The development prospects of solar air conditioning in Nepal

What is Nepal's solar and wind energy development?
We categorize Nepal's solar and wind energy development in four phases. Nepal can harness up to 47,628 MW of solar and 1,686 MW of wind energy. The Annapurna Conservation Area has more than 60% of Nepal's wind energy potential. Energy policies need to go beyond small-scale systems to utilize these potentials.

Why are solar and wind energy installation rates increasing in Nepal?
Globally,the generation costs of solar and wind energy are declining year by year,i.e.,around 90% since 2009 in solar PV module and 60% for wind turbines [61]. This decrease in the LCOEhas resulted in an increase in solar and wind energy installation rates throughout Nepal in recent years.

When was the first solar energy resource assessment conducted in Nepal?
In 2008,the first solar and wind energy resource assessment was conducted in Nepal,providing estimates of its renewable energy potential [14]. In 2017,the National Renewable Energy framework,National Energy Efficiency Strategy,and Solar net-metering guidelines were developed.

How is solar and wind energy potential analyzed in Nepal?
Thus, we have carried out a spatial and economic analysis of solar and wind energy potential at the provincial level for the first time in Nepal. Our analysis is built upon the spatial energy modeling based on technical, geographical, and economic suitability criteria, utilizing open-source geographical information system platforms.

Is solar and wind energy feasible in Nepal?
Nevertheless, our study is the first to consider these factors while investigating the economic feasibility of solar and wind energy in Nepal. Fifth, the costs incurred due to variability and uncertainty of renewable energy generation are not included in our analysis.

Can solar energy be used for crop drying in Nepal?
The national average solar insolation of Nepal is recorded as 4.66 kWh/2 /day ,with the energy generation capacity of 57,519 GWh . With an appropriate solar dryer design,solar energy can efficiently be utilized for crop drying. ... ... Solar energy can be an appropriate option for suitable energy mix.

The annual rainfall in Nepal varies from 250 mm to 5200 mm per annum with an average of 1770 mm/year.The annual runoff from the country is 222 billion m 3 /s and annual mean stream flow from snow-fed major river systems alone is 4930 m 3 /s [18]. Topographic elevation changes from 60 m at the southern plains to 8848 m at Mount Everest in the north, ...

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The effects of prospective use of direct solar energy for power production, saline water distillation, refrigeration and air conditioning, water heating, crop drying, etc. on the prosperity of developing countries were discussed by Saif-Ul-Rehman, presenting in detail the analysis of the difficulties in the way of solar energy utilization due to the economic limitations ...

Some demonstration projects on solar air conditioning, including desiccant cooling, absorption and adsorption cooling systems are introduced and summarized. Some suggestions for further enlarging the application of solar air conditioning are discussed. 2. Solar air conditioning technologies in Shanghai Jiao Tong University

A "heating, ventilation, and air-conditioning" system, or H.V.A.C. for short, is a combination of these three elements [1], [2], [3]. The heating, ventilation, and air conditioning system (HVAC) controls the air quality, humidity, and airflow in a building. The following will elaborate on this point: Fig. 1 Fig. 2

Increasing living standards and demand for human comfort has caused an increase in energy consumption. According to the International Institute of Refrigeration in Paris, the amount of electricity production from different types of refrigeration and air conditioning process is approximately 15% of all the electricity produced in the world.

We recommend that to achieve net-zero emission targets, Nepal"s policy framework should prioritize deployment of solar PV: ground-mounted PV for utility scale, rooftop PV for urban areas and agrivoltaic for rural areas. Robust Power Purchase Agreement rates and enabling ...

This paper describes the main results of the EU project SACE (Solar Air Conditioning in Europe), aimed to assess the state-of-the-art, future needs and overall prospects of solar cooling in Europe. A group of researchers from five countries has surveyed and analyzed over 50 solar-powered cooling projects in different climatic zones.

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DEVELOPMENT AND PROSPECTS OF SPICES IN NEPAL Mohan Bahadur Thapa, Budhdhi Prasad Sharma and Rajendra Nath Adhikari ... the muddy place in open air for 15-20 days or dried under hot smoke to make gola sutho [round black dry ginger]. ... of value added processed productsare prepared- i.e. solar dried ginger [sutho], ginger powder, ginger ...

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rgy demand and contribute to reduce air pollution problem in the valley (Pokharel, 1998). In order to explore the possibility and reliability of using solar energy, however, it is ...

