



# New Guidance for Climate Resilience and Adaptation in EIA

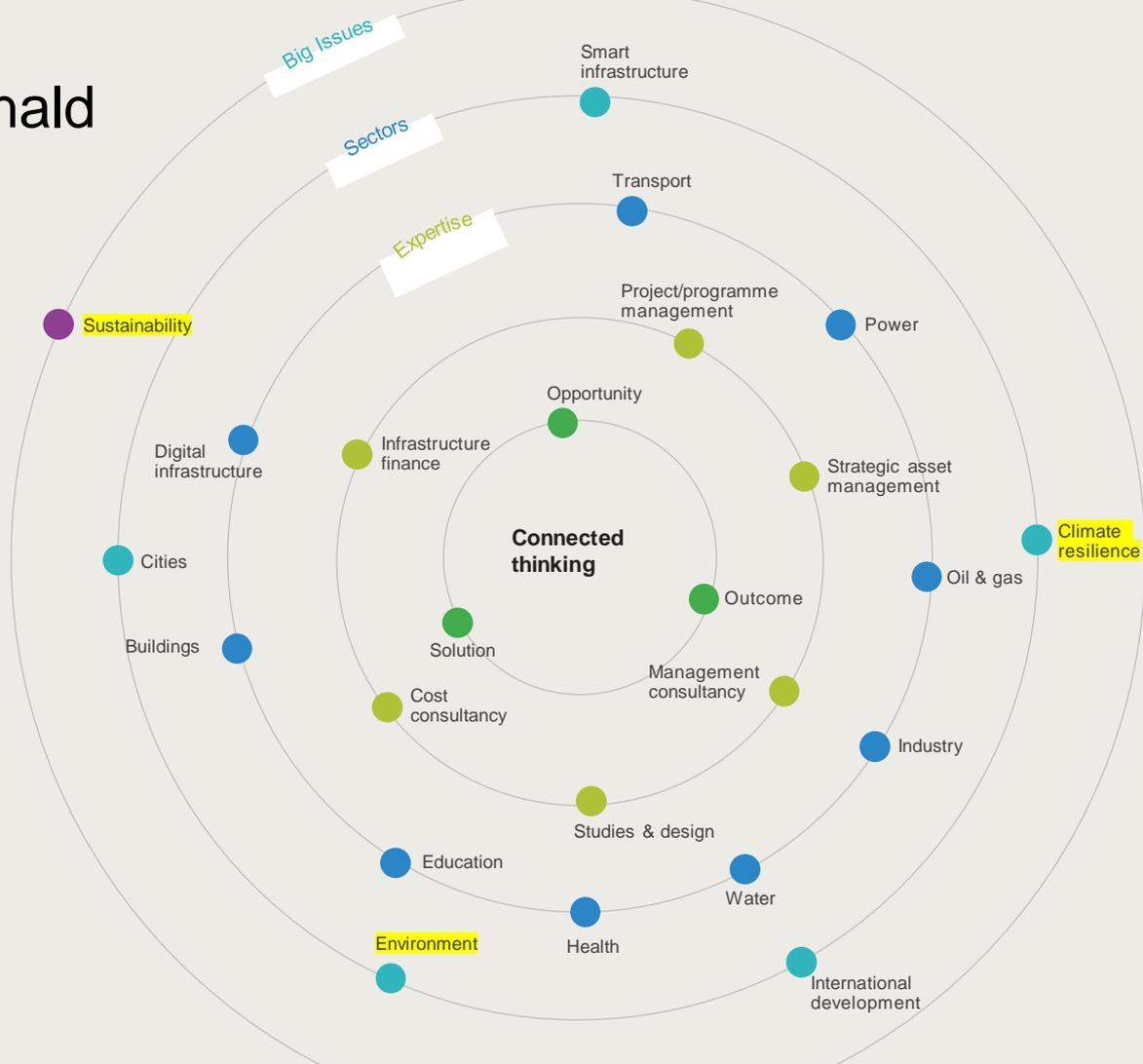
Maria Pooley  
Principal Consultant, Mott MacDonald



# Introducing Mott MacDonald

We're a global engineering, management and development consultancy with a strong environmental focus

The new guidance brings together our climate resilience and EIA expertise



# The new guidance

**IEMA** Transforming the world  
to sustainability

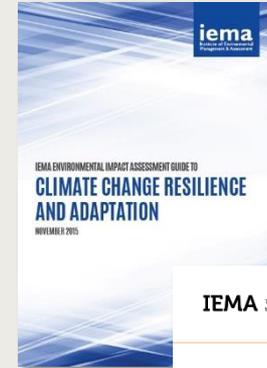
## Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation



# Background to the guidance

How did we get here?

