



Cornwall Council Tackling Climate Change

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Introduction

- Cornwall – population 535,000 – increasing especially those over 40 years
- One of poorest areas in UK – wages 25% below average
- High house prices
- High unemployment
- Poverty – including Fuel Poverty
- Low crime
- Beautiful – 27% of area designated as Area of Outstanding Natural Beauty
- popular tourist destination, 5m visitors per year – beaches walking, etc

Cornwall



Cornwall – Fuel Poverty

- 50% of homes off gas grid
- High reliance upon electricity, coal, oil and LPG for heating - expensive
- High proportion of older solid walled properties – hard to insulate
- 1 in 4 homes in fuel poverty
- Studies show this is linked to poor health (physical & mental), excess winter deaths, poor attainment in school, etc.

Cornwall CO2 emissions

- Domestic (homes) = 21%
- Transport (cars, lorries, etc) = 27%
- Commercial & industrial = 32%
- Agriculture (livestock, farm vehicles & fertiliser) = 20%

- Total 4,515,731 tonnes CO2e (2009)
- (Excludes marine and aviation)

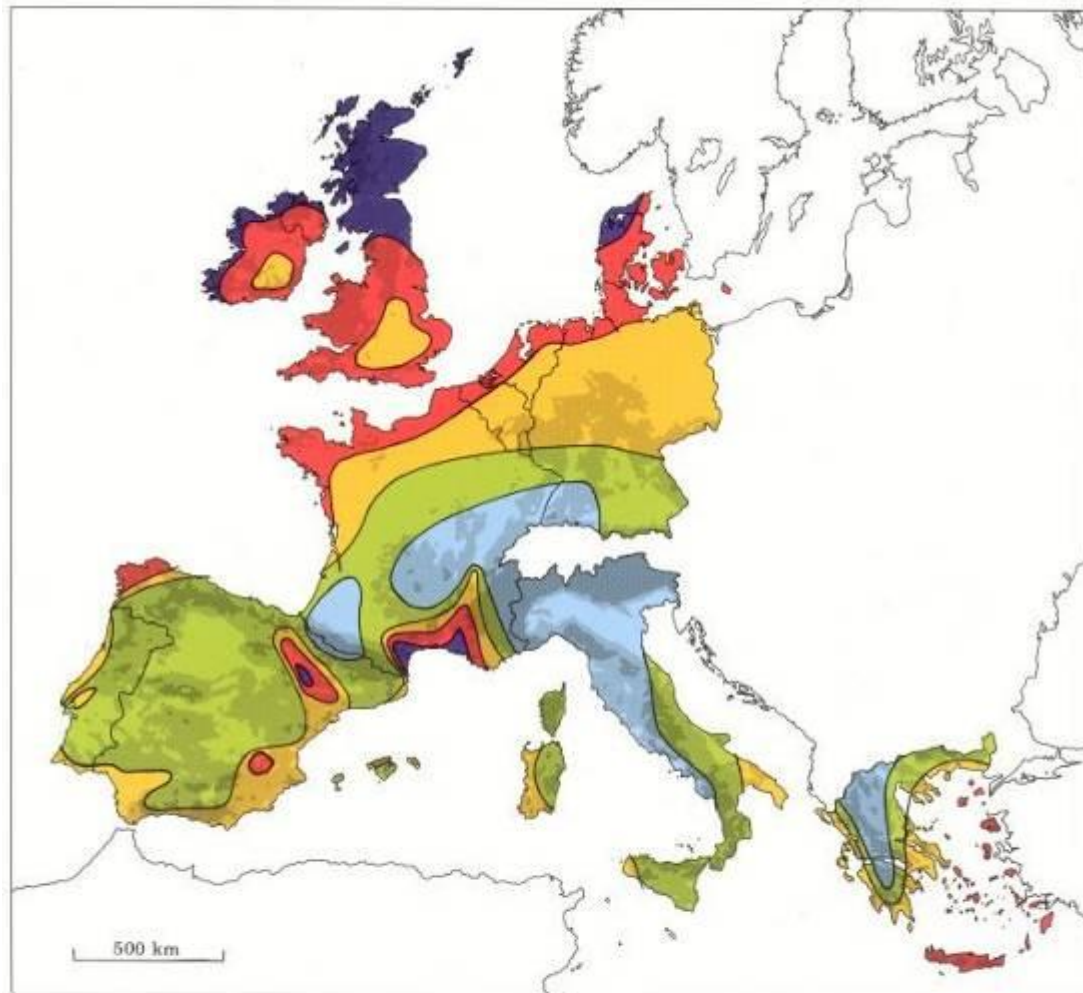
Cornwall – Renewable energy resources

- Solar
- Wind
- Wave
- Geothermal
- Hydro-electricity
- Anaerobic digestion
- Biomass

Cornwall – Solar energy





Cornwall – Wind energy



Wind resources¹ at 50 metres above ground level for five different topographic conditions

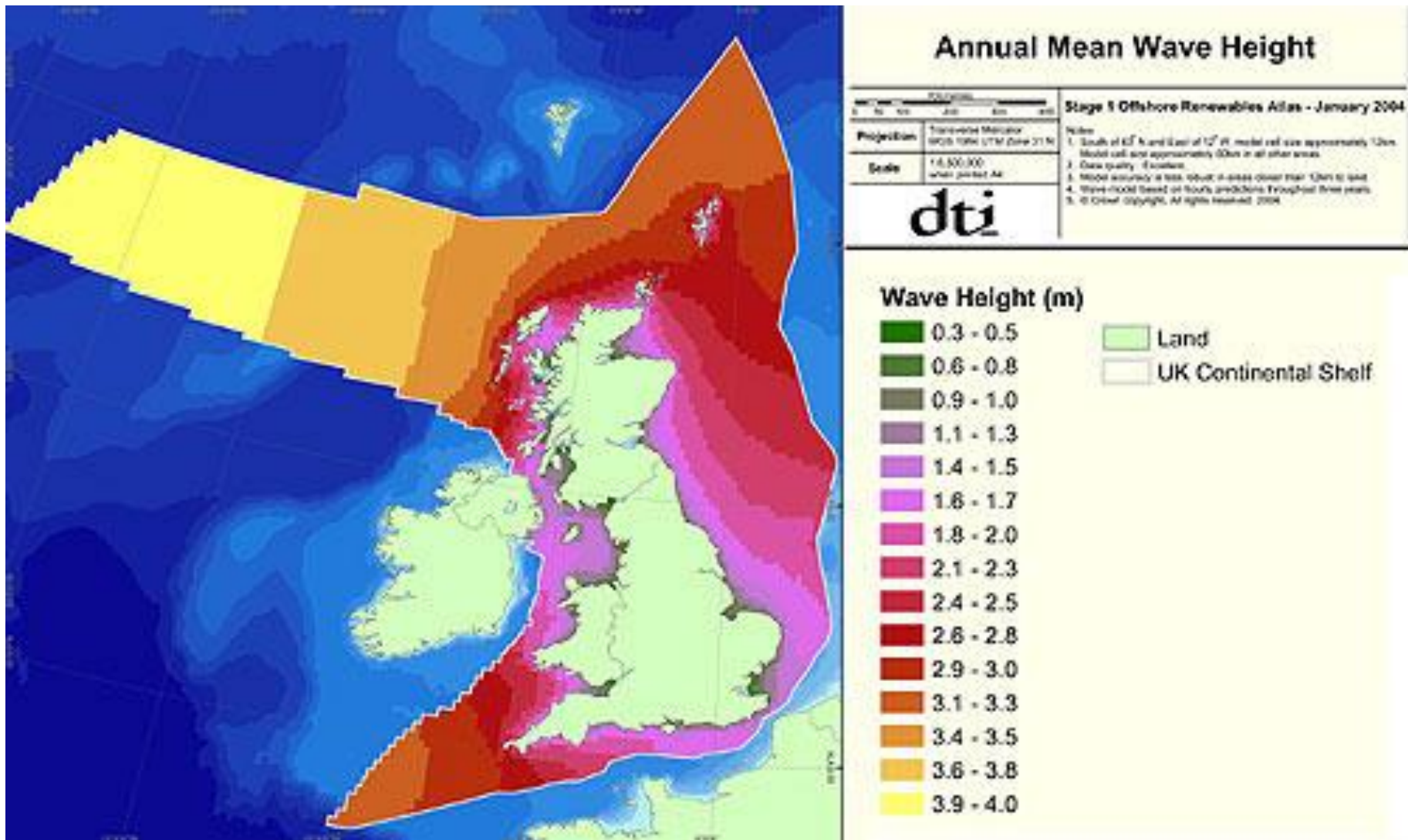
	Sheltered terrain ²		Open plain ³		At a sea coast ⁴		Open sea ⁵		Hills and ridges ⁶	
	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²	m s ⁻¹	Wm ⁻²
Dark Blue	> 6.0	> 250	> 7.5	> 500	> 8.5	> 700	> 9.0	> 800	> 11.5	> 1800
Red	5.0-6.0	150-250	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
Orange	4.5-5.0	100-150	5.5-6.5	200-300	6.0-7.0	250-400	7.0-8.0	400-600	8.5-10.0	700-1200
Green	3.5-4.5	50-100	4.5-5.5	100-200	5.0-6.0	150-250	5.5-7.0	200-400	7.0- 8.5	400- 700
Light Blue	< 3.5	< 50	< 4.5	< 100	< 5.0	< 150	< 5.5	< 200	< 7.0	< 400

