



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

What Would a Green Energy Plan Look Like for Bristol/West of England & South West

3rd December 2015



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

Why Would We Want a Green Energy Plan?

- A healthier environment for all, less air pollution from burning fossil fuels which European Environment Agency have shown to cause 52,430 premature deaths/yr in UK from heart attacks and strokes, along with lung cancer and respiratory diseases - currently costs NHS £3.2 Billion/year equal to 50% of the Cost of All UK Renewable subsidies offset by healthier population!
- Prevent high risk & damaging activities in some of our most sensitive Environments e.g. Fracking & Drilling (Arctic & Antarctic)
- Help reduce risk of onset of Severe Climate Change as well as Mitigate impacts e.g. offshore wind shown to remove energy from severe storms
- 7X number of skilled local jobs compared with fossil fuels & nuclear ~ 19,100 for Bristol area and 122,000 for south west
- Economic benefits can be kept local with local ownership £596M/yr in Bristol area



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

I'm Not Against Renewables....In the right place!

ARGUMENTS AGAINST-

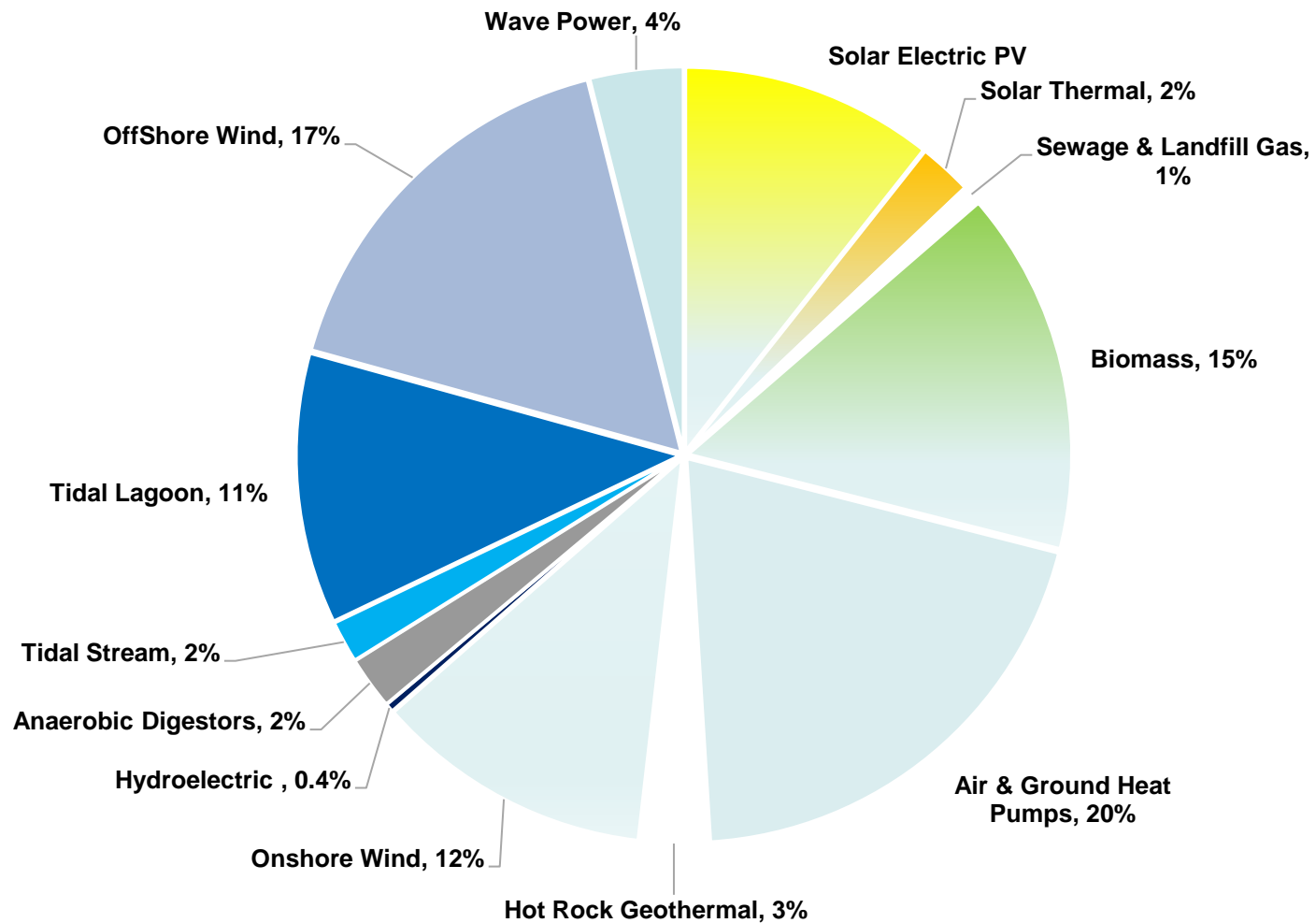


JOE HALLER © 2011 GREEN BACKYARD PRESS CARTOON



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

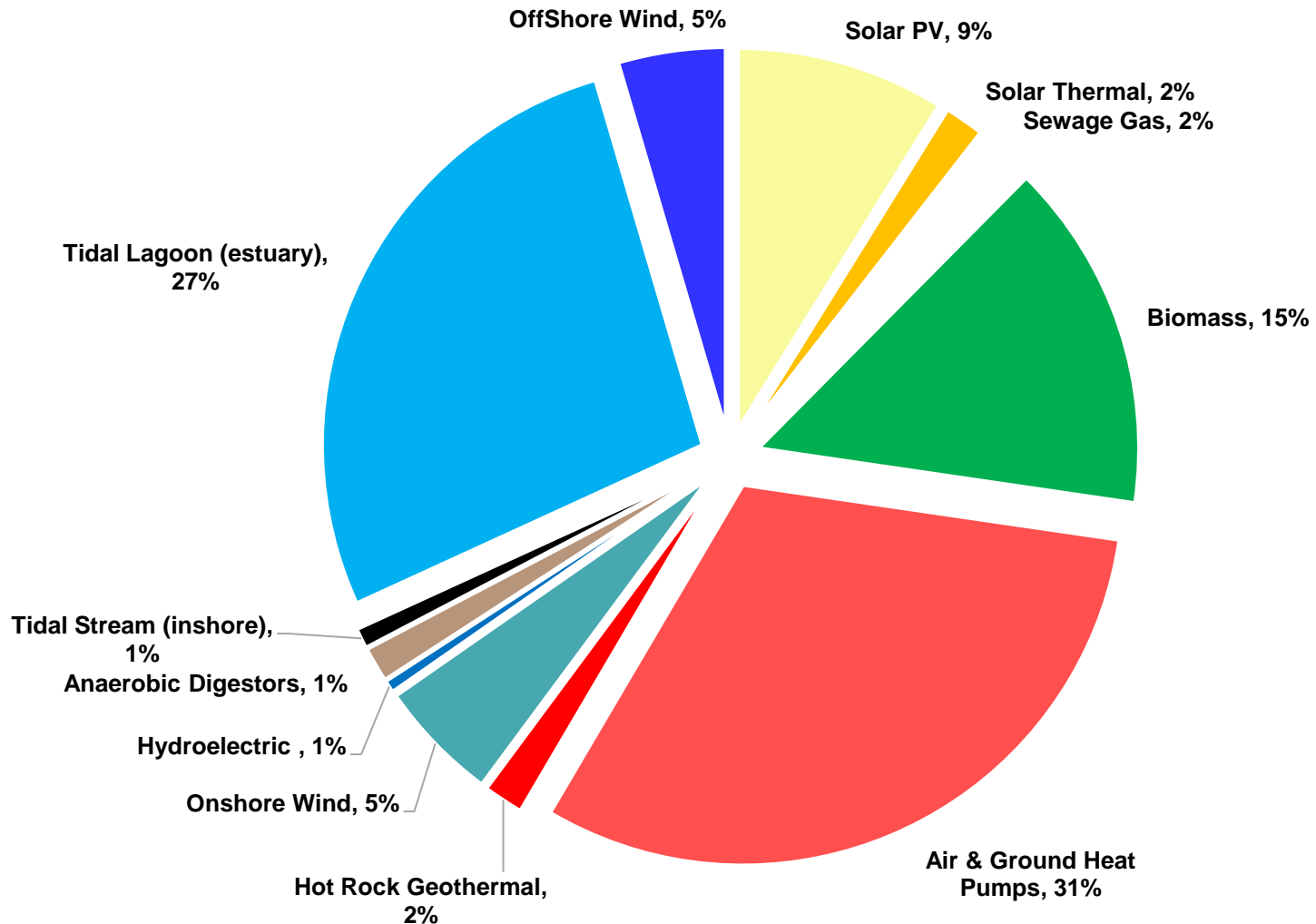
Diverse Green Energy Resources in South West





THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

Green Energy Resources in Bristol





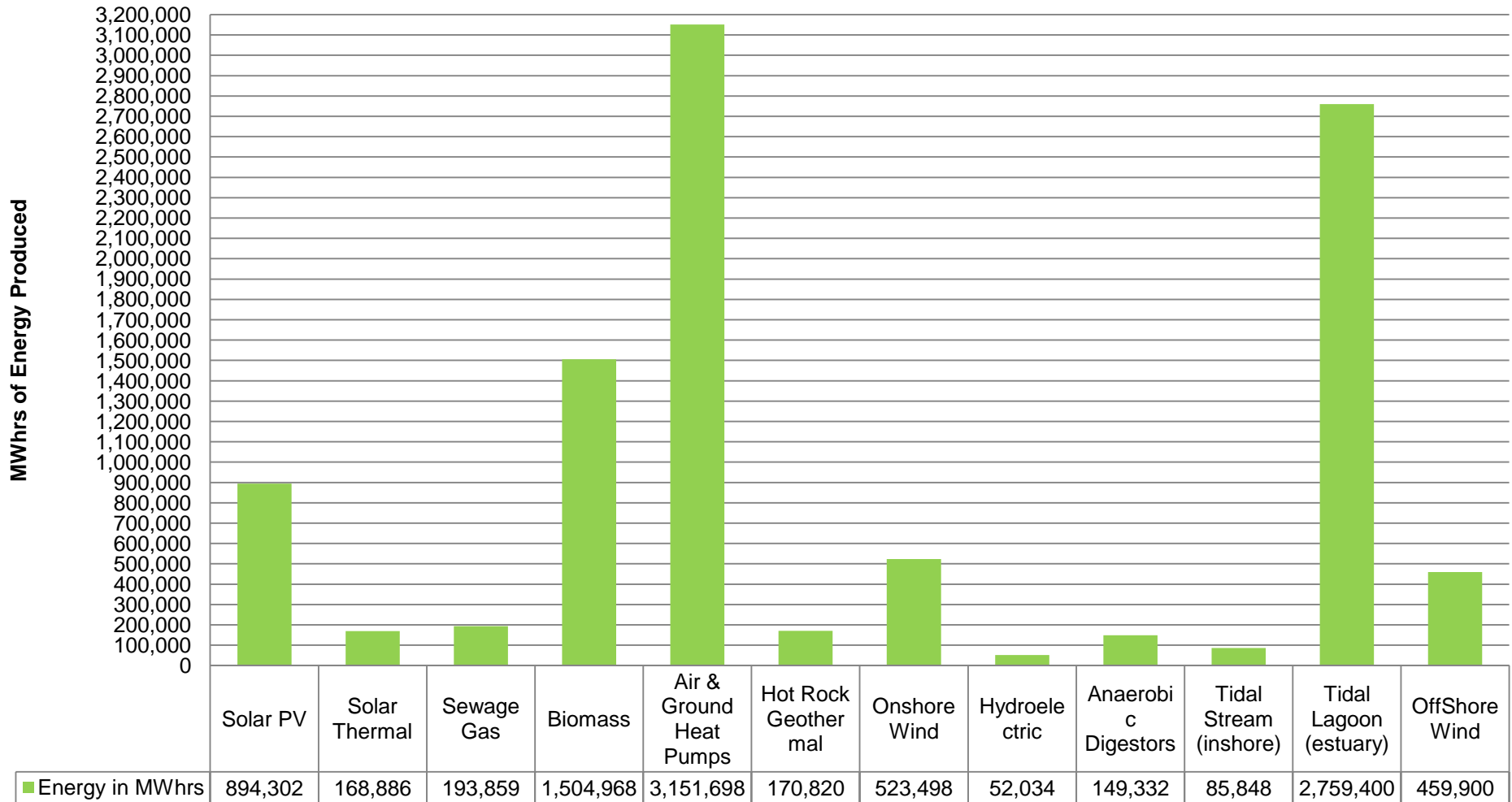
THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

