

Climate Change



WaPUG 10-12th Nov 2010

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Climate Change Adaptation Manager



Climate Change

- CC predictions for the North West
 - UU work - Adaptation report
 - UU work – Other areas

Climate Change

CC predictions for the North West



- UK Climate Impacts Programme produces data on how the UK climate will change in the next 100 years
- UKCP09 is the latest data set and contains info on the following areas -
 - Briefing
 - Trends
 - Climate Change (Land)
 - Marine & Coastal Projections
 - Weather Generator
 - Pre-prepared Maps & Graphs
- Change from previous scenarios
 - This one is probabilistic based

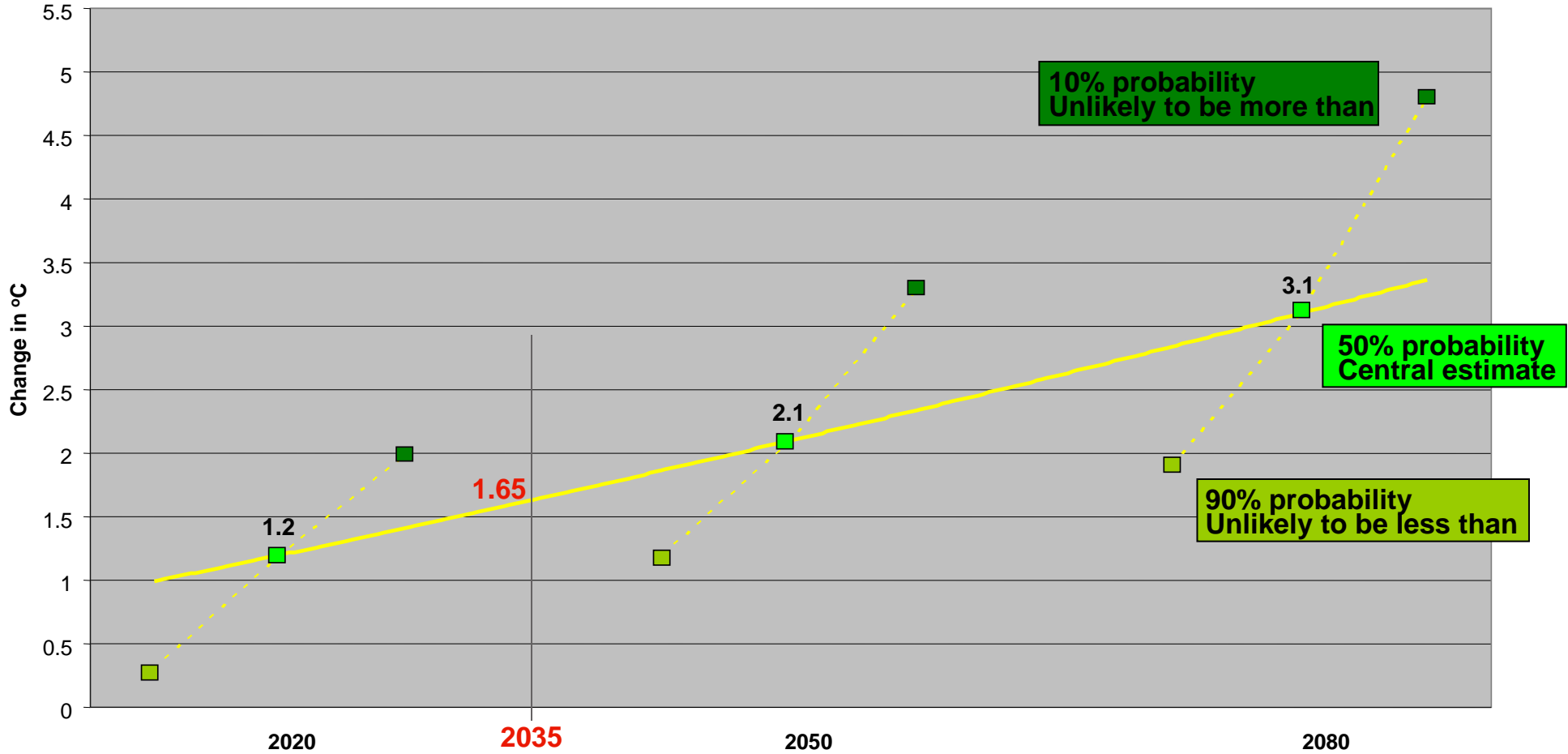
Climate Change Predictions – winter mean temperature