Cornwall – Wind energy (continued)

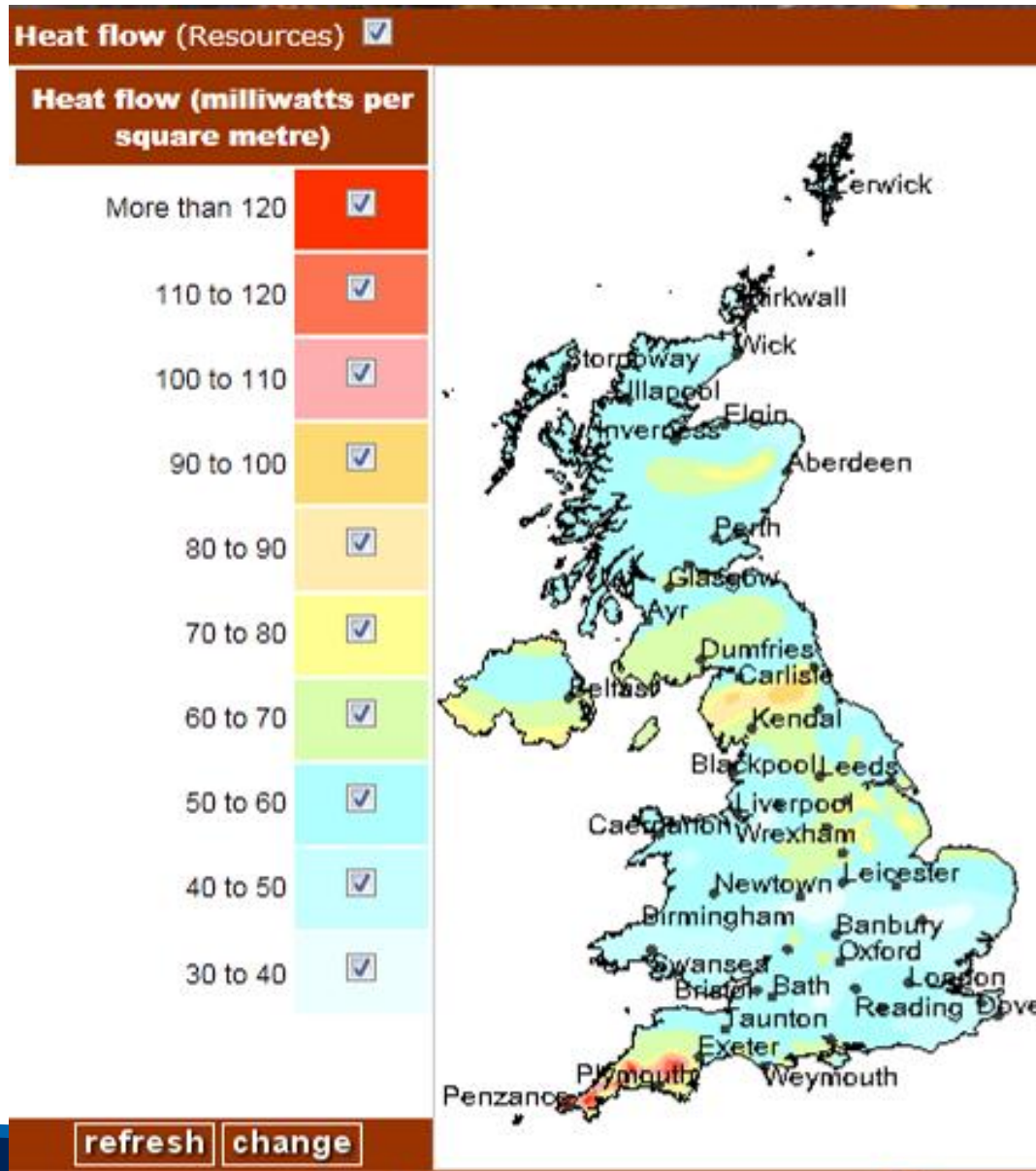
-  Areas of wind speeds 7.6m/sec (at 30m) outside designated areas (National Parks, AONBs, & Heritage Coasts).
-  Areas of wind speeds 5.5 - 7.5 m/sec outside designated areas (National Parks, AONBs, & Heritage Coasts).



