

## Discussing Energy Policy A Style Guide

By Walt Patterson

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My book *The Energy Alternative: Changing The Way The World Works* (Boxtree 1990, Optima 1991) included an appendix called "'Energese": the language of energy policy'. It offered an annotated glossary of words and phrases used in writing or talking about energy policy, indicating the imprecision, inconsistencies and contradictions that bedevil discussion of energy as a policy issue.

This Style Guide, modeled on the style guides used, for instance, by *The Guardian* and other quality newspapers, is an attempt to eliminate or at least minimize such shortcomings in the language used to discuss energy policy. The commentaries in italics, describing the various common uses of the terminology, are drawn mainly from the 'Energese' appendix.

This Style Guide is offered here as a draft, to invite comments, suggestions and improvements. For ease of use, words and phrases are presented in alphabetical order. Words and phrases in bold have alphabetical entries.

**alternative energy/alternative energy source** (*see energy source; 'alternative' means excluding coal, oil and natural gas, and may also exclude hydroelectricity and nuclear energy, depending on the commentator; small hydro and advanced nuclear reactors are commonly classed with the 'alternative sources'*): in common use in 1970s and 1980s; subsequently fallen into disuse; best avoided.

**ambient energy** (*energy that is present but unnoticed, usually unmeasured and free of charge, for instance the energy of sunlight, wind, warm bodies and other energy systems warmer than their surroundings*): some commentators, including this one, prefer this expression to **renewable energy**, to refer to natural energy flows (not including biomass, which is a **fuel**). The expression 'ambient energy' is not in common use; perhaps it should be.

**commercial energy** (**energy carrier, that is, fuel or electricity, that is delivered in measured quantities and paid for accordingly**): energy policy and its precursor, fuel and power policy, have historically focused on measured quantities of fuels and flows of electricity - that is on the sale and purchase of energy carriers by the unit, as 'commercial energy'. 'Energy policy' so defined is really just a shorter way of saying 'fuel and power policy'. Genuine 'energy policy', however, should encompass also the requisite **energy technology**, including infrastructure, not only to produce and deliver **energy carriers** but also to provide the **energy services** that users actually want. Technology and

infrastructure are also 'commercial', but their financial structure centres on investment in and management of assets, not on commodity transactions by the unit.

**conversion** (*what actually happens in energy processes - energy is not 'consumed', but converted from one form to another*): the expression 'energy conversion' is not in common use, but perhaps should be, when referring to 'energy' - for instance **ambient** or **renewable** energy - rather than **fuel**.

**delivered energy** (*amount of energy carrier reaching customer's meter, weighbridge or other measuring device; amount of energy carrier for which customer must pay supplier*): note that **ambient energy** is delivered unmeasured and free, but may be an important contributor to energy services such as comfort and illumination. 'Delivered energy' is just a shorter way of saying 'delivered fuel and electricity'; it does not include all relevant energy flows.

**efficient/efficiency** (*desirable attribute of energy system in which final energy service is provided by a combination of energy technology, ambient energy and energy carriers to achieve an optimum according to some physical or economic criterion; may also, however, be used as all-purpose hooray-words in policy pronouncements, and become roughly equivalent to NEW IMPROVED as used by detergent manufacturers*): should be used sparingly and precisely, where the 'efficient' process is clearly identified. 'Efficiency' is strictly speaking a ratio, less than 1, comparing the useful output of a process to the total input. Any context in which no such ratio can be clearly identified - for instance the performance of a building - is a dubious context in which to use 'efficient' or 'efficiency'. Use 'performance' - qualitative, not quantitative - instead.

**energy** (*oil; commercial fuels; electricity; commercial energy carriers of all kinds; all energy carriers, commercial or otherwise; ambient energy (see also); ambient energy technology (solar panels, wind generators and so on); intermediate energy technology (refineries, power stations and so on); combinations and permutations of the above; almost never 'energy' in its strict physical scientific sense*): as the foregoing indicates, 'energy' has become an all-purpose word whose meaning in any given context may differ widely from that in any other context, even within the scope of energy policy itself, to say nothing of everyday speech. It is also a convenient shorthand for various sub-categories as above. This convenience, however, comes at the cost of serious imprecision in what is being discussed. Moreover, if 'energy' is understood to mean only measured flows of measurable energy, it may misrepresent the overall function of an energy system. It may also obscure opportunities for improvement, and arbitrarily restrict the scope of energy policy.

**energy carrier** (*a material or phenomenon that can store energy or transport it from place to place, usually by implication under human control; all fuels plus electricity*): strictly speaking, to be sure, sunlight, wind, and other natural phenomena are also energy carriers, and so indeed is the blood stream; but the expression - which might perhaps be more widely used - is likely to be most useful if applied specifically to carriers under human control.

**energy conservation** (*'energy' in its strict physical sense is invariably conserved in any energy conversion process, whether or not under human control; as used in policy pronouncements 'energy conservation' usually means 'energy carrier conservation', that is, using less fuel or electricity, as a result of various measures, negative or positive, short-term or long-term; all too often merely hooray-word, otherwise undefined*): best regarded warily, used sparingly if at all.

**energy consumption** (*amount of fuel used, directly or indirectly; amount of fuel plus electricity used; amount of electricity used; amount of commercial energy carriers used; amount of energy carriers, commercial and non-commercial, used; literal meaning is scientifically wrong*): avoid. 'Energy use' is preferable.