Renewable Energy Opportunities in South West & Bristol

- The South West region has renewable energy resources to meet more than 103% of its total energy needs, including replacing all liquid fuels & electrifying transport system, the main barrier to achieving this is political will.
- Bristol has resources to meet 79%+ of its total energy needs and needs to develop strong links with Gloucestershire, South Gloucestershire & Somerset which have surplus.
- Intermittency of renewables can be overcome in Bristol by installing 1,076 MWe Capacity of benign Smart Grid Energy Storage & develop demand led local Smart Grids to match & respond to communities energy needs. Adding yet more value to Green Energy.
- 19,100 full time jobs can be created in Bristol area, 7X more than if we generated same energy with Nuclear!



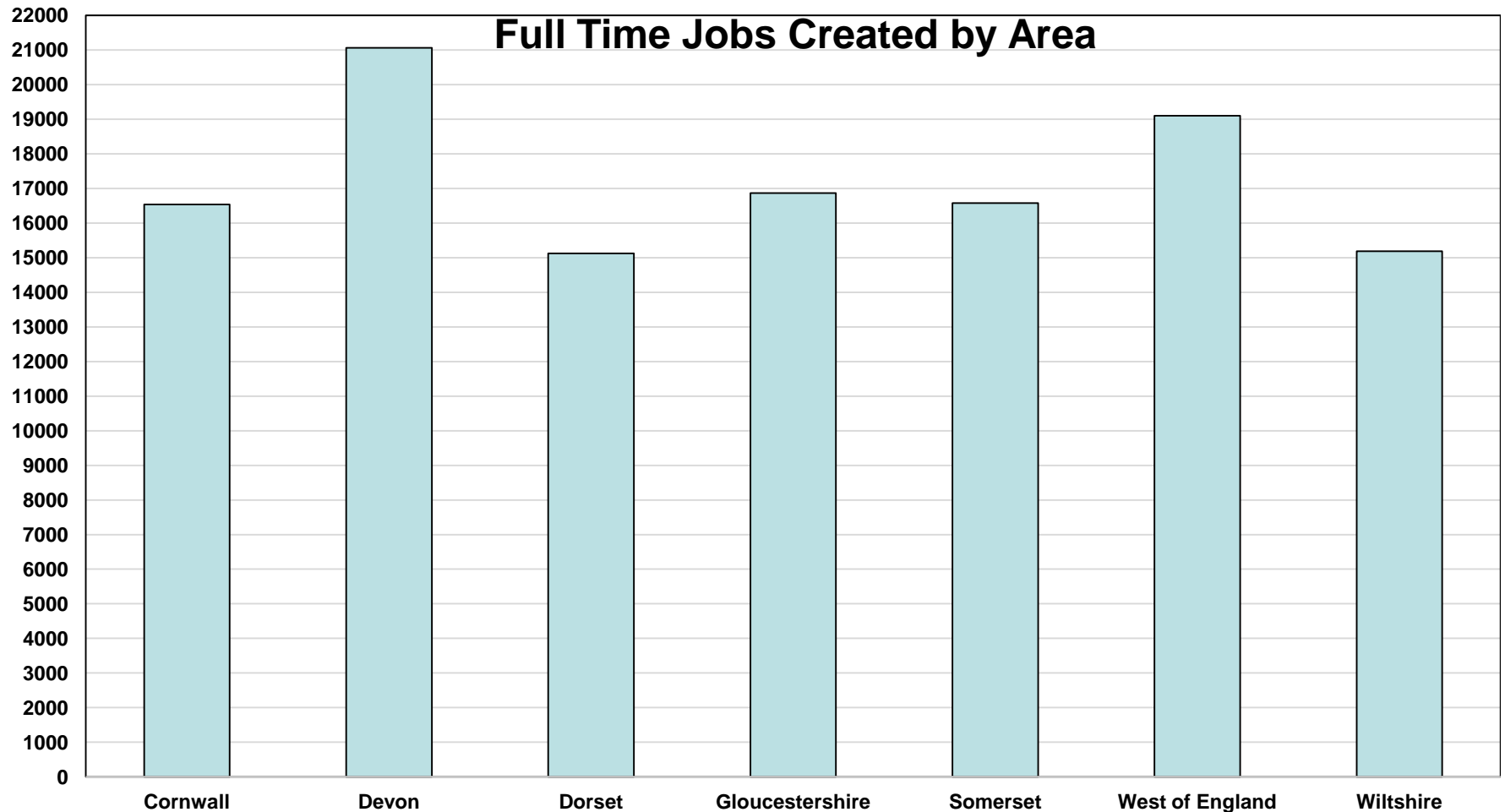
Bristol/West of England - Total Potential Renewable Energy Generation in MWhrs





THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

What Does This Mean to Communities of South West

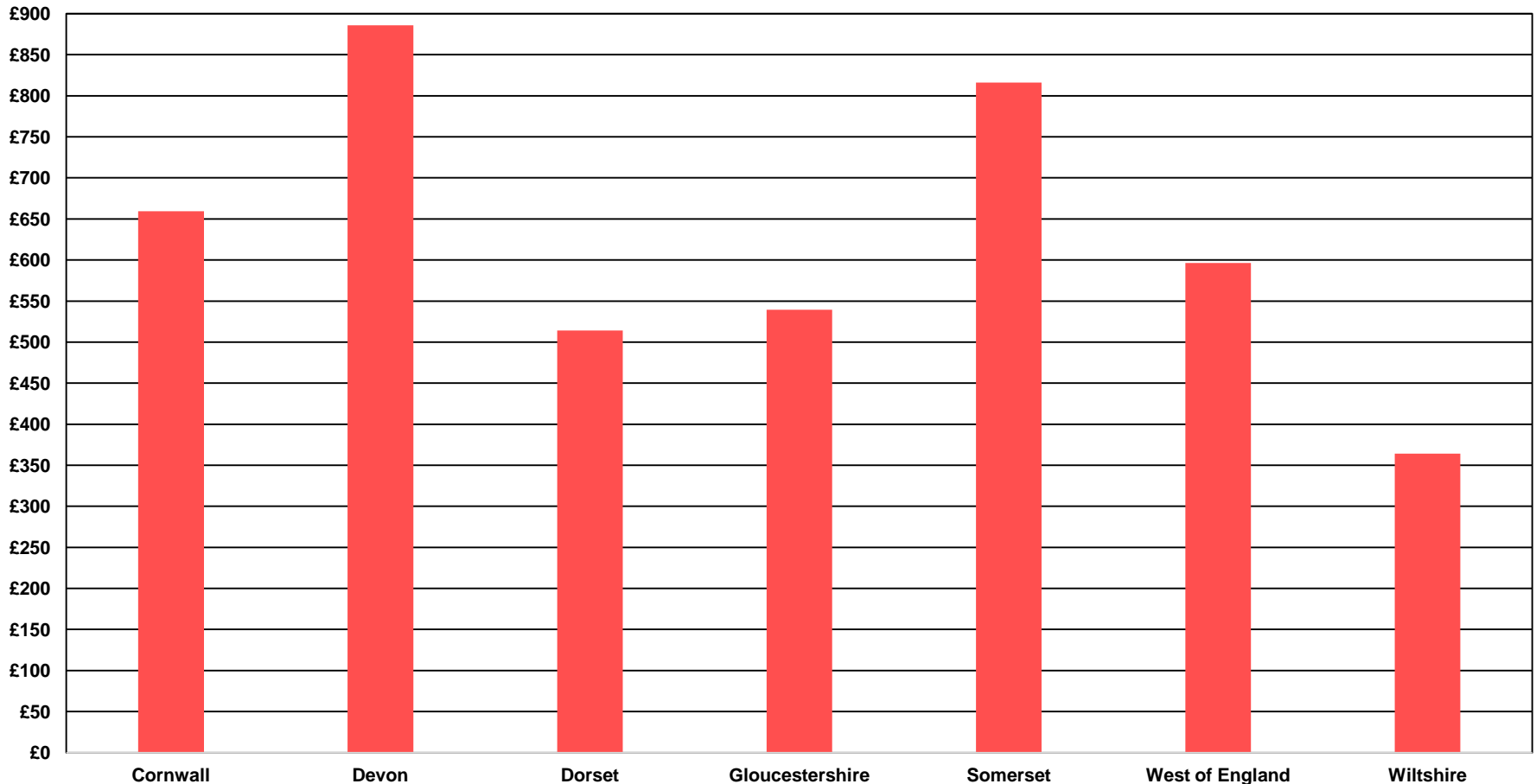




THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

What Does This Mean to Communities of South West

Additional Economic Benefit in £Millions/year





THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

How Do Costs Compare - What Price Our Health & Environment?

- UK Government currently subsidises Fossil Fuels by £400/person/yr & this went up 5% in last budget versus £70/person/yr for all Renewables which was subsequently slashed!
- Hinkley C is estimated to likely cost £24.5Billion for 3200MWe capacity
- We will need 3.3X Hinkley C's to deliver all energy needs of South West at a cost of £82Billion with costs escalating
- Equivalent Cost for Renewables would be £59.5Billion or 72% cost of Hinkley & renewables costs are decreasing – e.g. Onshore wind costs in UK have fallen 50% in the last 20 years & Solar costs have fallen by 61% in 10 years



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

How Do Benefits Compare?

- The cost of Green Energy generating the same amount of energy as Nuclear, including providing state of the art smart grid energy storage to be able to match baseload energy needs is 72% of the cost of Nuclear.
- Economic benefit to the South West from going 100% renewable would be £4.3Billion per year equivalent to £86 Billion over 20 years, whereas Nuclear stated as £50 Billion over its life.
