

## Unconventional Sustainable And Useful Resources

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### Abstract

There is no internationally valid description for sustainable materials. Such resources restore progress capability, reduce pollution, and have a negligible impact on fitness and environment. There is an increasing need for sustainable materials due to environmental concerns. The subdivisions responsible for the most pollution are automobiles and aircraft exhaust, home applications like air conditioners and refrigerators due to toxic cooling managers, and the microchip subdivision where end-of-life mechanisms have a major impact on the environment. However, these environmental influences can be mitigated using progressive alternative resources. Replacing conservative thick raw materials with frivolous blends or amalgams with higher strength-to-weight ratios as well as improved useful properties can lead to a reduction in automobile production. In addition, the use of advanced nanomaterials in plasticizers/coolants will improve the competence of the device, reducing pollution and lowering fuel consumption. The production of amalgams from waste plants/industrial waste is also a healthier method to reduce pollution. Utilizing green blends for advancing resource development instead of conservative syntheses that contain toxic substances is likewise a talented answer towards sustainability. From now on, developing frivolous resources, utilizing green events, utilizing waste resources, and utilizing advanced resources in appropriate applications will support sustainability. This unique topic aims to present new developments in sustainable resources that include frivolous amalgams, green resources, green mixing methods, etc. The intent of this research section focuses on "Sustainable Functional Materials," which include the development of useful stimuli-responsive ("smart") resources, task-specific ionic liquids, eutectic systems, charged and uncharged organic and inorganic polymers, plus others. Certain of these resources can be intended to alter their biochemical or bodily possessions in reply to outside incentives for example pH, sunlit, high temperature, weight, and electronic fields. Unique of the goalmouths of this singular subject is to connection progresses in the amalgamation, characterization, and design of new materials to their potential applications in various research areas. Sustainability and energy are two relevant topics related to this special issue.

**Keywords:** Lightweight blends and composites, green material blends, green inhibitors for corrosion applications, reuse of Industrial and bio waste in composites development, "recycling of composites."

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### I. Introduction

Renewable energy is stated as one of the main knowledge explanations to contest microclimate alteration, produced certainly by sustained weighty dependence on relic coals meanwhile the Manufacturing Rebellion. Hitherto the growth and commercialisation of renewable vigour skills have confronted an amount of important fences in new periods. These may be realistic as: regulatory also policy danger; indecisiveness neighbouring whether administrations should sustenance renewable vigour skills as a balancing amount where they have compulsory a carbon value instrument; anxieties around vigour safety besides the aptitude of renewable vigour to deliver dishonourable load power and barriers to entry on conventional electricity grids; and on-going subsidies, together shortest then unintended, to the relic petroleum manufacturing. IRENA is an international government devoted to renewable vigour and remained originated on 26 January 2009 in Bonn, Germany, by seventy-five conditions that contracted its Decree. From September 2012, one hundred states besides the EU have approved the Statute besides are IRENA Memberships. Australia is an associate. IRENA's impartial is to endorse the extensive and augmented acceptance and the maintainable usage of all methods of renewable liveliness. These comprise vigour shaped since renewable foundations in a maintainable method for example bioenergy, geo- thermal vigour, hydro-electric control, marine, astral and breeze oomph. The bang has been available out of nervousness that the nonappearance of precise and consistent info on the charge and presentation of renewable skills offerings an important fence to the acceptance of these skills. A key opinion of the bang is that the fast acceptance of renewable foundations of vigour incomes that the charge for airstream, astral photovoltaic liveliness ('solar PV'), absorbed astral control ('CSP', that is, parabolic holders and solar