North West England

High Emissions

Temperature winter mean

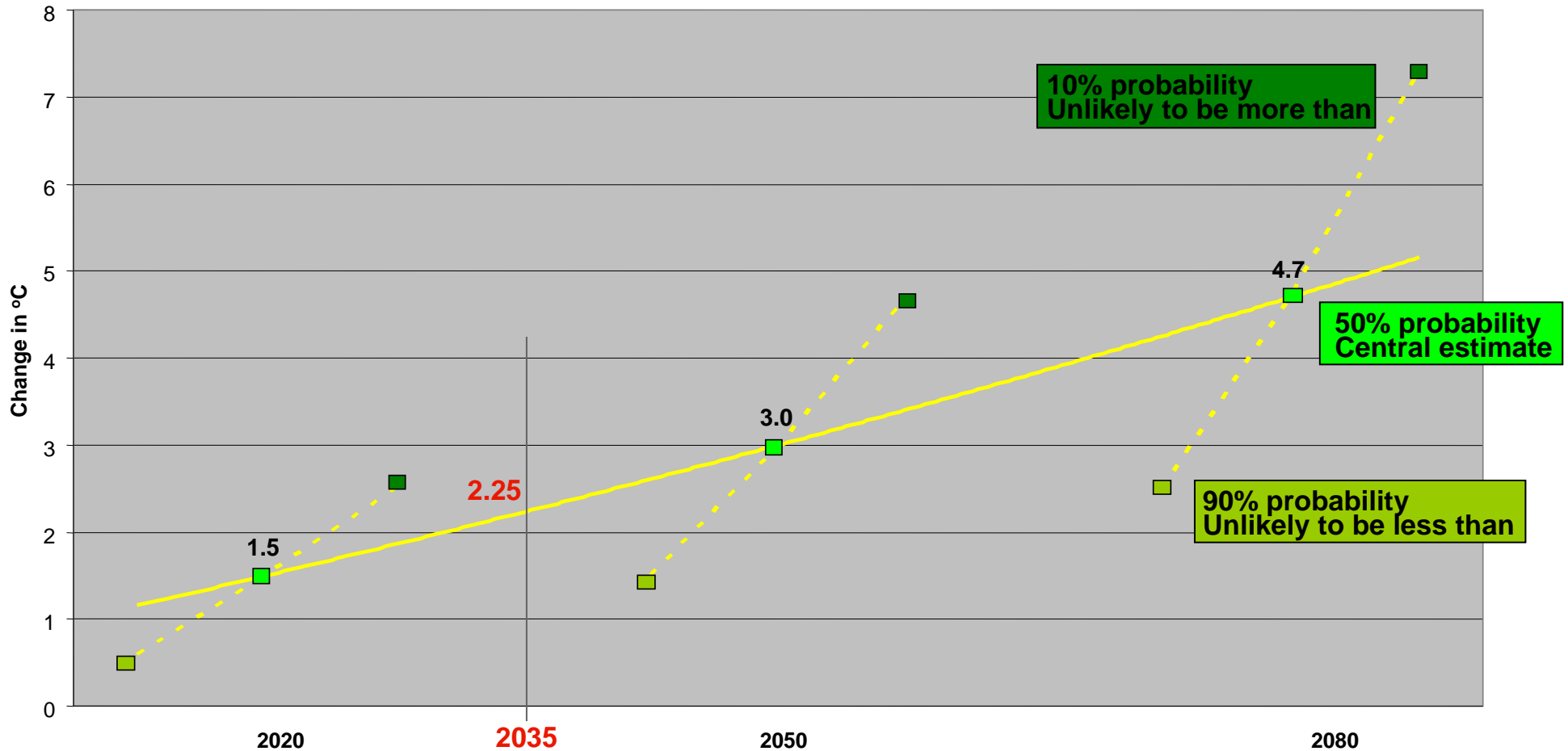


Climate Change Predictions – summer mean temperature



North West England

High Emissions Temperature summer mean

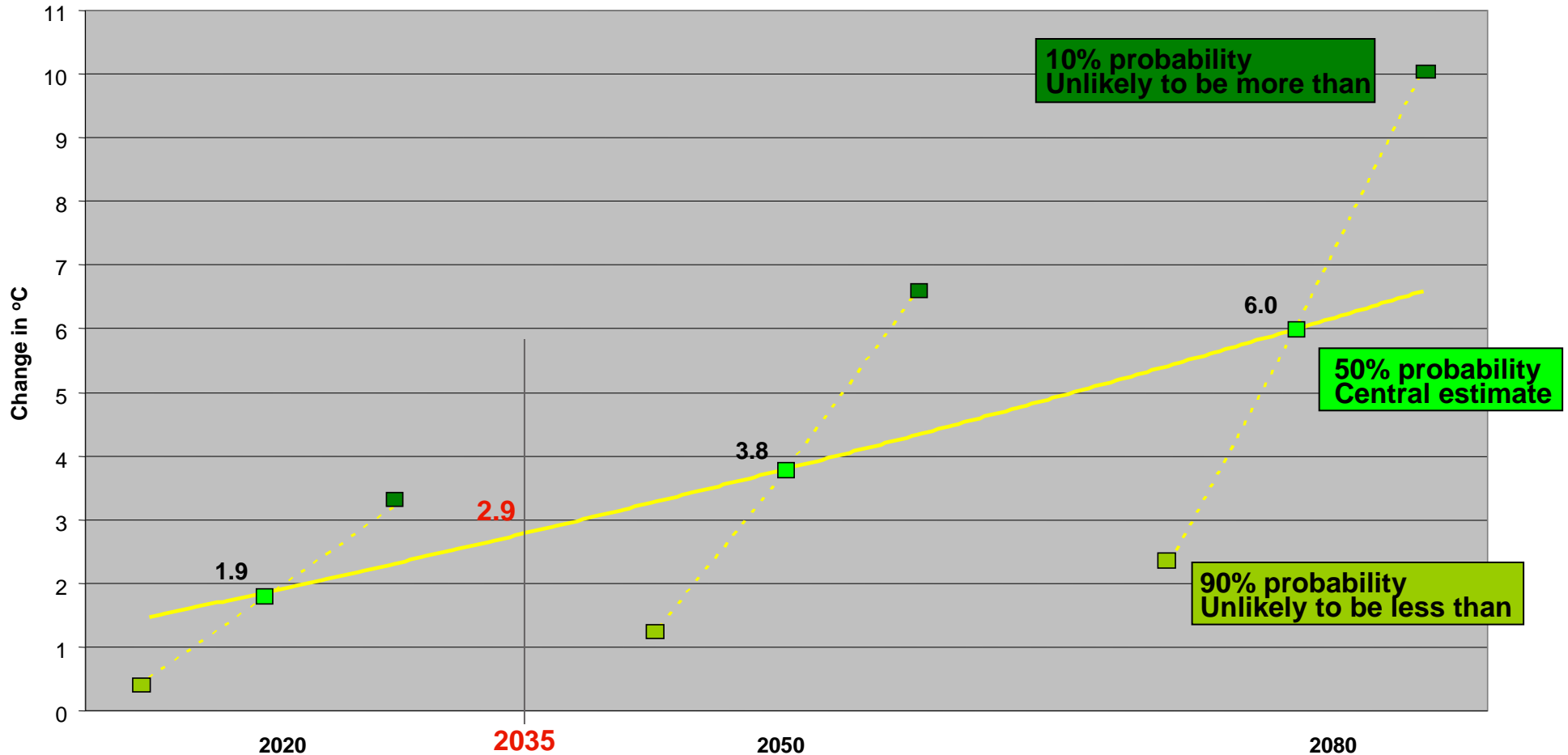


Climate Change Predictions – summer daily max. temperature



North West England

Temperature summer daily max
High Emissions

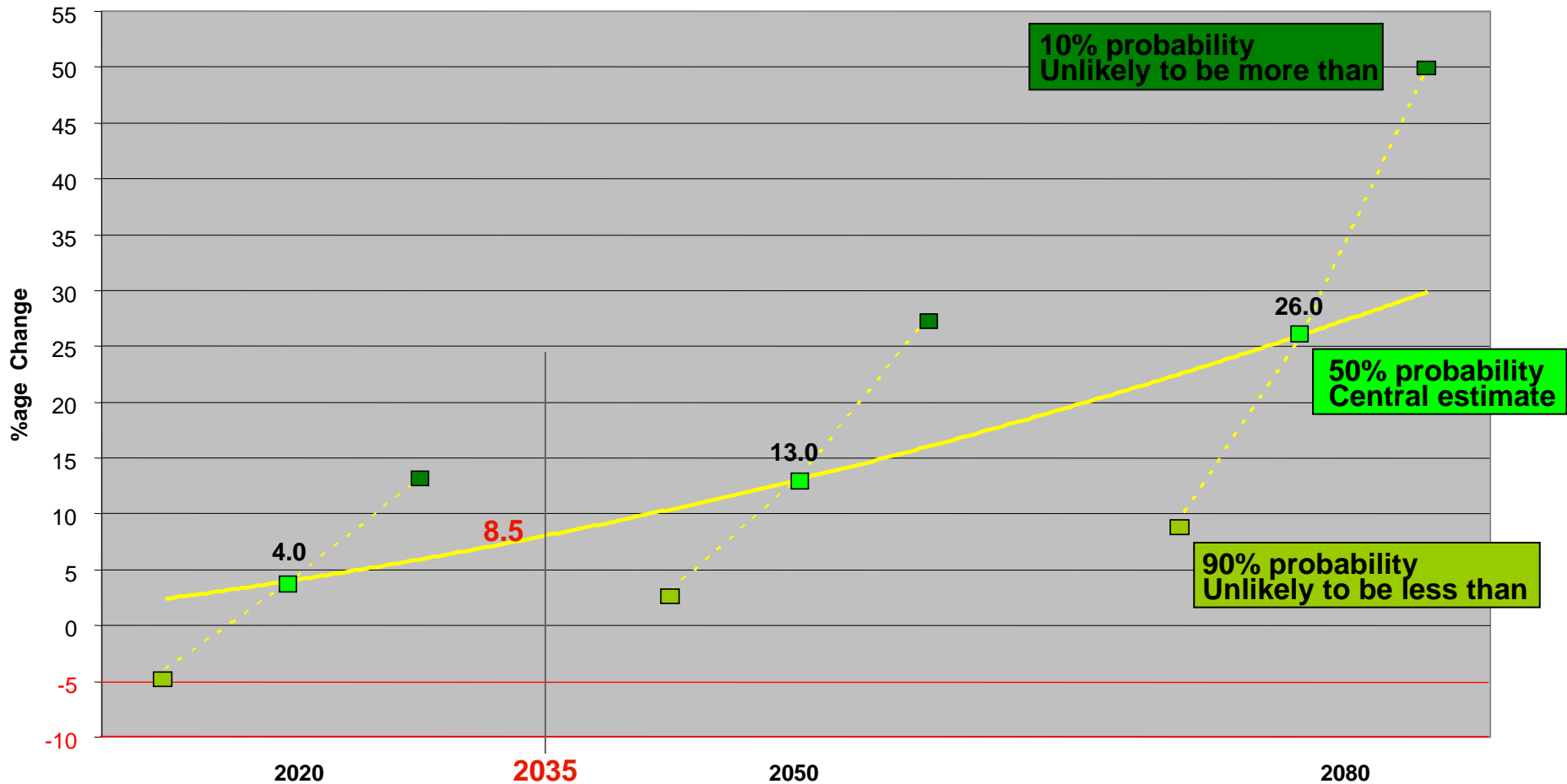


Climate Change Predictions – winter precipitation



