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Patent Search

Invention Title	SMART GRID INTEGRATION : RENEWABLE BASED MICRO HYBRID POWER SYSTEM
Publication Number	46/2019
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Publication Type	INA
Application Number	201921045264
Application Filing Date	07/11/2019
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Priority Country	
Priority Date	
Field Of Invention	ELECTRICAL
Classification (IPC)	H01F8/24

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Abstract:

5. ABSTRACT: Power generated by wind turbine is converted in DC by rectifier circuit and CUK convertor is used for the regulation of solar power generation which regularly refers the operation of sources and switches the corresponding converters and fed into change the battery or to the load through inverters. Inverter output is connected to the load and converter voltage is stepped up by a transformer. Wind turbine is used to convert the wind power into electric power. Wind turbine systems are available in range between from 50W to 3-4 MW. In DC-DC CUK Converter the capacitor C connected alternatively to input and output and transfer energy of the converter commutation of the transistor and the diode. To convert the input voltage source (Vi) and the output voltage source (Co) into current sources inductor L are used. Charging a capacitor with a current source prevents resistive current limiting and its associated energy loss. As with other converters the Cuk converter can either operate in continuous or discontinuous current mode. However, unlike these converters, it can also operate in discontinuous voltage mode. The power losses of the converter are minimized in order to maximize the converter. A genetic algorithm was implemented as the optimization technique, and the optimal duty cycle and switching frequency of the converter were found based on the-reliability constraints. The capacitors, inductances, and other parameters of the converter were selected to satisfy the desired electrical constraints of the converter. Simulation and experimental results were presented to validate the feasibility of the proposed design methodology Inductor L is in series and capacitor C is in shunt with load. Dc resistance is very small hence choke (L) allows the dc component to pass through easily. Very high capacitive reactance acts as open circuit and passes DC current through Dc output voltage is obtained. Inductive reactance $X_L = 2\pi fL$ is high for AC components therefore ripples are reduced. Use of Choke filters current flows continuously therefore transformer is used more efficiently. Low ripples at output and independent of load current voltage, drop across inductor is smaller than load resistance R because load resistance small. Fully electronic MPPT System that changes the operating point. Model delivers maximum available power and increase charging current. A PWM INVERTER is a circuit which converts a DC power into an AC power at desired output voltage and frequency. The harmonics content of output voltage can be minimized or reduced significantly by switching technique of variable high speed power semiconductor devices. The DC power input to the inverter may be battery, fuel cell, solar cell or other DC source.

Complete Specification

PREAMBLE TO DESCRIPTION: Smart Grid Integration:Renewable Based Micro Hybrid Power System

2. DESCRIPTION:

Electrical energy generation from renewable energy sources are increasing as increase in electricity consumption. Increasing energy cost, transmission loss, risk of radioactive radiation from nuclear power plant, carbon pollution leads global environmental changes are motivating a the conventional ways of generating electricity to RES. Globally, there is a desire to rely more on renewable energy resources for electricity generation. The electricity grid is presently evolving towards an intelligent grid the so-called smart grid. One of the major goals of the future smart grid is to move towards 100% electricity generation from renewable energy resources. This paper presents the overview of recent efforts that aim to integrate renewable energy resources into the smart grid. Renewable energy based micro hybrid power system consist photovoltaic and small wind turbine equipped with Cuk-DC-DC converter, three phase inverter and filter circuit. The impact of connecting Renewable energy sources to the Smart Grid with regard to improving Power Quality aspects and impact of integrating renewable energy sources on Power Quality indices in the smart grid was

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Application Details

APPLICATION NUMBER	201921045264
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	07/11/2019
APPLICANT NAME	1 . DR. SANJEEV REDDY K. HUDGIKAR 2 . KISHORE KUMAR NANDYALA 3 . SM SALEEMUDDIN 4 . V. MAHIDHAR REDDY 5 . MAHALINGESH BAGALI 6 . DEVENDRA GOWDA
TITLE OF INVENTION	SMART GRID INTEGRATION : RENEWABLE BASED MICRO HYBRID POWER SYSTEM
FIELD OF INVENTION	ELECTRICAL
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E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	15/11/2019



Application Status

APPLICATION STATUS	Awaiting Request for Examination
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➡ Filed ➡ Published ➡ RQ Filed ➡ Under Examination ➡ Disposed