strongholds) besides some biomass know-hows is diminishing. Temporarily hydro-electric influence besides geothermal liveliness shaped at decent places is frequently the inexpensive method to make control. In September 2012, prices for PV solar modules were USD 0.75 per watt. Installation costs in Germany for rooftop systems with an output of less than 100 kilowatts ('kW') fell by 65 per cent between 2006 and 2012 to 2.2 US dollars per watt, making photo voltaic competitive with current electricity prices for households. The weighted average level zed cost of electricity (LCOE) of grid-connected PV systems varies per kilowatt-hour (/kWh) from US\$0.15/kWh to US\$0.31/kWh.<sup>48</sup> However, this analysis does not take into account the impact of government incentives or subsidies, carbon pricing, the reduction of non-CO<sub>2</sub> externalities such as air quality from renewables, and insulation from fluctuating fossil fuel prices. If these factors were quantified, the economics of renewable energy would improve. CSP schemes comprise parabolic manger schemes and astral turrets. Parabolic trough systems have LCOEs of 0.20-0.36 US\$/kWh, while those of solar towers are between 0.17-0.36 US\$/kWh. The LCOEs of CSP in areas with excellent solar resources fall to US\$0.14-0.18/kWh, with solar towers having greater potential for cost reductions in the future. The LCOE of new onshore wind farms in 2011 was between US\$0.06 and US\$0.14/kWh, assuming a capital cost of 10%. At the best locations in the USA, wind energy supplies electricity at USD 0.04 to 0.05/kWh. This makes wind energy competitive with or even cheaper than gas cohort — equal in the 'golden phase of gas'. Biomass can be abundant and inexpensive wherever low-cost food from industry, forestry or agriculture is available. In the OECD, costs are typically US\$0.06/kWh and US\$0.02/kWh in emerging markets. Geothermal energy is an established, dishonourable energy source, with a LCOE ranging from US\$0.09 to US\$0.14/kWh, assuming a 10 per cent asset share. IRENA accomplishes that renewable skills deliver the best valued key for off-grid source in addition to for central network source in sites with decent source. Consequently, they can contribution nations to recover vigour safety, endorse financial growth, and decrease GHG releases besides decrease vigour value instability assumed the worldwide unpredictability in relic oils. Connected aground airstream prices in main OECD marketplaces in 2011 remained between US\$1750-2200/kW but in the US some were as low as US\$1500/kW with costs in 2012 trending subordinate to a regular US\$1750 in the US in the principal half of 2012. Costs in China and India are subordinate owing to subordinate turbine values (US\$630/kW for Chinese turbines in 2012) through connected prices reaching among US\$925 and US\$1470/kW. Offshore breeze farmhouses are additional money concentrated and luxurious at US\$4000-4500/kW unpaid to connexion and network assembly charges along with gear wanted to function in punitive surroundings. The connected prices of astral PV are contingent on the subsector for example housing or profitable gable besides on the districts wherever connection happens. Ground-mounted practicality scale schemes in India, Germany besides China have the lowermost cost at US\$1720, US\$2008 besides US\$2160/kW correspondingly. Germany has the lowermost cost for housing PV at US\$2200/kW in 2012. In China, California besides Italy the prices were US\$3100, US\$3300 besides US\$3400/kW correspondingly. CSP florae are lone lately existence connected at a gauge besides cost of US\$4600/kW in OECD republics and US\$3500/kW in emerging republics. Though, when 6 epochs of liveliness stowage is additional, charges upsurge to US\$7100-9800/kW nevertheless volume influences binary. With 6-15 hours of liveliness stowage, astral barbicans cost US\$6300-10 500/Kw.

The main intentions of this study are: the hidden externalities of energy from fossil fuels; a discrepancy between energy law and environmental law; the affirmation of the need for subsidies and regulations for renewable energy; the identification of biological and non-biological renewable resources; renewable energy and geopolitics.

## **II. Complementary Events and Regulatory Menace**

Even though the IEA predicts in its World Energy Outlook 2012 that renewable energies will take their "place in the sun", there are numerous tests that still need to be carried out. Residual fuels are not only abundant but also cheap, especially if the externalities (CO<sub>2</sub> and non-CO<sub>2</sub>) of their use are not taken into account. Extraordinary direct and unintended subsidies for old coal are also disguised, although subsidies and provisioning schemes for renewables have been vilified recently in countries such as Australia, especially wherever a carbon tax system is in place. As the case study below shows, the provision of funding for renewable energy through the establishment of a Renewable Energy Authority, coupled with additional measures such as feed-in tariffs, is controversial. Once an Australian releases interchange arrangement ('ETS') was paramount planned, economists spoken the opinion that an RET was needless. The Productivity Commission, for example, specified that extra events could meaningfully upsurge reduction charges yet would deliver no extra productions discounts except they were prudently considered. In its view, an ETS could bear much of the reduction exertion; sense that other rules would lone be wanted to seal the gap. This is subsequently the market is credible to accomplish a disciplined significance finished the devolved price-responsive movements of everybody in the reduced. Besides, an RET would consequence in power values that are advanced than deprived of an RET, and marketplace organization around the suitable period to familiarize low releases skills would be superseded. Likewise, the Garnaut Review specified that the Carbon Pollution Reduction Scheme would transport the