North West England

Precipitation winter daily mean
High Emissions

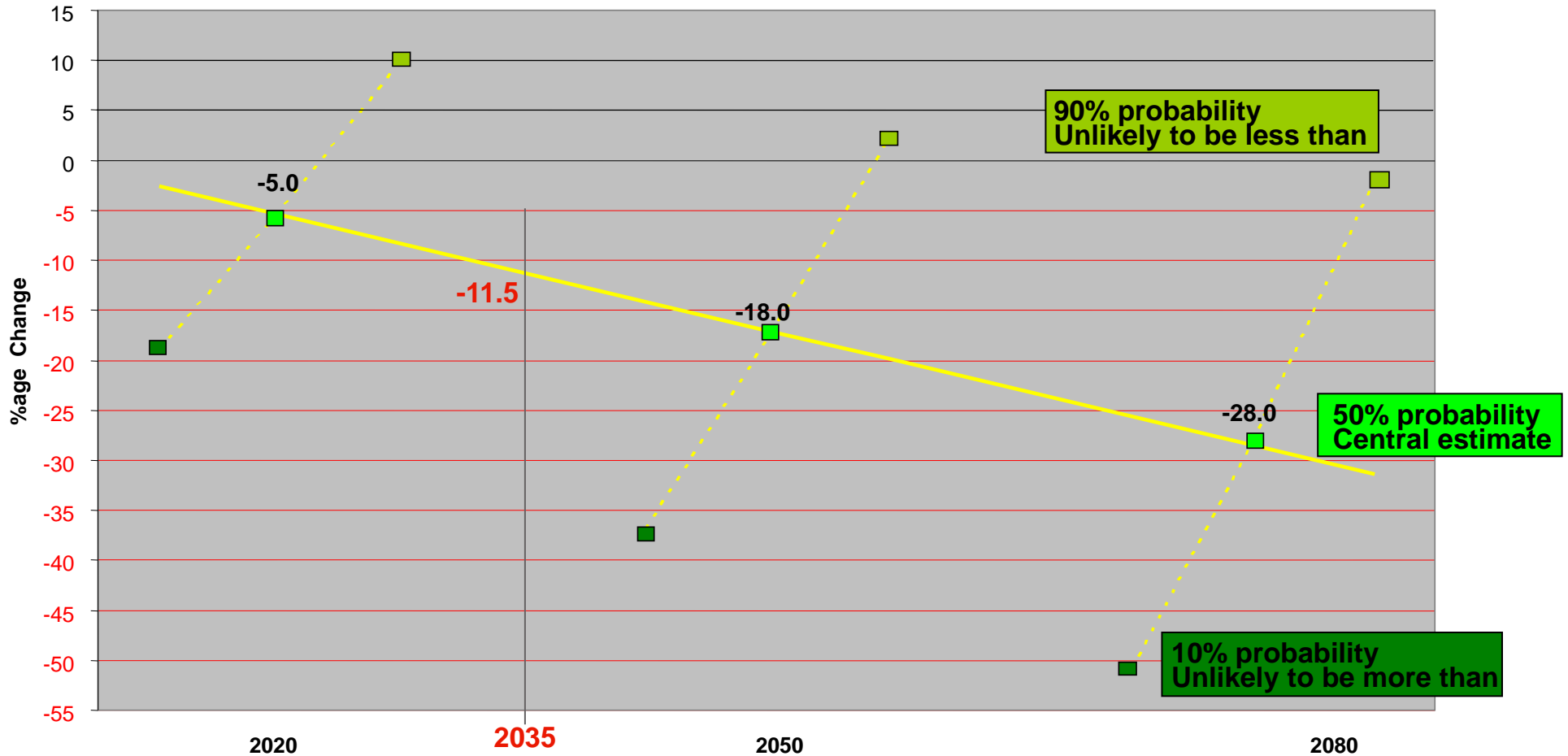


Climate Change Predictions – summer precipitation



North West England

Precipitation summer daily mean
High Emissions



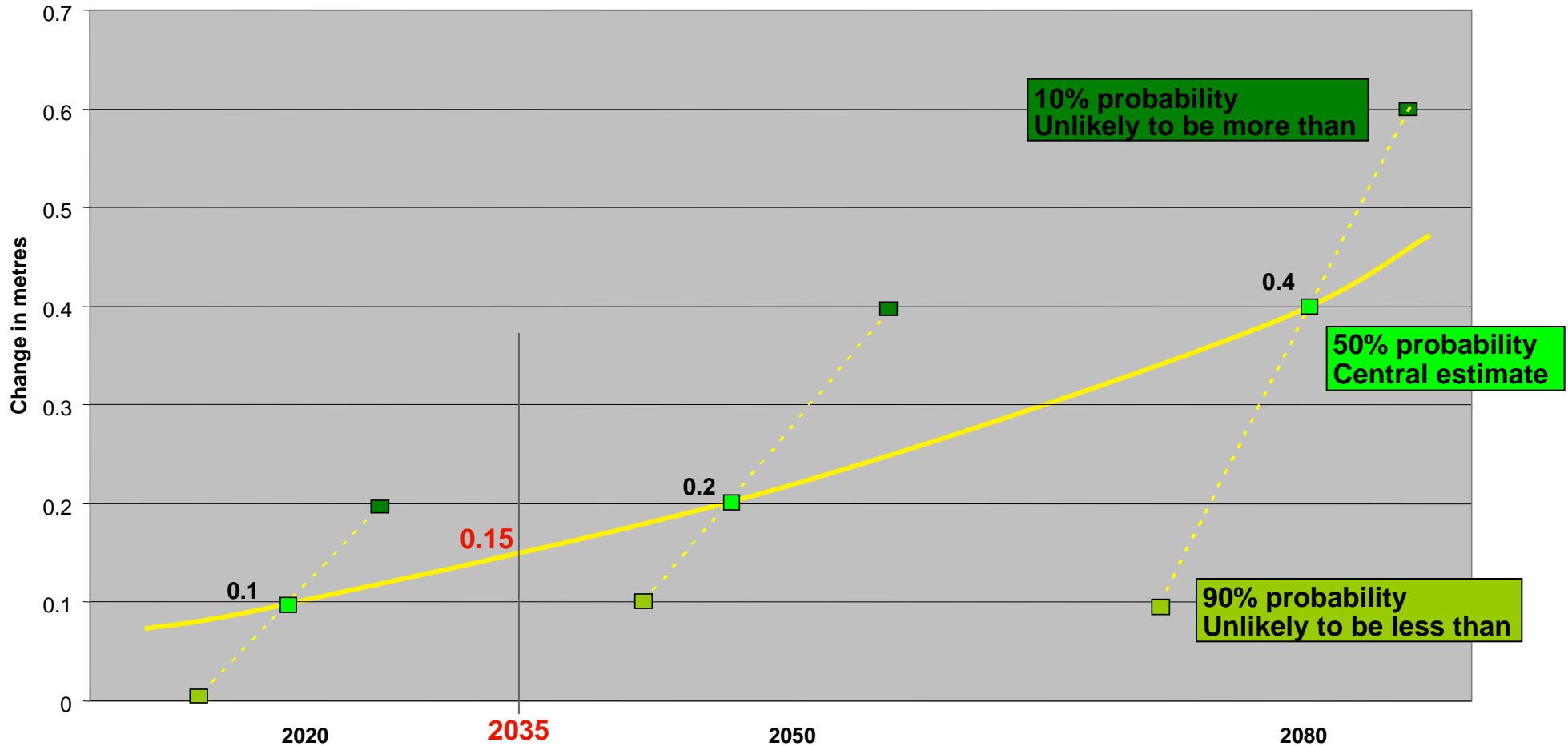
Climate Change Predictions – sea level



North West England

High Emissions

Relative sea level



Climate Change

UU work – Adaptation report

- Climate Change Act 2008 requires us to produce an adaptation report
- Delivered to Defra by end Jan 1011
- Report should cover 7 key areas:
 1. Functions impacted by CC
 2. Approach
 3. Summary of risks
 4. Proposed actions
 5. Uncertainties & assumptions
 6. Barriers and interdependencies
 7. Monitoring & evaluation of adaptation programme



Climate Change Act 2008

CHAPTER 27

CONTENTS

Climate Change

UU work – Adaptation report

- Used CP09 data
- Held workshops with experts from key parts of the business
 - **Water**
 - Resources
 - Treatment
 - Distribution
 - **Wastewater**
 - Network
 - Treatment
 - Sludge
 - **Support Services**
 - HR
 - Supply chain
 - IT
 - Investor relations
 - Legal
 - Customer
- Using previous graphs we focused on 5 areas :-
 - Increase in temperature
 - Decrease in precipitation
 - Increase in precipitation
 - Sea level rise
 - Increase in extreme weather events
- Focused on 25 year horizon but looked out to 2080

