101 Carbon-busting Tips for Your Business

Gareth Kane

Introduction

This paper lays out 101 tips to reduce your carbon footprint – these are rapid fire bullet points aimed at triggering ideas and quick wins. Use them for your own inspiration or to stimulate group decision making. They should however be implemented with careful regard to your particular circumstances to avoid unintended consequences.

Staff Engagement

1. Show leadership: eg use a fuel efficient vehicle, cycle to work;
2. Provide sufficient budget for low carbon projects;
3. Run a 'switch it off' campaign;
4. Rebut energy myths like "it is more efficient to leave lights on than switch them on and off";
5. Provide feedback to your staff on energy consumption;
6. Set up a staff committee to identify and implement solutions;
7. Appoint energy champions in each department;
8. Run training/awareness programmes – preferably tailored to each role;
9. Use guerilla methods eg unannounced chocolates for those switching off their PCs overnight;
10. Make it fun: run competitions, quizzes and awards;
11. Eliminate 'perverse incentives' eg higher mileage rates for larger cars;
12. Give managers responsibility for energy management within their area of control.

Buildings & Estate

13. Insulate, insulate, insulate – walls, windows and roofs;
14. Reduce the level of lighting in non-critical areas;
15. Most corridors are much brighter than they need to be;
16. Upgrade all lighting to the most energy efficient models;

17. Install automatic lighting controls, particularly in windowless rooms;

18. Teach your staff how a thermostat works (and how it can't make a room heat up more quickly, no matter how high they turn it);

19. Use natural heating, ventilation & lighting;

20. Use plants eg deciduous trees to shade buildings in summer, climbers on north facing walls for insulation;

21. Use low-carbon construction materials;

22. Install efficient heating, ventilation and cooling equipment (HVAC) in the optimum configuration;

23. Make sure your heating tracks the temperature outside in the spring and autumn. If staff start opening the windows to ventilate rooms, then energy is being wasted;

24. Install water efficient devices – toilets, urinals, taps etc;

25. Harvest and use rainwater (eg for external cleaning).

In the Office

26. Purchase office equipment that meets a recognised energy efficiency standard (eg EnergyStar, Energy Savings Trust);

27. Use 'virtualisation' to cut number of IT servers by 75-80%;

28. Locate server rooms in the coolest part of the building;

29. Optimise the number of printers, photocopiers and other devices;

30. Install print management systems to identify excessive printing;

31. Set heating controls to the optimum temperature and make sure they remain there;

32. In larger organisations, install a tea urn rather than individual kettles;

33. Laptop batteries will discharge if you leave them plugged into the wall with the socket switched off – unplug them to save the charge.

In the Factory

34. Maintain/service all equipment regularly;

35. Install sub-meters at strategic positions and use energy management software for real time monitoring;

36. Install curtains at all entrances and exits to retain heat;

37. Zone heating and lighting systems so they can be adjusted to shift patterns;

38. Experiment with reducing the voltage of your electricity supply;

39. Use power factor correction where appropriate (ask your production engineer if you don't know what this is);

40. Check your air compressor is installed correctly and takes its air intake from outside;

41. Check for compressed air leaks - walk around in downtime to hear leaks or invest in an ultrasonic air leak detector;

42. Check your air compressor is set to provide air at the optimum pressure;

43. Identify opportunities for waste heat recovery, such as capturing hot air and/or hot water from compressors;

44. Recovered heat can be used for space heating or to heat water for handwashing and cleaning;

45. Make sure cold room and refrigerator doors are alarmed so staff are alerted if they are left open;

46. Develop and implement an upgrade plan for motors;

47. Always buy the most efficient motor as any additional cost will be paid back very quickly in most cases;

48. Install Variable Speed Drive motors where appropriate eg rather than constantly pumping a fluid against a valve;

49. Make sure all hot water pipes and fittings are adequately lagged;

50. Avoid heating material up just to cool it down and vice-versa;

51. Put physical space between heating and cooling systems eg refrigeration and ovens in food processing;

52. Use shorter, fatter, straighter pipework;

53. Replace resources with information – install better control systems;

54. Optimise production system at the system level to maximize synergies (eg shorter, straighter pipes may allow you to specify smaller pumps);