obligatory releases discounts and that additional rules to decrease releases can must no valuable role when the ETS is in homespun. In spite of this information, the Rudd administration augmented Australia's current RET below the Renewable Energy (Electricity) Act 2000 (C th) after 2 per cent to 20 per cent by 2020 beforehand existence phased depressed after 2025 and ended at the finish of 2030. The legislature founds a renewable energy interchange arrangement whereby qualified producers generate Renewable Energy Certificates ('REC's) which are skill talented. Temporarily, power shops are 'liable objects' besides must submission RECs to content a lawful responsibility to acquisition Renewable Energy. So as to rouse speculation in limited astral control, the Australian Government providing a Renewable Energy Bonus Scheme — Solar Hot Water Rebate ('REBS'). REBS providing household containers refund of \$1000 to connect a solar hot water scheme or \$600 to connect warmth drive hot aquatic scheme since 19 February 2010 finished to 30 June 2012. Furthermore, if a limited PV scheme was connected amid 9 June 2009 besides 30 June 2012, the proprietor would obtain five times as many RECs as underneath the normal thinking preparations. On 16 November 2012, the Australian Government proclaimed that this Solar Credits multiplier would be phased out for limited schemes connected from 1 January 2013. The accidental rank of these management delivery preparations is that among 2001-10 the bazaar well-informed an excess of RECs afterward incomplete creators for instance solar water cooktops also terrestrial panels. This produced in the unhappiness of the worth for RECs then tapered the financial encouragements to originate significant renewable energy projects. In 2011, the arrangement was rehabilitated hooked on a Large-scale Renewable Energy Target ('LRET') besides a Small-scale Renewable Energy Scheme ('SRES'). Two kinds of diplomas may currently be bent: large-scale generation certificates ('LGC's), which are shaped in relative to cohort by credited power positions, besides limited knowledge credentials, which are fashioned in relative to the connection of astral hot aquatic organizations and unimportant cohort components. The LRET is presently fixed at 41 000 gig watt hours ('GWh') each year amongst 2020-30. The SRES is unsealed. One of the apprehensions around the RET is that its prices are tolerated by customers, as charges are numb as augmented power values. Low-income families devote a superior amount of their revenue on power. Fossil fuel creators are also overstated over lesser complete standards and edited souk share. Current examination proposes that below the RET, the projected price of reduction is about \$87-115 per load of carbon dioxide (CO<sub>2</sub>) equal (CO<sub>2</sub>e) at 2020, likened with a carbon value in the variety of \$45-50 per tonne CO<sub>2</sub>e at 2020. The Self-governing Valuing and Controlling Panel projected that the influence of the RET on a regular client beak in NSW in 2012-13 would be \$100 each year or 5 per cent of the entire power mandible. Though there is a help bundle to concealment the influence of the carbon value, nonentity alike happens for the RET. As deliberated underneath, considerable savings in broadcast substructure, keen load switch organizations and carefully situated highest cohort volume are probable to be obligatory to ease the diffusion of the big amounts of recurrent cohort (particularly breeze) fortified through the RET. This will similarly improve to overall control values for workers. This is of nervousness assumed that power values in Australia for together manufacturing and housing clientele have increased in real footings: values have augmented by about 30 per cent meanwhile 2006, with power values for homes rising additional than for trades.