Climate Change UU work – Adaptation report

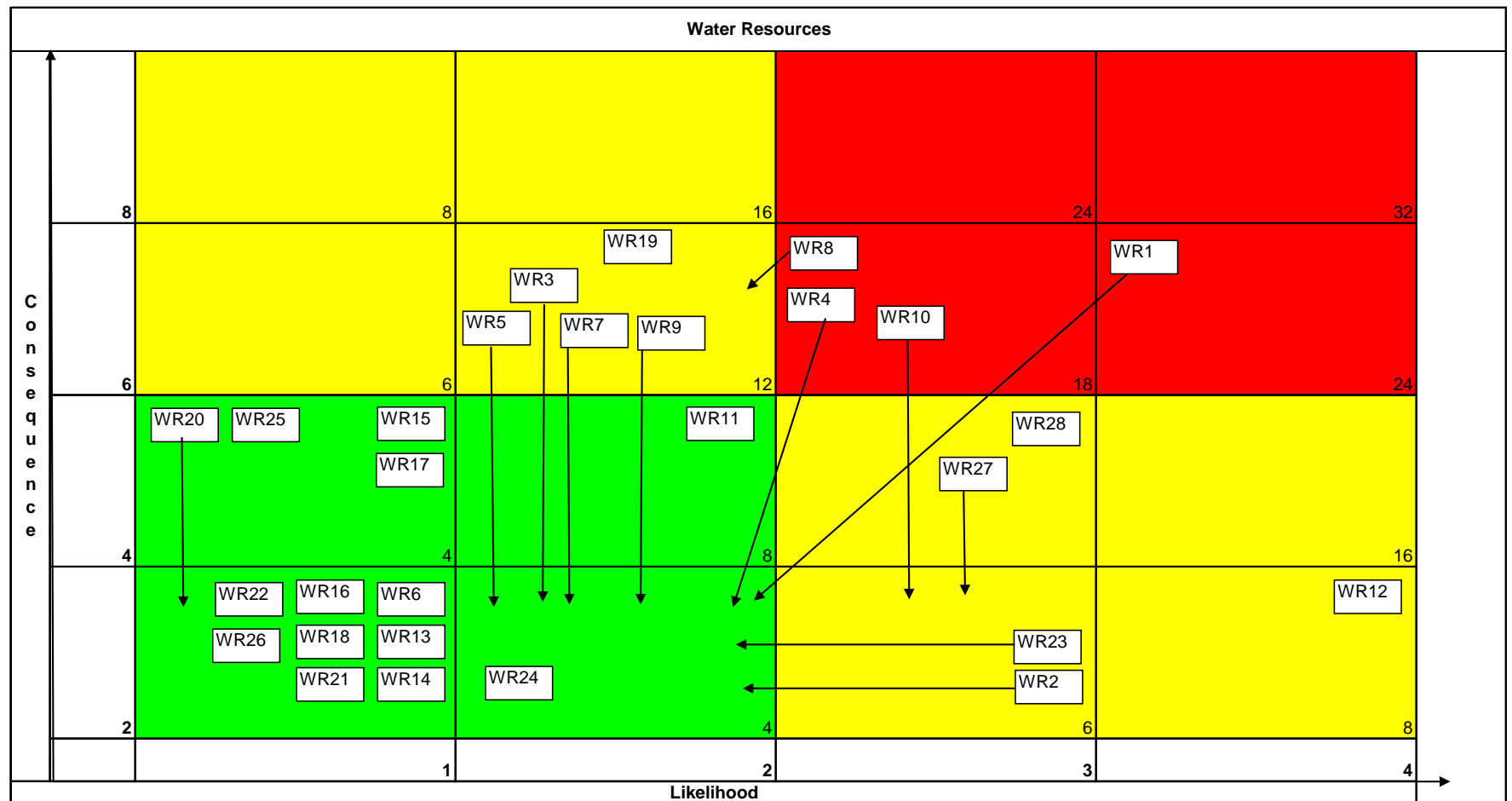
- Using previous graphs + Standard company risk matrix
- We identified and scored the key risks to the business

	A	B	C	D	F	G	H	J	K	L	M	N	O	P	Q	R	
	ASSET LEVEL 3	CLIMATE VARIABLE	MMH score	PREVIOUS UU ASSESSMENT OF LEVEL OF RISK	DESCRIPTION	PRIMARY IMPACT OF CLIMATE VARIABLE	POTENTIAL IMPACTS ON ORGANISATION AND STAKEHOLDERS	Level of consequence [2 - 5]	Level of likelihood [1 - 4]	Level of risk [Consequence X Likelihood]	2035						
											Company's residual risk						
											Level of consequence [2 - 5]	Level of likelihood [1 - 4]	Level of risk [Consequence X Likelihood]	Proposed action to mitigate residual risk			
17																	
18																	
19	All Wastewater treatment	FLOOD	3	M	Increased storm frequency and power supply flooding increases frequency of power loss.	Process loss and potential flooding - service failure	Power outages and service failure	6	4	24				6	4	24	Identify locations with power supplier and develop action plan.
20	All Wastewater treatment	FLOOD	4	M	Direct asset flooding	Asset loss and service failure	Asset loss and service failure	6	4	24	Risk plans for PPC sites only			6	4	24	Risk plans for all sites outputs feed into catchment planning process
21	Treatment works	DROUGHT	3	H	Lower river flows.	New consents from EA	Reduced water quality, increased risk of a consent failure / pollution incident	6	3	18	Long - sustainable catchment work, more likely to support the need for consent change than help adapt to it			6	3	18	Work with EA to ensure that the most sustainable outcomes are achieved.
22	Treatment works	DROUGHT	3	M	Lower average and peak flows increasing need for recirculation pumping	Increased need for recirculation pumping	Increased need for recirculation pumping	4	3	12				4	3	12	SHORT TERM - change the flow pattern at the WWTW LONG TERM - Change asset design standard to remove the need for recirculation.
23	Treatment works	DROUGHT	3	L	Lower average and peak 'carry' flows lead to settlement in the system, with shock loads.	Shock loading resulting in increased asset deterioration	Accelerated asset deterioration and H&S risk	4	3	12				4	3	12	Change asset design standard to cope with this mode of operation
24	Treatment works	TEMP RISE	2	L	Increased septicity levels and odour.	Greater septicity and odour		4	3	12				4	3	12	odour management plans
25	Treatment works	FLOOD	3	L	Extended duration of FFT due to increased rainfall and/or storage return.	Accelerated asset deterioration and failure	Accelerated asset deterioration and failure	2	4	8	Removal of SV from system through SUDS - supply demand controls			2	4	8	Change asset design standard to cope with this mode of operation
26																	