**energy demand** (*in the past, recorded purchases of fuel or fuel and electricity; in the future, anticipated purchases of fuel or fuel and electricity; energy carriers converted by final users; can be specified before intermediate conversion, for instance power station, or after, leading to very different results; note that in the future unsatisfied 'demand' cannot exist since demand is identified and quantified only by satisfying it*): avoid. If necessary, either 'energy use' in the past or 'anticipated energy use' in the future more accurately describes the concept.

**energy production** (*extraction and processing of fuel; intermediate conversion of fuel into a secondary energy carrier such as electricity; controlled conversion of ambient energy, for example generation of hydroelectricity or wind electricity; combinations and permutations of the above; literal meaning is scientifically wrong*): 'production' is defensibly correct when referring to fuel or electricity, but not when referring to 'energy'. 'Energy production' is a shorthand that smears together quite different processes, usually for the purpose of aggregated statistics whose meaning then becomes ambiguous and misleading for policy purposes - not least because it suggests substitutability where none may exist. For accuracy, use 'fuel production' and 'electricity generation'. See also **energy supply**.

**energy producer**: strictly, one who contravenes the first law of thermodynamics. Use 'fuel producer' or 'electricity generator' as appropriate.

**energy services** (*what energy users actually want - comfort, cooked food, illumination, motive power, mobility, information processing and so on*): sometimes used to refer to the supply of **delivered energy**, particularly in the form of gas or electricity, but should not be so used.

**energy source** (*fuel; electricity - a questionable usage at best, and in the case of electricity generated from fuel scientifically wrong; active ambient energy technology, for instance solar panel - but not usually the ambient energy itself, and almost never the sun, although the sun is the source of almost all the energy converted on earth*): too prone to misconstruction; avoid.

**energy supplier** (*supplier of commercial fuel or electricity*): better to use 'fuel supplier', 'electricity supplier', or 'energy service provider' as appropriate.

**energy supply** (*fuel available for use; fuel plus electricity available for use; commercial energy carriers available for use; all energy carriers available for use; may also include ambient energy consciously converted for use; does not - repeat not - embrace the energy conversion which makes the earth habitable and constitutes more than 99 per cent of the energy conversion taking place on it*): a shorthand that smears together quite different processes, usually for the purpose of aggregated statistics whose meaning then becomes ambiguous and misleading for policy purposes - not least because it suggests substitutability where none may exist. 'Fuel supply' is correct when applicable, as is 'electricity supply'; but they are not interchangeable. See also **energy production**.

**energy system**: concept that should be at the heart of real 'energy policy', as distinct from 'fuel and power policy'. An energy system includes all **ambient energy, energy technology** and **energy carriers** involved in an energy process; energy policy should recognize explicitly and address all the relevant factors, as a coherent and integrated whole, rather than focusing only on energy carriers while ignoring the ambient energy and energy technology that are essential features of the complete system.

**energy technology** (*structures, devices or systems designed, fabricated and operated by humans to intervene in and control the conversion of energy for human purposes*): usually used to refer to technology involving commercial energy carriers; but usage should be expanded to include also human artefacts that manipulate ambient energy without measuring it - for instance buildings.

**fuel** (*etymologically, 'material for a fireplace'; material whose energy content can be mobilized where and when it is desired for use; note, however, that some commentators use 'fuel' to mean only commercial fuel, or to include also electricity, which is not a material and cannot in practice be stored*): a precise and specific term; use instead of 'energy' when applicable. 'Fuel' is not, however, a synonym for **energy carrier**; in particular, do not use to include electricity.

**non-renewable energy/non-renewable energy source** (*fossil fuel; not usually applied to deforestation for firewood, or siltation of hydroelectric installations; sometimes applied to nuclear energy generated by using uranium in conventional nuclear reactors*): no longer in common use; best used only in explicit contrast with **renewable energy**, and even then sparingly and with care, because of possible ambiguity and imprecision.

**power** (*grid electricity; all electricity, grid or otherwise; used all too frequently as equivalent to energy; occasionally, albeit rarely, used with physical scientific meaning, that is, rate of energy conversion - energy converted per unit time, for instance joules per second or watts*): in energy policy, 'power' usually refers to traditional centrally-generated electricity delivered to users over a network, as in 'the power sector'. In general, use 'electricity' rather than 'power'.

**primary energy** (*virgin fuel; hydroelectricity or nuclear electricity sent out from generating stations; sometimes stated net of energy used in production or generation, sometimes not; sometimes includes non-commercial fuel, sometimes not*): a synthetic term, used for statistical purposes to aggregate forms of energy whose only common

attribute is that they are measured, usually in a commercial context. Suggests substitutability that may not exist. In common use, but best regarded warily.

**renewable energy/renewable energy source** (*sunlight and its derivatives, sometimes embracing the relevant technology, sometimes not; the ambiguity is unfortunate, since so-called 'renewables' other than biomass are based on the conversion of **ambient energy** that is itself free; the costs arise in controlling its conversion for use, for example by wind generators or solar cells*): a generic term in increasingly common use; but see **ambient energy**.

**secondary energy** (*fuel or electricity produced by intermediate converter such as refinery or power station; sometimes stated net of losses in processing and delivery, sometimes not*): used for statistical purposes to aggregate forms of energy whose only common attribute is that they are measured, usually in a commercial context; see **primary energy**. Suggests substitutability that may not exist. Best regarded warily.

**useful energy** (*energy whose conversion identifiably furthers user's objective; delivered energy less energy lost by end-use technology - up chimney, in friction and such*): when quantified, used for statistical purposes; but most useful energy is **ambient energy** - not measured, not quantified, not paid for.

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