Cornwall – Wave energy



Cornwall – Geothermal energy



The Green Cornwall Programme

- **3 strands:**
 - Green Council
 - Green Communities
 - Green Economy

Green Council

- Carbon Footprint – 55,000 tonnes CO2
- Target – 40% reduction by 2020
- Buildings (65%)– standards for new build & extensions, Carbon Management Plan
- Renewable energy on Council land – solar, wind, hydro
- Street Lighting (16%) – Light replacement programme, early hours switch off
- Fleet management (10%) - vehicle purchasing, fuel monitoring, driver training
- Staff travel (9%) – limiting parking, pool cars, audio & video-conferencing, carshare, electric bikes, home-working
- Procurement – revised policy, improving specifications, supplier evaluation & engagement, staff training

Green Council – buildings

- Projects in hand / recently completed include:
 - Office rationalisation / modern working to intensify use and save carbon
 - Voltage optimisation at high power consumption sites
 - Photovoltaic installations
 - Improved boiler controls
 - Biomass boilers and CHP in larger buildings
 - Automatic Meter Reading (circa 1000 sites)
 - Rainwater Harvesting Schemes
 - Variable speed drive pumps
 - Re-lamping projects (libraries, car parks, offices, etc)
 - Electric Car charging points at main offices
 - Low Carbon Schools Pilot Project
- Saving over 8,000 tonnes of CO2 so far
- Saving at least £1.3m/year / zt6.6m since 2010 (total now £6m/yr / zt30m)

Green Council – green buildings



Green Council - electric pool cars



Green Council – Solar PV

- 2010 - 22Kw of PV on County Hall
- 2012 - 1,631Kw of PV on leisure centres, libraries, offices & 700Kw on schools
- Carbon Saved - 804 tonnes (1.5% of carbon footprint)
- Total cost - £6m / zt30m, annual worth:
 - FiT = £506,000, / zt2.6m
 - Energy sales = £25,000 / zt127,000
 - Energy Savings - £112,000 / zt570,000
 - **Total = £643,000 / zt3.3m**
- Over 10% return on investment

Green Council – PV installation



Green Council

- 'Quick wins' have been made, what remains is much harder – apart from large scale renewables – PV, wind, etc
- The Council has agreed budget of £27m / zt137m next year - £25 / zt127m renewables (including 5MW solar park) & £2m / zt10m for buildings
- Reinvest profit from renewables to fund reinvestment