Impact	Severe	8	8	16	24	32
	High	6	6	12	18	24
	Medium	4	4	8	12	16
	Low	2	2	4	6	8
			1	2	3	4
			Remote	Unlikely	Likely	Very Likely
		Likelihood				

Climate Change UU work – Adaptation report

- Example of the risks on Water Resources



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UU work – Adaptation report

● Risk assessment process

- Focused on a 25 year horizon (2035)
- Hence projected impacts are not huge
- Biggest risk is from changes in precipitation
- Did not identify any surprises

● Reinforced existing perceptions

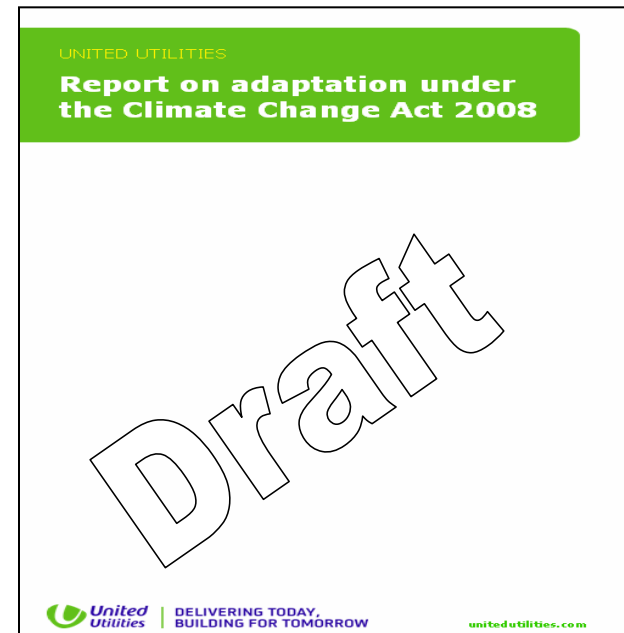
- Water - well covered through the WRMP process
- Wastewater - more work needed to ensure a consistent approach
- Support services - need to reinforce awareness of the issues
- Need to work on the interdependencies with other sectors

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UU work – Adaptation report

- CC is just one of many risks that UU face
- Has been on our corporate risk register for some time

- 1st report in the PR14 process
- Therefore high level signoff process agreed
- Draft report has already been reviewed
- Intending to have it in the post before Christmas !!!

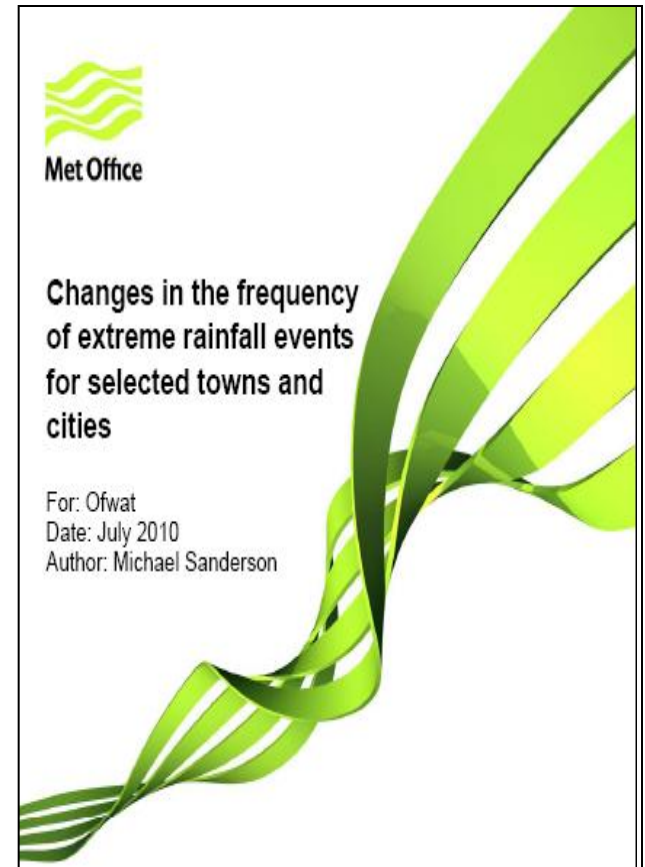


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UU work – Other areas of work