The POSTED project aims to improve the enabling environment for disseminating solar technologies such as solar mini-grids, solar irrigation pumps and solar rooftops (on-grid and off ...

The impact of government policy and the development works on local socio-economy has been assessed. Prospects of solar dryers in Nepal under various aspects have been reviewed. Barriers yet to be overcome and efforts still to be made to promote solar drying systems in a wider scale have been identified. Works carried out so far and the results ...

Between 2008 and 2018, Nepal has only added about 550 MW of hydropower generation capacity (Shrestha 2017; NEA 2019). Key reasons underlying the slow progress of hydropower development include: (i) inadequate planning and investment in generation, transmission, and distribution capacity development; (ii) concerns about the ability of NEA to ...

Solar radiation is the best option and cost effective energy resources of this world from 21 st century onwards. In this study monthly, seasonal and annual variation of global solar...

Thus, for the development of large hydroelectricity projects in Nepal, a good understanding between Nepal and India is crucial both to meet the financial requirement and to market the electricity. Fossil fuel substitution : Agro-based industries such as sugar, jute and paper should utilize the wastes/residues for sustainable renewable energy ...

Several computer models for describing the performance characteristics of absorption chillers were developed by Florides et al. [5], Atmaca and Yigit [6] and Argiriou et al. [7] addition, the use of solar energy in an absorption heat pump system has been investigated by Assilzadeh et al. [8] and Li and Sumathy [9].Also, Ghaddar et al. [10] have carried out ...

The total installed capacity in Nepal is around 5.6 MW for solar home systems installed in 206152 numbers, 0.737 MW for the small solar home system in 155574 numbers, and 0.53 MW of institutional ...

The solar-thermal technologies have applications in water desalination and treatment (heating/preheating), food and textile industries (dehydration and drying), chemical industry (heat of reaction), pharmaceutical industry (pasteurization and sterilization), and air conditioning (industrial or municipal heating/cooling) [68], [72].

Nepal"s vision to expand its hydropower sector significantly faces ongoing challenges that constrain its development and limit its potential contributions to the country"s renewable energy goals and energy security

[7].Unmanaged and haphazard hydropower growth can disrupt ecosystems and ecology, with varying impacts on fish supply, habitat, and land ...

Solar air conditioning system of a building to retired people for air-conditioned area 210 m 2: 10 kWcold: 24 m 2 absorber area of evacuated tube 75 °C driving temperature for chiller operation: Office building of IBA AG in Fürth, Germany (2007) Absorption (H 2 O-LiBr) Air conditioning of Office building for air-conditioned area 920 m 2: 30 ...

Nepal: a case study at Bhairahawa, Journal of Hydrology and Meteorology, 2009 131 16. Impact of climate change on production and productivity in Nepal: a case study of maize research and development in Nepal, Journal of Agriculture and Environment, 2010 145 17. SOHAM - Nepal"s Chairman Dr. Janak Lal Nayava"s speech on WMO day-2005 156 18.

The major green features of this building are passive solar energy, active solar energy, Variable Refrigerant Volume (VRV) and Cristopia Heating Ventilation Air Conditioning (HVAC) System. Building Geometry and Orientation to maximize the solar gain through the South-The long axis of the building is oriented towards East-West.

The total potential of wind-solar energy generation in Nepal is 475 TOE. Another alternative energy, biogas, has been widely used mainly in Bagmati, Gandaki, and Koshi Provinces. Koshi has the highest number of Micro/Pico hydropower projects, accounting for 68.1% of the total projects. Understanding Nepal"s Energy Consumption Patterns

tigated the solar heating and air-conditioning by GSHP coupled to PV system for a cost-effective high-energy performance building. It can be seen that many researchers conducted solar cooling and solar-powered air conditioning systems but none of these conducted the potential of solar power air conditioner in Saudi Arabia especially AlMadinah re-

The solar potential is about 100 times larger than that required to support a 100% solar-energy system in which all Nepalese citizens enjoy a similar per-person energy consumption to developed ...

There is large potential for use of solar energy resources in Nepal with the solar insolation ranging from 4-5 kWh/m 2 per day and on an average of more than 6.5 hours of sunshine per day [1]. The ...

One of the key development trends in solar air conditioners is the integration of smarter, more efficient technologies. ... The application prospects for solar air conditioners are vast and varied. In tropical and subtropical regions, where sunshine is abundant, these systems can significantly reduce electricity costs and dependency on ...

This research project will seek to develop recommendations for viable solar energy supply technologies by

assessing and identifying possible limitations in the energy supply side; ...

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