Green Communities – homes and renewables

- **Planning**

- New build standards – ecotown etc
- Building refurbishment standards
- Renewable energy – policy development, resource assessments, targets - 1015MW - 190MW heat & 825MW electricity – 60% of Cornwall's annual electricity

- **Community Support**

- Community Power Cornwall (revolving fund for community energy)
- EnergyShare – renewable energy for communities
- Green Deal – housing retro-fit - £100m / zt508m
- Housing retro-fit schemes - £1.1 & park homes £0.5
- Healthy Homes – loans & grants
- Council housing
- Support for Community schemes - working with Community Energy Plus insulated 25,000 homes since 1997 saving £2.5m/zt12.7m

Green Communities



Green Communities - transport

- Local Transport Plan – Aims:
 - Tackling climate change
 - Supporting the economy
 - Protecting the environment
 - Encouraging healthy active lifestyles
 - Community safety
 - Equality of opportunity
- Electric vehicle charging points
- Public transport support

Green Economy

- Economic development aims need to be consistent with meeting CO2 targets in ways that are socially and environmentally acceptable.
- Start with sustainability in mind – better than trying to retro-fit later

Green Economy

- **Business resilience (existing businesses)**
- Business support to reduce carbon footprint
- Low carbon grant fund
- COAST project - tourism industry support
- Clear about Carbon – procurement advice
- Travel Plan development support
- Cornwall Sustainability Awards

Green Economy Cornwall Sustainability Awards



Green Economy

- **Research, technology & infrastructure development**
- SW Marine Energy Park – Government, business & academics
- Wave Hub
- Geothermal energy
- Smart energy systems
- Energy Service Companies (ESCO's)
- Superfast broadband
- Links with Universities

Green Economy



D-MAC test unit

Marine Energy Demonstration in Cornwall



FaB Test
Demonstration Site

WAVE HUB

www.cornwall.gov.uk

Climate Change Adaptation

UK summary from Defra

- hotter and drier summers
- warmer and wetter winters.....with
- more extreme weather events.....heavy rain bursts (flooding risk) and heat-waves (risk of drought & public health issues).

The earlier we start adapting, the less it will cost and the better equipped we will be to cope with changes.

Successful forward planning – not just responding to emergency situations – will save lives and money.

What are we adapting to in Cornwall?

Weather events that are:

- more severe
- more frequent
- last longer
- are less predictable



Climate Change adaptation

Revealing assumptions

- All Services operate (to a degree) on tacit knowledge and implicit assumptions.