- Revised EU EIA Directive (2014)  
*“Information to be included within the EIA report (...) The impact of the project on climate (for e.g. the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.”*
- 1<sup>st</sup> IEMA guidance on *Climate Change Resilience and Adaptation in EIA* published 2015, in response to EU EIA Directive
- EU EIA Directive transposed into UK law by, among others, the UK Town and Country Planning Regulations (2017)
- 1<sup>st</sup> cases of EIA Climate chapters published (2017/18 onwards)
- Revised *Climate Change Resilience and Adaptation in EIA* guidance published June 2020



# Why have we updated the guidance?

- Now a more mature field
- Case studies on climate resilience assessment within EIA to date

EIA's role in driving climate resilient design?

Addressing uncertainty in EIA assessment – climate scenario choices

Proportional assessment

Significance – distinction between climate resilience and 'in combination' climate impacts

Key issues discussed at workshop on guidance in July 2018

# What does the guidance deliver?

- A methodology for assessing climate resilience and adaptation within EIA
- Case studies on climate resilience assessment within EIA to date

And what it doesn't:

- It is not guidance on the assessment of GHG within EIA

# Key points in the new guidance

## The 8-step assessment methodology

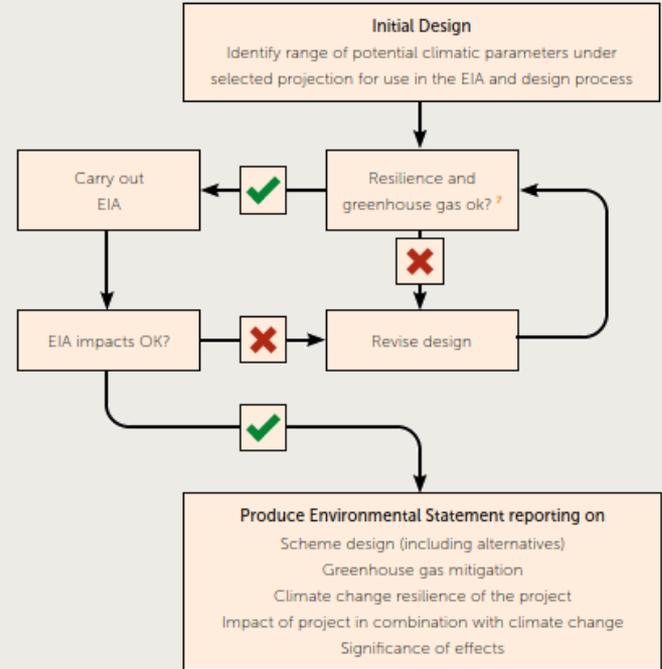
Pre-Application Stage	Pre-EIA	<p><b>Step 0</b> Building climate resilience into the project</p> <ul style="list-style-type: none"> <li>Consider the resilience of the project to climate change impacts during the design stage, including early phases of design. This can be done through delivery of a climate change risk assessment, or by following the principles set out in Steps 2 - 6 below</li> <li>Identify appropriate mitigation measures (to reduce the effect of impacts) and incorporate these into design as necessary</li> <li>Reflect the outcome of design for resilience in the Environmental Statement under the description of the project/alternatives studied</li> </ul>
	Scoping	<p><b>Step 1</b> Scoping CC Requirements for the EIA</p> <ul style="list-style-type: none"> <li>Identify the scale and scope of the project, including design life</li> <li>Identify the climate change projections for use in the assessment</li> <li>Identify key climatic variables relevant to the project</li> <li>Identify likely effects</li> <li>Engage with and discuss the above with stakeholders/regulators</li> </ul>
	EIA Stage	<p><b>Step 2</b> Defining the future (climate) baseline</p> <ul style="list-style-type: none"> <li>Define baseline conditions under historic/existing climate conditions</li> <li>Define future baseline, using selected climate change projections. This will summarise projected changes in key climate variables (e.g. increase in rainfall, increase in mean summer temperature, wind strength)</li> <li>Produce summary of projected future climate changes for non-climate expert audience</li> </ul>
		<p><b>Step 3</b> Identifying and determining sensitivity of receptors</p> <table border="1"> <tr> <td> <p><b>Climate Resilience</b></p> <ul style="list-style-type: none"> <li>Identify receptors within the elements of the project</li> <li>Evaluate the selected receptors to identify their susceptibility and vulnerability as well as their importance</li> </ul> </td> <td> <p><b>In-Combination Climate Impacts</b></p> <ul style="list-style-type: none"> <li>Collate the receptors identified relevant to the location, nature and scale of the project and the likely effects identified as part of the EIA and to be reported within the Environmental Statement</li> <li>Evaluate the selected receptors whether the susceptibility and vulnerability as well as their value/importance changes with future climatic projections identified in Step 2</li> </ul> </td> </tr> </table>
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Pre-Application Stage	EIA Stage	<p><b>Step 4</b> Reviewing and determining magnitude of the effect</p> <table border="1"> <tr> <td> <p><b>Climate Resilience</b></p> <ul style="list-style-type: none"> <li>Review effects likely to arise from the project identified at Step 2</li> <li>Consider probability and consequence to determine the magnitude of the effect</li> </ul> </td> <td> <p><b>In-Combination Climate Impacts</b></p> <ul style="list-style-type: none"> <li>Collate the likely effects identified as part of the EIA and to be reported within the Environmental Statement</li> <li>Consider the magnitude of the effects identified by other topics and evaluate whether the probability and/or consequence of the effect changes with future climatic projections</li> </ul> </td> </tr> </table>	<p><b>Climate Resilience</b></p> <ul style="list-style-type: none"> <li>Review effects likely to arise from the project identified at Step 2</li> <li>Consider probability and consequence to determine the magnitude of the effect</li> </ul>	<p><b>In-Combination Climate Impacts</b></p> <ul style="list-style-type: none"> <li>Collate the likely effects identified as part of the EIA and to be reported within the Environmental Statement</li> <li>Consider the magnitude of the effects identified by other topics and evaluate whether the probability and/or consequence of the effect changes with future climatic projections</li> </ul>