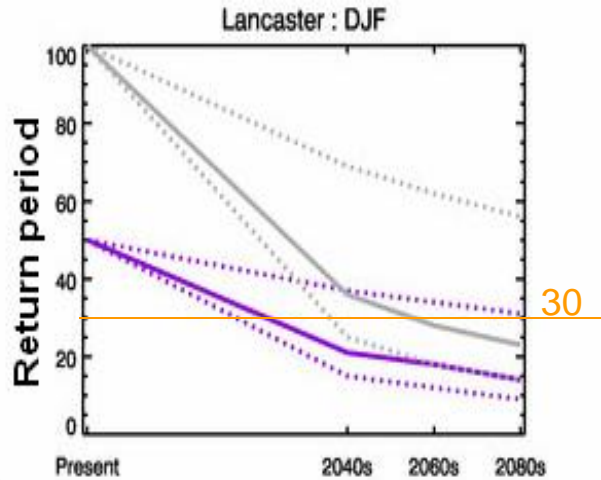
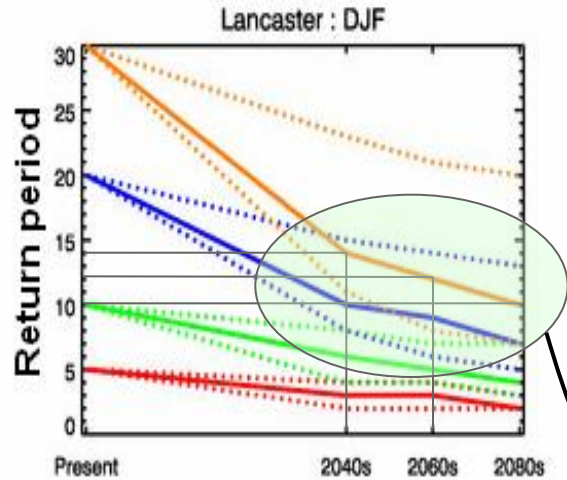
● Ofwat

- Sustainable drainage project
- Met Office commissioned to look at the changes in the frequency of extreme rainfall
 - Report issued in July 2010
 - Detailed predictions for 40 locations across England & Wales
 - UU region
 - Carlisle
 - Lancaster
 - Liverpool
 - Manchester



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UU work – Other areas of work

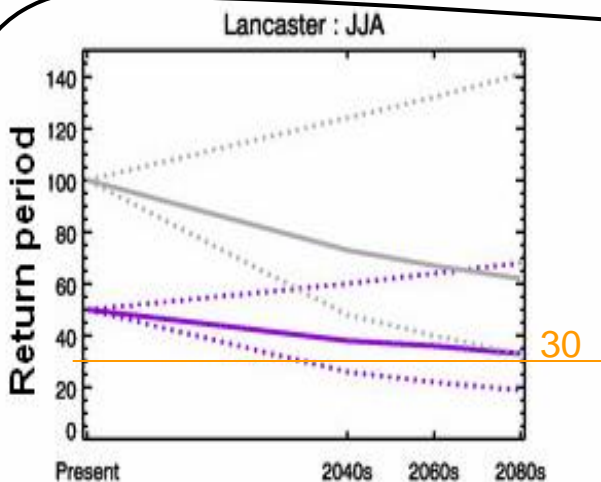
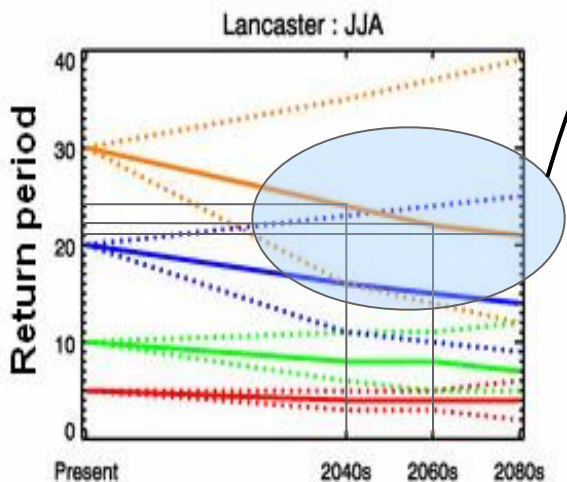


What this is saying

Current 1 in 30 year storm will be equivalent to :

Winter (Dec – Jan – Feb)

- 1 in 14 by 2040
- 1 in 12 by 2060
- 1 in 10 by 2080



Summer (Jun – Jul - Aug)

- 1 in 24 by 2040
- 1 in 22 by 2060
- 1 in 21 by 2080

Note: solid lines are the 50%ile estimate dotted line 90 & 10%ile estimate

Climate Change

UU work – Other areas of work

- UKWIR

- Need to agree a consistent approach on what we do with the numbers



- Surface water management

- Working on methods to retrofit SUDS to free up capacity in the sewer network



- Resilience and/or resistance

- Understanding how work in this area benefits adaptation and vice versa



Thank You



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