55. Calculate a water balance to compare consumption to use – use it to identify and eliminate leaks;

56. Use water more sustainably (eg keep 'last rinse' water for the next 'first wash').

Product/Service Design

57. Design your product for ease of assembly;

58. Dematerialise the product design;

59. Specify low embodied energy materials (eg natural and recycled materials);

60. Specify energy efficient components (motors, integrated circuits);

61. Design your product for ease of disassembly;

62. Optimise design at the system level to maximize synergies;

63. Switch to delivering a service rather than a product (eg chemical management services rather than solvents, print management rather than printers/copiers);

64. Deliver information rather than physical products (eg MP3s, movies on demand, eBooks, online manuals).

65. Provide customer information on optimum use of the product/service;

Transport

66. Produce a Green Travel Plan for each of your sites;

67. Rationalise parking to encourage other forms of commuting;

68. Provide bicycle racks, lockers and showers;

69. Negotiate with public transport providers to optimise commuter services;

70. Hire or purchase efficient vehicles;

71. Maintain vehicles properly;
72. Use alternative (low carbon) fuels;
73. Biofuels from waste products are usually sustainable – those from crops are currently considered unsustainable;
74. Train staff on fuel efficient driving techniques;
75. Use teleconferencing instead of face to face meetings;
76. Organise backloading of freight so vehicles do not travel empty;
77. Eliminate unnecessary travel by optimizing routes (eg delivery rounds);
78. Eliminate unauthorised travel eg by fitting trackers to fleet vehicles;
79. Encourage telecommuting/working from home and cut office space appropriately.

Low Carbon Energy

80. Purchase 'green electricity' but ensure that the green electricity scheme is actually generating renewable energy to match what they are selling you;
81. Install wind if you can - currently the most cost effective source of renewable energy;
82. Solar PV is an excellent option and prices are falling;
83. Install Combined Heat and Power (CHP);
84. Install Ground Source or Air Source Heat Pumps but make sure they are properly spec'd and installed or you are wasting your time;
85. Join a district heating scheme;
86. Utilise waste heat from another company;
87. Utilise natural 'coolth' eg pipe ventilation air underground to cool it.

Green Procurement

88. Don't buy what you don't need and order quantities to closely match what you do need;

89. Buy services rather than products where possible;

90. Buy products made from materials with low embodied energy (eg natural materials, recycled materials)

91. Work with your suppliers to match specification to your needs;

92. Work with your suppliers to optimise packaging;

93. Buy local products and services;

94. Buy seasonal, local and/or organic food.

Waste

95. Eliminate unnecessary waste – carry out periodic audits and use mass balances to identify sources of waste;

96. Take particular care at packing and/or goods-out as this is where waste has the highest carbon and economic cost;

97. Recycle waste where possible;

98. Don't let high recycling rates mask opportunities to reduce waste;

99. If you find recycling is not cost effective, try joining forces with other organizations;

100. Compost organic waste;

101. Recover energy where possible eg using wood offcuts as biomass fuel or liquid organic wastes for anaerobic digestion.

About Gareth Kane

In Gareth's 12 years' experience in the environmental and sustainability sector he has worked with hundreds of organisations from micro-companies through to trans-national corporations, across many sectors including construction, pharmaceuticals, engineering and hospitality.

Gareth's first book "The Three Secrets of Green Business" was published in 2009, and the second, "The Green Executive" is due to be published in 2011.

Gareth has a Bachelor's degree in Engineering from Cambridge University and a Master's Degree in Eco-Design at Newcastle University. He is a member of the Institute of Engineering and Technology and a Chartered Engineer.

Our clients say:

"If you want to incorporate sustainability principles into your business, you need to talk to Terra Infirma."

Dale Robinson, MD,
Stone Homes Ltd

"I thoroughly recommend Gareth Kane and Terra Infirma to anyone who needs to put sustainability principles at the heart of their project or organisation."

Nick Devitt
Dott07

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- Consultancy: feasibility studies, scoping reports, carbon footprinting, business planning, change management, staff engagement etc;
- Embedding Sustainability: working with our clients' staff to develop and implement sustainability programmes such our 'Lean, Mean & Green' service;
- Training: a wide range of off the shelf and bespoke training courses are available;
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