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		<p><b>Step 5</b> Determination of significance</p> <table border="1"> <tr> <td> <p><b>Climate Resilience</b></p> <ul style="list-style-type: none"> <li>Use the sensitivity of receptors identified at Step 3 and the magnitude of the effect identified at Step 4 alongside professional judgement to determine whether the effect is significant/the degree of effect.</li> </ul> </td> <td> <p><b>In-Combination Climate Impacts</b></p> <ul style="list-style-type: none"> <li>Assess the significance of the project effects under the existing climate baseline using standard methodologies for each relevant environmental topic</li> <li>Assess the in-combination climate impact applying the significance criteria developed by the relevant environmental topics and using the outcome of the evaluation of sensitivity of receptors/magnitude of effect identified at Step 3 and Step 4</li> <li>Determine whether the significance/degree of the effect remains the same or changes with the future climate conditions</li> </ul> </td> </tr> </table>	<p><b>Climate Resilience</b></p> <ul style="list-style-type: none"> <li>Use the sensitivity of receptors identified at Step 3 and the magnitude of the effect identified at Step 4 alongside professional judgement to determine whether the effect is significant/the degree of effect.</li> </ul>	<p><b>In-Combination Climate Impacts</b></p> <ul style="list-style-type: none"> <li>Assess the significance of the project effects under the existing climate baseline using standard methodologies for each relevant environmental topic</li> <li>Assess the in-combination climate impact applying the significance criteria developed by the relevant environmental topics and using the outcome of the evaluation of sensitivity of receptors/magnitude of effect identified at Step 3 and Step 4</li> <li>Determine whether the significance/degree of the effect remains the same or changes with the future climate conditions</li> </ul>
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<p><b>Step 6</b> Developing additional adaptation/EIA mitigation measures</p> <ul style="list-style-type: none"> <li>Identify additional (secondary) mitigation measures against timescale of future likely significant effects</li> <li>Fixed elements for full duration need mitigation built in based on predicted climate effects (less desirable)</li> <li>Project elements subject to maintenance/future change can have mitigation set for future implementation based on actual climate effects being observed (more desirable)</li> <li>Prepare, if appropriate, a Climate Change Resilience and Adaptation Plan that covers the above and includes allocation of responsibilities and funding streams</li> </ul>				
<p><b>Regulator approval obtained, project implemented. Move to post-EIA work phase</b></p>				
Post-EIA Stage	<p><b>Step 7</b> Monitoring and Adaptive Management</p> <ul style="list-style-type: none"> <li>Implement project mitigation measures/Climate Change Resilience and Adaptation Plan</li> <li>Review and approval with stakeholders based on evidence of effects on emerging baseline</li> </ul>			



## Step 0: Building climate resilience into the project

- Emphasises the importance of project designers incorporating climate resilience into design at an early stage
- Consideration of climate resilience prior to EIA can be done following the same methodology set out in the guidance document for EIA
- Consider:
  - Reliance on interconnected networks (dependencies)
  - Vulnerability to impact of weather, in both normal conditions and under weather-related disaster scenarios





## Step 1: Scoping Climate Change requirements for the EIA

- Identify the scale and scope of the project
- Identify the climate change projections for use
- Identify key climatic variables relevant to the project
- Identify likely effects of climate impacts
- Engage with stakeholders/regulators to discuss the above



