

# SALKUTI SURENDER REDDY

Research Scholar  
Dept. of Electrical Engineering  
Indian Institute of Technology Delhi  
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## OBJECTIVE

As a professional I believe in intellectually stimulating work process, to excel and succeed through smart work, thus enhancing value addition to my job, the organization and myself.

## EDUCATION

- **Pursuing Ph.D. in Electrical Engineering** at Indian Institute of Technology (IIT) Delhi, New Delhi, started in July 2009 (expected to finish in May 2013).
- **M.Tech in Power Systems Engineering** at National Institute of Technology (NIT) Warangal, Andhra Pradesh, India, from July 2007 to June 2009.  
CGPA: 9.74 / 10.
- **B.Tech in Electrical and Electronics Engineering** at Jawaharlal Nehru Technological University, Hyderabad, from July 2002 to May 2006.  
Percentage: 79.61.
- **Intermediate**, Board of Intermediate Education, Andhra Pradesh, from 2000 to 2002.  
Percentage: 93.40.
- **SSC**, Board of Secondary Education, Andhra Pradesh, from 1999 to 2000.  
Percentage: 87.00.

## RESEARCH INTERESTS

- Power System Restructuring Issues – Ancillary Services Pricing, Real and Reactive Power Pricing, Congestion Management, Market Clearing including Renewable Energy Sources, Demand Response, Smart Grid development with integration of wind and solar PV Energy Sources, Artificial Intelligence applications in Power Systems, Power System Analysis and Optimization.

## RESEARCH EXPERIENCE

Research Scholar in Electrical Engineering department at IIT Delhi from July 2009 to till date.

**Ph.D Thesis Title:** Improvements in Energy and Ancillary Services Optimization in Electricity Markets.

**Supervisors:** Prof. P.R. Bijwe & Dr. A.R. Abhyankar

**Description:**

- Analysed the importance of voltage dependent load models on electricity markets.
- Developed a better Wind-Thermal coordination for energy and ancillary services markets.
- An optimal posturing methodology is developed which can clearly reflect the cost implications of differences in day-ahead schedule, and real time schedule.

- An optimal dynamic reserve activation plan is developed for an emergency situation.
- Proposed a novel strategy based on evaluation of best-fit participation factors by taking into account the minute-to-minute variability of solar, wind and demand, over a scheduling interval.

**M.Tech Thesis Title:** Congestion Management using Optimal Choice and Allocation of FACTS controllers.

**Supervisor:** Dr. M. Sailaja Kumari

**Description:**

- Single and multi-objective optimization approaches have been developed for optimal choice, location and size of Static Var Compensators and Thyristor Controlled Series Capacitors in deregulated power system to improve branch loading, voltage stability and reduce line losses.

**B.Tech Thesis Title:** Combined Economic and Emission Dispatch (CEED) Considering the Generator Constraints.

**Description:**

- Developed a lambda based approach for CEED problem using Lambda-iteration, Genetic Algorithm and Particle Swarm Optimization methodologies considering nonlinear characteristics of the generator.

Worked as Intern at Pan-Electro Technic Enterprises Pvt. Ltd. Hyderabad during April – June 2008.

## TEACHING EXPERIENCE

- **Teaching Assistant** in Dept. of Electrical Engineering at IIT Delhi from Aug. 2009 to till date.
- **Teaching Assistant** in Dept. of Electrical Engineering at NIT Warangal from Aug. 2007 to May 2009.
- **Lecturer** in Dept. of Electrical and Electronics Engineering, HI-Tech College of Engineering and Technology, Hyderabad from May 2006 to May 2007.

## SOFTWARE PROFICIENCY

- MATLAB, GAMS, PowerWorld, C, C++.

## PUBLICATIONS

### PUBLISHED JOURNAL ARTICLES

1. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, "Joint Energy and Spinning Reserves Market Clearing for Wind-Thermal Power System Incorporating Wind Generation and Load Forecast Uncertainties", *IEEE Systems Journal* (**Accepted – in print**).
2. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Reactive Power Price Clearing using Multi-Objective Optimization", *Energy – The International Journal*, Vol. 36, No. 5, pp. 3579- 3589, May 2011.

3. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Multi-Objective Day-Ahead Real Power Market Clearing with Voltage Dependent Load Models", *International Journal of Emerging Electric Power Systems*, Vol 12, No. 4, pp. 1-22, Aug. 2011.
4. **S. Surender Reddy**, B.K. Panigrahi, R. Kundu, R. Mukherjee, S. Debchoudhury, , "Energy and Spinning Reserve Scheduling for a Wind-Thermal Power System using CMA-ES with Mean Learning Technique", *International Journal of Electrical Power & Energy Systems (Accepted – in print)*.
5. **S.Surender Reddy**, M.Sailaja Kumari, M.Sydulu, "Congestion Management in Deregulated Power System by Optimal Choice and Allocation of FACTS Controllers Using Multi-Objective Genetic Algorithm", *Journal of Electrical Engineering & Technology*, Vol. 4, No. 4, pp. 467-475, Dec. 2009.
6. P.Praveen, M.Sailaja Kumari, **S.Surender Reddy**, "Micro Genetic Algorithm based Optimal Power Dispatch in Multinode Electricity Market", *International Journal of Recent Trends in Engineering*, Vol 2, No. 5, pp. 298-302, Nov. 2009.
7. Aveek Kumar Das, Ratul Majumdar, B.K.Panigrahi and **S.Surender Reddy**, "Optimal Power Flow for Indian 75 Bus System Using Differential Evolution", *Swarm, Evolutionary, and Memetic Computing*, Vol. 7076/2011, pp.110-118, 2011.