In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

FORM 1 THE PATENTS ACT 1970 (39 of 1970) THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20)				 200279353 (FOR OFFICE USE ONLY)	
Application No.		201921045264			
Filing date:		07/11/2019			
Amount of Fee paid:		1750/- रुपय नकद/चेक/मनी ऑर्डर द्वारा			
CBR No:		CBR संख्या. 24044..दि..07/11/2019			
Signature:		के तहत प्राप्त हुए।			
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary <input checked="" type="checkbox"/>		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()
3A. APPLICANT(S)					
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5. Mahalingesh Bagali	INDIAN	INDIA	ANGEL INSTITUTE OF TECHNOLOGY AND DESIGN, KADAP 516126, INDIA SANJAY GHODAWAT UNIVERSITY, KOLHAPUR-MAHARASHTRA, INDIA.
6. Devendra Gowda	INDIAN	INDIA	

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person <input checked="" type="checkbox"/>	Other than Natural Person		
	Small Entity ()	Startup ()	Others ()

4. INVENTOR(S) [Please tick (✓) at the appropriate category]

Are all the inventor(s)	Yes <input checked="" type="checkbox"/>	No ()
same as the applicant(s) named above?	Yes ()	No ()

If "No", furnish the details of the inventor(s)

Name in Full	Nationality	Country of Residence	Address of the Inventor	
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			Street	
			City	
			State	
			Country	
			Pin code	

5. TITLE OF THE INVENTION: Smart Grid Integration: Renewable Based Micro Hybrid Power System

	Name	
	Mobile No.	
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	Dr. Sanjeev Reddy K. Hudgikar
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	Telephone No.	

Mobile No.		8087744394			
Fax No.					
E-mail ID		drhudgikar@gmail.com			
8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION					
Country	Application Number	Filing date	Name of the Applicant	Title of the invention	IPC (as classified in the convention country)
9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)					
international application number			International filing date		
10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION					
Original (first) application No.			Date of filing of original (first) application		
11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT					
Main application/patent No.			Date of filing of main application		
12. DECLARATIONS					
(i) Declaration by the inventor(s)					
(In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).					
I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.					
(a) Date:					
(b) Signature(s):					
1. (..... ) 2. (<u>Kishore</u>) 3. (<u>SM</u>)					
4. (<u>SM</u>) 5. (<u>Gowda</u>) 6. (<u>Bagali</u>)					
(c) Name(s):					
1. Dr. Sanjeev Reddy K. Hudgikar 2. Kishore Kumar Nandyala 3. SM Saleemuddin 4. V. Mahidhar Reddy 5. Devendra Gowda. 6. Mahalingesh Bagali					

(ii) Declaration by the applicant(s) in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.

(a) Date 7/11/2019

(b) Signature(s): 1. (.....) 2. (..... Kishore) 3. (..... SM)

4. (.....) 5. (..... Gowda) 6. (..... Bagali)

(c) Name(s): 1. Dr. Sanjeev Reddy K. Hudgikar 2. Kishore Kumar Nandyala 3. SM

Saleemuddin 4. V. Mahidhar Reddy 5. Devendra Gowda 6. Mahalingesh Bagali

(iii) Declaration by the applicant(s)

I/We the applicant(s) hereby declare(s) that: -

- I am/ We are in possession of the above-mentioned invention.
- The provisional/complete specification relating to the invention is filed with this application.
- The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.
- There is no lawful ground of objection(s) to the grant of the Patent to me/us.
- I am/we are the true & first inventor(s).
- I am/we are the assignee or legal representative of true & first inventor(s).
- The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).
- I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.
- My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.
- The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Complete/ provisional specification)#	No. of pages 3	1750/-	
No. of Claim(s)	No. of claims and No. of pages 06 01		
Abstract	No. of pages 01		
No. of Drawing(s)	No. of drawings and No. of pages 02 02		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

- (b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (c) Sequence listing in electronic form
- (d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (e) Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.
- (f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.
- (g) Statement and Undertaking on Form 3
- (h) Declaration of Inventorship on Form 5
- (i) Power of Authority
- (j) Form No 9
- ~~(k) Form No 18~~
- (k)

Total fee ₹ 4500 in Cash/ Banker's Cheque /Bank Draft bearing No..... Date on Bank.

I/We hereby declare that to the best of my/our knowledge, information and belief the fact and matters slated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this Thursday day of 7th Nov 2019

Signature:

Name:

To, 1. (Dr. Sanjeev Reddy K. Hudgikar) 2. Kishore Kumar Nandyala 3. S.M. Sateemuddin
The Controller of Patents M General Bagali
The Patent Office, Mumbai 4. V. Mahidhar Reddy. 5. Mahalingesh Bagali 6. Devendra Gowda