Temperature rise



Storms



Precipitation changes



Sea level rise



## Step 2: Defining the future climate baseline

- Define historic/current baseline conditions
- Define future baseline conditions
- Produce non-expert future baseline summary for wider EIA audience

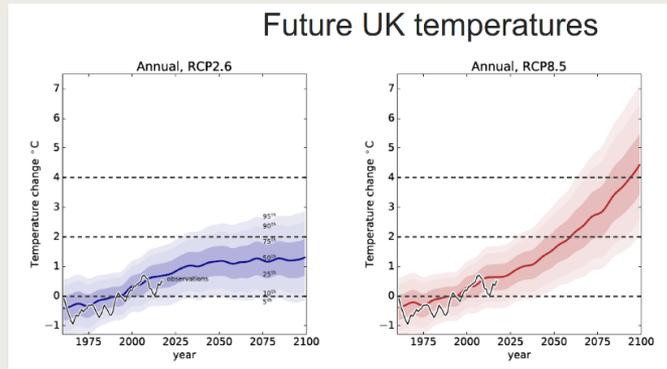


Table 3 – Example presentation of a quantitative future baseline for key climatic variables. This is data for the South East of the UK under RCP 8.5 (the highest emission scenario in UKCP18)<sup>1</sup>

Season	Variable	Time period*	5th percentile	Projected change at			95th percentile
				10th percentile	50th percentile	90th percentile	
Winter	Mean Temperature (°C)	2030s	-0.1	0.1	0.9	1.8	2
		2050s	0.2	0.5	1.7	2.9	3.3
		2070s	0.4	0.9	2.5	4.2	4.8
		2090s	1	1.5	3.6	5.8	6.4
	Mean Precipitation (%)	2030s	-9	-5	8	23	27
		2050s	-10	-5	13	34	40
Summer	Mean Temperature (°C)	2070s	-12	-5	20	49	58
		2090s	-10	-3	27	63	75
		2030s	0.1	0.4	1.3	2.4	2.6
		2050s	0.8	1.1	2.5	4	4.4
	Mean Precipitation (%)	2070s	1.2	1.8	3.9	6.1	9.5
		2090s	2.2	2.9	5.8	8.7	9.5
		2030s	-36	-30	-9	13	19
		2050s	-55	-48	-22	5	14
		2070s	-69	-61	-30	1	9
		2090s	-85	-77	-41	-3	7

\*UKCP18 provides 20-year time slices, hence: 2030s (2020-2039), 2050s (2040-2059), 2070s (2060-2079) and 2090s (2080s-2099)

Step 0

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6

Step 7

- **Step 3** – Identifying and determining sensitivity of receptors
- **Step 4** - Reviewing and determining magnitude of the effect
- **Step 5** - Determination of significance



Step 0

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6

Step 7

## Step 6: Developing EIA Mitigation Measures

Identify measures to reduce the impact of the climate effects identified. Key focus:

- Identify who will be responsible for delivering measures;
- Remain proportionate to risk



Step 0

Step 1

Step 2

Step 3

Step 4

Step 5

Step 6

Step 7

## Step 7: Monitoring and Adaptive Management

- Adaptive management: process that allows uncertainty to be included in decision making.



# What's new in the revised guidance?

- A Step 0 – prior to the EIA
- Specific guidance on use of climate projections
  - Guidance recommends use of RCP 8.5 scenario (the highest within UKCP18) unless good reason to justify otherwise
  - Linked in with the new climate projections published by Met Office in 2018 (UKCP18), which use Representative Concentration Pathways (RCP) rather than the previous Low, Medium, High emission scenario
- Guidance on significance
- Stronger distinction between the 'climate resilience' and 'in-combination' elements of the assessment
- Case studies of climate change assessments carried out in actual EIAs

# What remains the same in the revised guidance?

- Strong focus on incorporating climate resilience into a project design, ideally prior to EIA
- Holistic approach
- Recommend a Climate Change Adaptation and Resilience Coordinator role within EIA

# How did we do? Key issues discussed at workshop on guidance in July 2018

EIA's role in driving climate resilient design?

Addressing uncertainty in EIA assessment – climate scenario choices

Proportional assessment

Significance – distinction between climate resilience and 'in combination' climate impacts

# Next Steps

- We hope the guidance will help EIA practitioners deliver proportionate climate change assessment within EIA
- Help climate resilience practitioners understand the scope of the climate change assessment within EIA
- Feedback on the guidance as you use it would be very welcome – to [maria.pooley@mottmac.com](mailto:maria.pooley@mottmac.com) and [n.blyth@iema.net](mailto:n.blyth@iema.net)



Thank you