#### **PUBLISHED CONFERENCE PROCEEDINGS**

8. **S.Surender Reddy**, B.K.Panigrahi, P.R.Bijwe, A.R.Abhyankar, "Comparison and Application of Swarm Intelligent Techniques to Optimal Power Flow", *IEEE Joint International Conference on Power Electronics, Drives and Energy Systems (PEDES) & Power India*, 20-23 Dec. 2010, pp. 1-6.
9. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Market Clearing of Joint Energy and Reactive Power using Multi Objective Optimization considering Voltage Dependent Load Models" *IEEE Power and Energy Society General Meeting*, 24-29 July 2011, pp.1-8.
10. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Combined Economic/Environmental Dispatch with Fuzzified Multi-Objective Particle Swarm Optimization considering Voltage Stability", *International Conference on Deregulated Environment and Energy Markets*, July 22-23, 2011, pp. 16-22.
11. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Day Ahead Centralized Electricity Market Clearing using Multi Objective Optimization considering Voltage Dependent Load Models", *Proceedings of Centenary Conference - EE, IISc Bangalore*, Dec. 14-17, 2011, pp. 87-92.
12. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, "Market Clearing for a Wind-Thermal Power System Incorporating Wind Generation and Load Forecast Uncertainties", *IEEE Power and Energy Society General Meeting*, Jul. 22-26, 2012, pp. 1-8.
13. D.Maity, A.Chowdhury, **S.Surender Reddy**, B. K. Panigrahi, A.R. Abhyankar, M. K. Mallick, "Joint Energy and Spinning Reserve Dispatch in Wind-Thermal Power System using IDE-SAR Technique", *IEEE Symposium Series on Computational Intelligence*, 15-19 April, Singapore 2013.

#### **COMMUNICATED JOURNAL ARTICLES**

14. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, "Optimal Dynamic Emergency Reserve Activation", *IEEE Systems Journal (Submitted Revision 1)*.
15. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, "Optimal Posturing in Day-Ahead Market Clearing for Uncertainties Considering Anticipated Real Time Adjustment Costs", *IEEE Systems Journal (Submitted Revision 2)*.

16. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, “Co-optimization of Energy and Demand Side Reserves in Day-Ahead Electricity Markets”, *International Journal of Electrical Power & Energy Systems (Submitted Revision 1)*.
17. **S.Surender Reddy**, P.R. Bijwe, A.R.Abhyankar, “Faster Evolutionary Algorithm Based Optimal Power Flow using Incremental Power Flow Model”, submitted to *International Journal of Electrical Power & Energy Systems*.
18. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, “Real Time Economic Dispatch Considering Variability over Scheduling Interval”, submitted to *IEEE Trans. Systems Journal*.
19. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, “Multi-Objective Market Clearing of Electrical Energy, Spinning Reserves, and Emission for Wind-Thermal Power”, submitted to *International Journal of Electrical Power & Energy Systems*.
20. **S.Surender Reddy**, A.R.Abhyankar, P.R.Bijwe, B.K.Panigrahi, “Application of Swarm Intelligent Techniques with Mixed Variables to Solve Optimal Power Flow Problems”, submitted to *Swarm and Evolutionary Computation*.
21. **S. Surender Reddy**, B.K. Panigrahi, R. Kundu, R. Mukherjee, S. Debchoudhury, , “Short-Term Hydro-Thermal Scheduling using CMA-ES with Directed Target to Best Perturbation Scheme”, submitted to *International Journal of Bio-Inspired Computation*.

#### TO BE COMMUNICATED

22. **S.Surender Reddy**, P.R.Bijwe, A.R.Abhyankar, “Optimal Energy and Reactive Power Dispatch in Competitive Electricity Markets”.

#### AWARDS

- Received POSOCO Power System Award (PPSA) – 2013.
- Received Gold Medal in M.Tech from NIT Warangal.
- Receiving Ministry of Human Resource Development (MHRD) Scholarship for Doctoral study, July 2009-till date.
- Received MHRD Scholarship for M.Tech study from July 2007 to May 2009.
- Received International Travel Support from Department of Science and Technology (DST).
- Participated in various workshops and seminars.
- Ranked Second in B.Tech at Vidya Jyothi Institute of Technology, Hyderabad.
- Topper in entire school days.

#### POSITIONS OF RESPONSIBILITY

- Worked as student coordinator and volunteer for several conferences, workshops, and seminars at B.Tech, M.Tech and Ph.D. levels (2002-2012).
- Worked as a Class Representative in M.Tech (2007-2009).

#### PROFESSIONAL MEMBERSHIPS

- IEEE Student Member/ Power and Energy Society
- IET Student Member

## REVIEWER

- IET Renewable Power Generation.
- International & National Conference proceedings.

## PERSONAL DETAILS

**Father Name** : Sri. S. Masi Reddy  
**Date of Birth** : 2<sup>nd</sup> January 1985  
**Nationality** : Indian  
**Present Address** : S. Surender Reddy  
A-62, Jwalamukhi Hostel, IIT Campus, IIT Delhi  
Hauz Khas, New Delhi-110016.  
**Permanent Address** : H.No: 3-6-698, Street No: 11,  
Himayat Nagar, Hyderabad, Andhra Pradesh-500029.  
**Languages Known** : English, Hindi and Telugu  
**Passport** : Validity: 29-04-2019

## REFERENCES

- Prof. P.R. Bijwe  
NTPC Chair Professor, Dept. of Electrical Engineering, IIT Delhi,  
New Delhi – 110016, India.  
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### Declaration:

I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned particulars.

Place: New Delhi  
Date: 02-05-2013

(S. SURENDER REDDY)