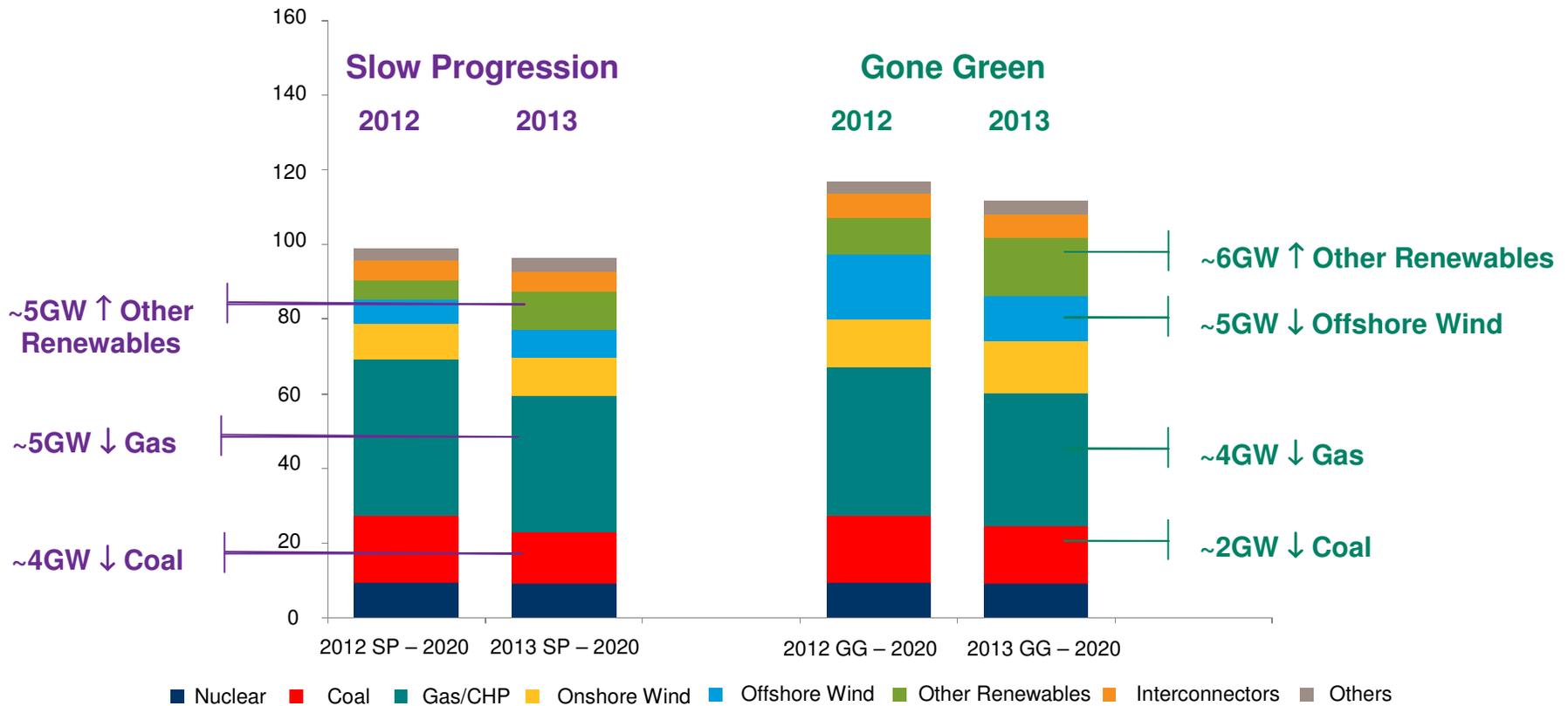
Power Generation Capacity: Interconnectors & Others (Pumped Storage & Oil)



Power Generation Capacity: Comparison @ 2020



Power Generation Capacity: Comparison @ 2020 (2012 vs 2013 Scenarios)



Climate Change Targets & Legislation

Government Policy & Initiatives

Market Intelligence & Project Status

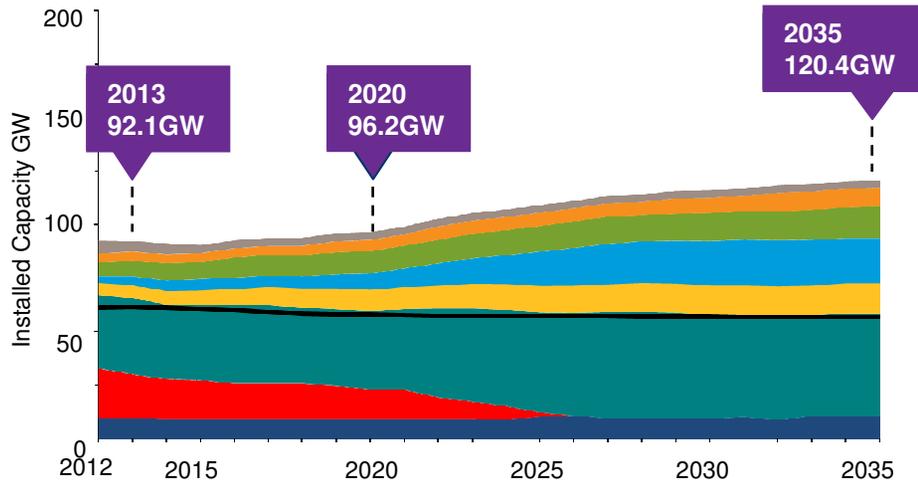
Technology

Power Generation: What Needs To Happen?

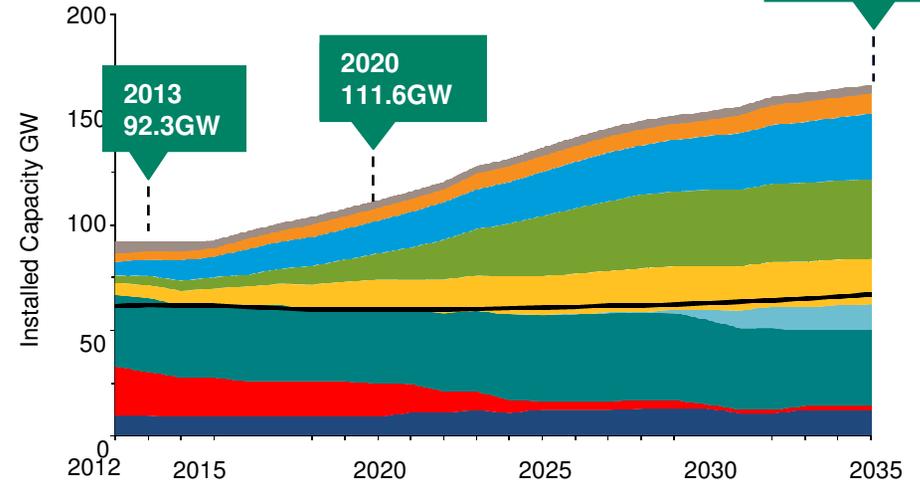


Power Generation: What Needs To Happen?

Slow Progression – Installed Capacity



Gone Green – Installed Capacity



■ Nuclear
 ■ Coal
 ■ Gas/CHP
 ■ CCS
 ■ Onshore Wind
 ■ Offshore Wind
 ■ Other Renewables
 ■ Interconnectors
 ■ Others
 Transmission
 Peak Demand

Biomass: Sustainable Sources of Material

Wind Deployment: Consents, Support & Finance

Effective Supply Chain for Offshore Wind

Life Extensions/Span of Existing Power Stations

Commercial Deployment of New Technologies

EMR To Be Implemented

Networks Developed To Connect New Generation