- Renewables creates 7X the number of skilled jobs compared with Nuclear for same amount of energy generated.
- So for 72% of the costs we get 170% of Benefit = 240% more value added for Green Energy every £ of Government subsidy spent.
- Why wouldn't the Government back renewables at every opportunity if its getting 240% more for its money?



THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

Why Would Anyone Want to Block Renewables?





THE
RESILIENCE
CENTRE SUSTAINABLE SOLUTIONS
FOR PEOPLE AND PLANET

Legacy Projects for Bristol Green Capital

- **Resurrect the Atlantic Array as a Smaller Community Owned Wind Farm with Bristol City Council/Bristol Energy**
 - Total Installed Capacity: 300MW
 - Number of Turbines: 40-50 Turbines
 - CO2 Saved [per year]: 430,000 tonnes/yr
 - Energy Generated: 920,000 MWhrs
 - Equivalent Homes Powered: 212,000 Homes
 - Jobs Created: 1400
 - Capital Cost: ~£900 Million
- **Look at Tapping into 'Hotwells' Geothermal Energy for Heating/Cooling Demand & Urban Heat Network**
 - Consider Using Old Gasworks Site opposite SS Great Britain
 - CO2 Saved [per year]: 53,000 tonnes/yr
 - Energy Generated 114,000MWhrs/year
 - Potential to deliver Heating for 6,000+ homes
 - Jobs Created 85
 - Capital Cost~£60 Million



Thank you for Listening

More information at

www.theresiliencecentre.co.uk

Follow us on Twitter:

@ResilienceC &

@ResilientEnergy

Tel 01594 529688

Email:

aclarke@theresiliencecentre.co.uk