Worry around the prices of RETs has also raised with respect to 'feed-in' legislature for example that presented in NSW and extra conditions. In 2009, the NSW management familiarized a 'gross' Feed-in Tariff ('FIT') owed to producers of power from astral PV schemes besides breeze turbines of merely 10kW volume. The FIT needs a power shop to wage 60 cents/kWh for completely power made after a domestic PV scheme connected on or beforehand 27 October 2010. It remained envisioned to function from 1 January 2010 to 31 December 2016. Assumed prices punctures besides a increase in power values, in October 2010 the formerly NSW Administration proclaimed that it would decrease price expenditures after 60 per cents to 20 per cents aimed at all clientele connection the arrangement after 18 November 2010, besides the arrangement volume was incomplete to 300 MW. Consequently, agreements tied as of July 1, 2012 do not qualify to receive agreement duty expenses. Given the concerns about the charge of the feed-in pricelist, IPART was designated to examine and control a 'fair and reasonable' value for the limited photovoltaic system. IPART's will to a "reasonable and practicable astral feed-in tariff" is 7.7 to 12.9 cents/kWh, a far cry from the 60 cents/kWh the administration had initially awarded.

### **III. Subsidies besides provision for the Relic Fuel Manufacturing**

There has been fairly an important reaction in contradiction of management grants to, and provision for, renewable vigour machineries in Australia since of their consequence on value. Hitherto this disregards the numerous relic petroleum subventions which have an important influence on the aptitude of renewable energy bases to contest on a 'level playing field' in rappsorts of value. Grants to relic oils may comprise:

- Straight provision in the procedure of values, duties and provision devices, manufacture provision and ingesting provision;
- Unintended provision in the procedure of the current power substructure and rubrics cookery wholly for relic petroleum power;

- Unintended provision in the procedure of substructure eased by administration for the manufacture, conveyance and spread of relic oils;

• Unintended provision by deteriorating to price the externalities, together weather and non-climate, of relic oils;

The International Institute for Sustainable Development ('IISD') unconfined a bang in May 2012 on remnant petroleum grants and administration sustenance in the OECD. The bang records the sarcasm that although evolving nations are harassed to mobilise US\$100 billion a year by 2020 to provision temperature extenuation and revision, remnant fuel subventions of up to US\$750 billion are existence dedicated from community coffers. The explosion mentions to the chief ever OECD List of Provision to Fossil Fuel Production or Usage which seats Wealthy Country grants at US\$45-75 billion per year. It seats Emerging Republic Grants at US\$409 billion in 2010, predictable to reach US\$630 billion in 2012. The bang for the buck is that improving these subsidies would cause significant GHG rebates and collective GDP boosts in OECD countries along with non-OECD countries of up to 0.7 per cent per year by 2050. The bang minutes that at the Rio+20 Conference on Sustainable Development the UN Secretary-General's High Level Panel on Global Sustainability shaped an agreement bang, Resilient People Resilient Planet: A Future worth Choosing, which optional that the countries of the biosphere stage out relic petroleum and decrease other obstinate or trade-distorting subventions by 2020. Temporarily, a distinct study seats subventions to China's relic fuel vigour at US\$50 billion in 2007.

Financial development is mainly motorized by vigour coals. Though the possible energy changeover trails in industrialised republics are strong, that has not remained healthy travelled for emerging republics. Jing Meng, Heran Zheng, Nigh Zhang (2021) has deliberated the even growth grade of 12 joint areas in 2001-2017, besides the pouring issues behindhand that development. The republics with extraordinary development charges are focused in Asia and North Africa, though the vigour ingesting in industrialized republics was steady or level weakened in that retro. Consequently, to enumerate the character of renewable energy, the ancient liveliness consumption for China, India, Indonesia, Myanmar and Bangladesh meanwhile the 1970s were investigated. Notwithstanding the optimistic character financial expansion and populace development applied on vigour ingesting, there has been an undesirable character of oomph concentration employed on liveliness ingesting. Though the result of vigour mix frolicked a lesser role in swaying vigour ingesting, dissimilar kinds of vigour frolicked dissimilar parts in liveliness ingesting in dissimilar republics - whichever endorsing or warning. China's petroleum, India's lubricant, besides the part of biomass in addition usual vapour to vigour ingesting in Indonesia, Myanmar and Bangladesh were additional protuberant in family associate to liveliness assembly. Try to highlight the position of educating liveliness productivity and correcting vigour construction, to decrease vigour ingesting and attain sustainable development.