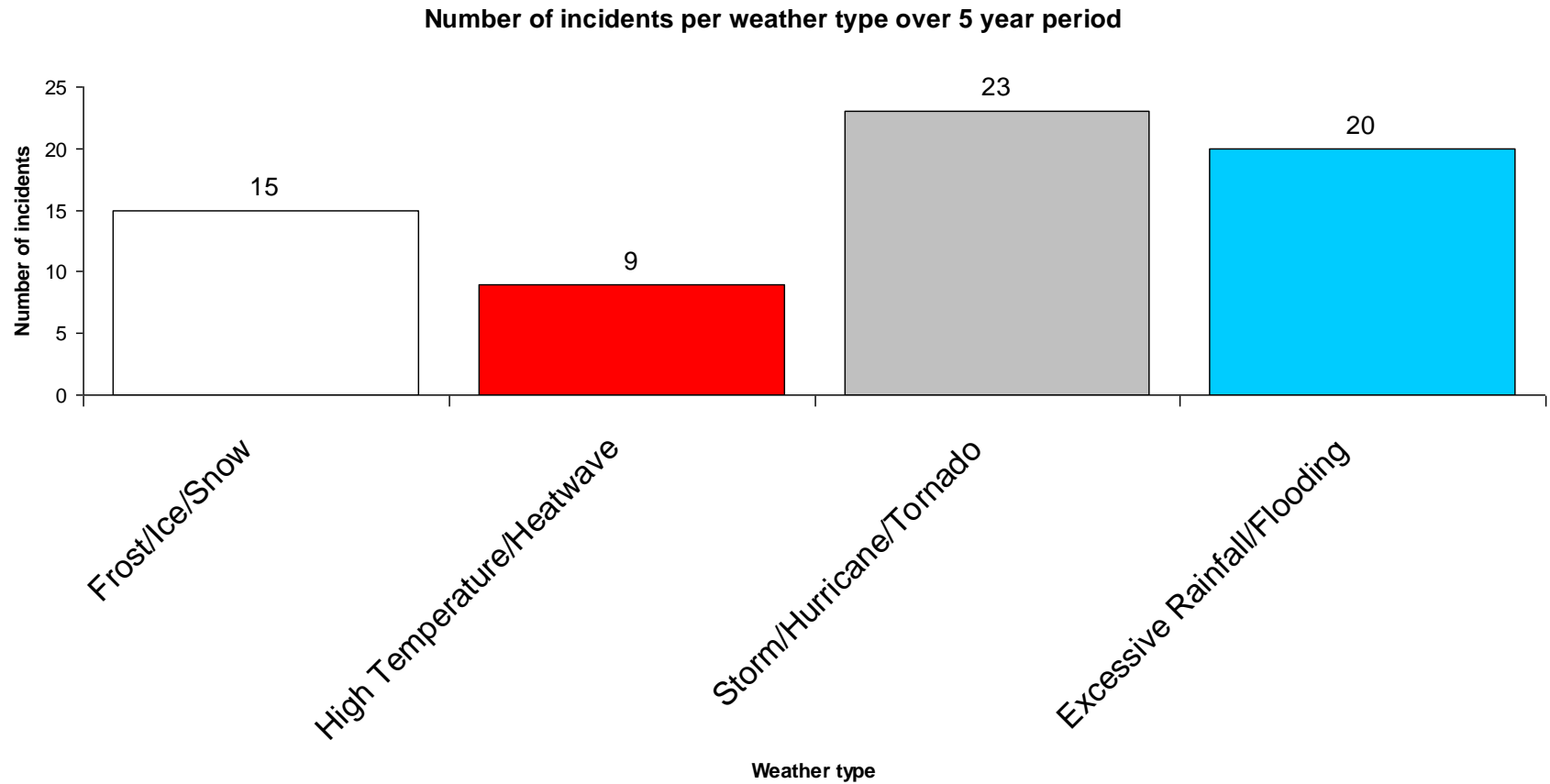
- Are these assumptions appropriate in the context of climate change?

Severe Weather = Severe Costs

- **£12 million / zt61m** road damage by snow and ice
- £2m reactive road repairs from snow & ice
- £500,000 Bude canal gate storm damage
- £250,000 Boscastle visitor centre
- £250,000 Zennor Flood damage
- £25,000 Portreath pier storm damage
- **Can we afford to ignore the risks?**



Evidence from Cornwall



Source: Local Climate Impacts Profile for Cornwall, 2010

Adaptation - Council Risks

Climate Change has implications that are financial, legal and reputational.

CORP 20: Adaptation to climate change - coastal erosion, extreme weather and flooding

The risk is that failure to plan for and adapt to rising sea / water levels will result in increased coastal erosion and flood risks to surrounding land, property and infrastructure, leading to injury to persons, loss of life etc.

CORP 21: Business Continuity Planning effectiveness

The risk is that the Council will fail to manage/mitigate a civil emergency or related disaster resulting in loss of life/significant assets/infrastructure/Service.

Adaptation – getting started

- It's a wide reaching agenda – seasonal change, sea level rise, biodiversity loss, peak oil issues, food inflation.....
- Start with changing weather events...
- 2012/13 - All services to look at vulnerability to service and assets (heavy rain, snow, ice, gales, dense fog, extreme heat).
- 2013/14 – All services to develop plan to with associated budget
- 2014/15 – Implement plan

Thank you for your attention.

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