#### **IV. Barriers to Access to Obligatory Power Networks**

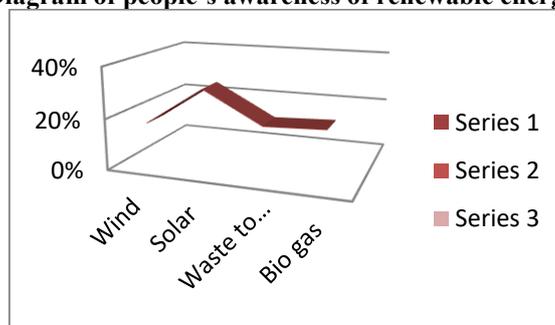
A 2002 report entitled Towards a Truly National and Efficient Energy Market found that there were barriers to embedded generation and recommended that a binding code of conduct for agreements between distribution companies and potential embedded generators be included in the National Electricity Act. In addition, in 2006, the Standing Committee of Officials of the Council of Ministers for Energy published a discussion paper entitled Impediments to the Uptake of Renewable and Distributed Energy. Nonetheless there are dissimilar disorders to renewable besides dispersed vigour generation depending on the size of a generator, there are a number of impediments that all renewable energy generators face. These are: Approvals processes for R&DG projects can be complex and inconsistent across jurisdictions.

- Per unit cohort prices are usually advanced than conservative know-hows.
- There is not at all planned local turn on preparation for R&DG know-hows and existing net preparation inclines to be incremental.
- It is frequently problematic for novel skills to obtain preparation endorsement, backing and accomplished work while admission to provision substructure can be problematic.
- Financial signs for dispersed and close-to-load cohort are often subdued or misplaced since of an absence of locational and price deep valuing (besides allied metering).

On the June 2012, the Australian Energy Market Commission (AEMC) started the instruction alteration development and it subsequently available the drawn from the tap National Electricity Amendment (Connecting Embedded Generators) Rule 2013 on 27 June 2013. Unique of the additional problematic facets of renewable vigour bases is its sporadic countryside, which in him makes glitches by regard to dependability, vigour safety and network addition. In 2012 the Clean Energy Council unconfined a bang, Energy Storage in Australia, (the 'Report') which facts to the profitable chances, fences and rule chances to vigour storing in Australia as a incomes to provision current power nets. Vigour storing is also stared as easing the efficacy of control marketplaces, as long as constancy to the network and the National Electricity Market as sporadic renewable vigour bases are combined, repairing distant groups by letting better individuality since the network and as long as storing to housing and profitable clientele. Storing schemes might custody throughout off-peak eras and release power at highest periods so minimalizing source disruption. This also evades the necessity for novel

wealth asset in broadcast and group volume and can flat out the changing incidence related with astral and breeze vigour. The Report finds that by 2030 the profitable marketplace for storing might reach 3000 MW, which is an important amount of present cohort volume. The Report recognizes an amount of practical, financial and controlling walls to vigour storing. After a controlling viewpoint it proposes that the walls might be sufficiently spoke by the proposed Connecting Embedded Generators and Small Generators Aggregator framework power rule vicissitudes, particularly if the AEMC remained to openly know energy storing as a succeeding procedure of entrenched cohort. Too, the Report recommends that the Small Generation Aggregator Factor power law alteration should be reinforced and vigour storing documented as a succeeding procedure of minor cohort. A 2002 report entitled Towards a Truly National and Efficient Energy Market found that there were barriers to embedded generation and recommended that a binding code of conduct for agreements between distribution companies and potential embedded generators be included in the National Electricity Act. In addition, in 2006, the Standing Committee of Officials of the Council of Ministers for Energy published a discussion paper entitled Impediments to the Uptake of Renewable and Distributed Energy. Although there are different impediments to renewable and distributed energy generation depending on the size of a generator, there are a number of impediments that all renewable energy generators face. The tests confronted by the renewable vigour manufacturing are numerous. Party-political weights, administration rules, business effect, age-old substructure, absence of good cordless storing organization, besides current marketplace situation attitude in its way for a broader acceptance universal. Despite these factors, renewable energies have established themselves worldwide as a means of combating climate change. They are free of direct pollution and carbon emissions. They are the most viable replacement for fossil fuels. In time, they will become an inevitable part of the energy generation mix. A ramble in power values, a droplet in solar charges, besides an augmented feed-in price has completed numerous Australians check astral. Australia has finished 2.3 zillion solar top connections. Therefore, most Australians enjoy the benefits of solar energy. Abovementioned discussions have demonstrated that it is not sufficient for a management to only set renewable vigour collection morals and feed-in prices then imagine renewable vigour to start an attendance in an energy souk wherever relic petroleum electricity is the obligatory kind of vigour. Far more wants to be complete at the lawful and strategy equal to safeguard that renewable vigour skills are assumed their finest accidental to thrive in spite of the characteristic prejudices near relic petroleum vigour. Whatever is likewise strong is that the price of renewable energy technologies needs to be in the context of the many UN coasted externalities of fossil fuel electricity, to which the discussion now turns.

Fig-1. Diagram of people’s awareness of renewable energy sources



(Source [https://www.researchgate.net/figure/Bar-graph-showing-the-peoples-awareness-of-renewable-energy-resources\\_fig14\\_343049514](https://www.researchgate.net/figure/Bar-graph-showing-the-peoples-awareness-of-renewable-energy-resources_fig14_343049514))

### V. Results and Discussion:

By way of the ingesting of vigour produces, the populace is contingent additional then additional on relic oils for example coal, oil then gas gradually. There is an essential to safe the vigour source for upcoming subsequently the values of gas besides oil save increasing by all transitory diurnal. As a result, it is essential to use additional renewable energy sources as well as additional renewable energy sources. A separate section was established with the aim of combating the actual misuse of non-conventional bases “Department of non-conventional foundations of energy” by the government of India besides numerous republics must accepted complete rule outlines to provision renewable vigour, foremost to a fast scale-up of these skills. One hundred besides nine republics have ratified certain procedure of rule concerning renewable control, besides 118 republics have set boards for renewable vigour. In difference, the United States has not accepted any reliable besides steady set of rules at the nationwide equal to stand-in the usage of renewable vigour. There is no central carbon tax, no nationwide cap-and-trade system for carbon, besides no long-standing inducement instrument for renewable liveliness cohort. Central provision for renewable energy has contained mostly of R&D and manufacture tax praises. Here I have tried to explore how certain states and staunch U.S. conditions have

developed healthy rules for the use of renewable energy, even though the United States as a whole has not. In the 12th Five Year Plan, for the retro 2011 to 2015, the administration set determined boards for renewables, aimed at “no fossil” emollients, for Carbon strength, besides for liveliness concentration. To decrease the reserve strength of China’s budget, the dominant administrations pass certain nationwide equal strategies and before allocates possible accountability to shires and cities to attain the boards. China’s provision for renewable vigour remained importantly greater in 2005 with passageway of “The Renewable Energy Law of the People’s Republic China”.

## VI. Conclusion

Quickly the educations after these pockets suggest it's likely to grow a national policy framework to branch immaculate force, all ended the biosphere. Fences to emerging renewable energy sources should be removed, as existing coverage efforts of methods at the national level create difficulties, convey doubt, and limit opportunities to improve reserve distribution. A nationwide approach would identify the value of indigenous forces in generating renewable energy sources by utilising indigenous renewable income, in addition to the need for indigenous groups to utilise full ownership opportunities and better quality local ecological conditions. Such a scheme would be important after numerous previous centralised schemes have left the country prematurely. A nationwide set of rules would need to be supported again and again. Helpful placement rules could be ordered to furthermore increase rotations. The main selling opinions aimed at nationwide regulation should be better financial development, employment and enjoyment of life, as well as reduced domestic air pollution, better public health and improved food safety. Sustainable development refers to the development of a financial system that utilises ordinary capital in a way that does not reduce their wealth or compromise their accessibility to upcoming groups of people. In this intelligence, the current humanoid cheap visible is unsustainable as it involves rapid monetary development realised through dynamic withdrawal together non-renewable except possibly renewable capital.

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