Curriculum Vitae

ASHOK SEKAR

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EDUCATION

Ph.D. in Sustainability, 2017
Rochester Institute of Technology, Rochester, NY, USA
M.S. in Civil, Environmental and Sustainable Engineering, 2012
Arizona State University, Tempe, AZ, USA
Bachelor of Engineering (B.E.) in Mechanical Engineering, 2009
Kongu Engineering College, Anna University, Perundurai, TN, India

RESEARCH INTERESTS

- Diffusion of energy technologies
- Understanding behavioral drivers of human demand
- Evaluating emerging technologies using Techno-economic methods, Life Cycle Assessment, and Risk Assessment

APPOINTMENT

- Post-Doctoral Research Fellow, Energy Systems Transformation Group, LBJ School of Public Affairs, University of Texas at Austin, Oct 2017 –

PUBLICATIONS

REFEREED JOURNAL ARTICLES

1. **Sekar, A.,**, William, E., Hittinger, E., and Chen, R. (2019). How Behavioral and Geographic Heterogeneity Affects Economic and Environmental Benefits of Efficient Appliances. *Energy Policy 125* (February): 537–47. https://doi.org/10.1016/j.enpol.2018.10.035.
2. **Sekar, A.,** Williams, E., & Chen, R. (2018). Changes in Time Use and Their Effect on Energy Consumption in the United States. *Joule 2 (3): 521–36.*
3. Das, S., Gaustad, G., **Sekar, A.,** & Williams, E., (2018). "Techno-Economic Analysis of Supercritical Extraction of Rare Earth Elements from Coal Ash." *Journal of Cleaner Production*, March. https://doi.org/10.1016/j.jclepro.2018.03.252
4. Chen, R. B., & **Sekar, A.** (2018). Investigating the impact of Sense of Place on site visit frequency with non-motorized travel modes. *Journal of Transport Geography*, 66, 268-282.
5. Das, S., **Sekar, A**., Chen, R., Kim, H. C., Wallington, T. J., & Williams, E. (2017). Impacts of Autonomous Vehicles on Consumers Time-Use Patterns. Challenges, 8(2), 32.
6. **Sekar, A.,** Chen, R., Nagappan, M., & Cruzat, A., (2016). Digital Narratives of Place: Learning about Neighborhood Sense of Place and Travel through Online Responses. *96th Annual Meeting of the Transportation Research Board.*
7. **Sekar, A.,** Williams, E., Chen, R., (2016). Heterogeneity in time and energy use of watching television. *Energy Policy* 93, 50–58. http://doi:10.1016/j.enpol.2016.02.035
8. Williams, E., **Sekar, A.,** Matteson, S., & Rittmann, B. E. (2015). Sun-to-Wheels Exergy Efficiencies for Bio-Ethanol and Photovoltaics. *Environmental Science & Technology*, *49*(11), 6394–401. http://doi.org/10.1021/es504377b

9. **Sekar, A.,** Williams, E., & Chester, M. (2014). Siting is a constraint to realize environmental benefits from carbon capture and storage. *Environmental Science & Technology*, *48*(19), 11705–12. http://doi.org/10.1021/es5003764

WORKING PAPER

1. **Sekar, A.,** & Rai, V. (2019). Inferring Latent Constructs from Passive datasets: Significance and opportunities.
2. Williams, E., **Sekar, A.,** & Ronnenberg, M. (2018). The effect of technology-specific bounds on achieving PV cost targets.
3. **Sekar, A.,** White, L., & Rai, V. (2019). Differential impacts of demand-side response measures: Determining the differences in on-peak and off-peak household activities across sociodemographic groups.
4. **Sekar, A.,** Kongalu, D., Abenr, G., Funkhouser, E., & Rai, V. (2019). Developing time use metrics to inform workforce development programs.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, *Golisano Institute for Sustainability, Rochester Institute of Technology,* Rochester, NY, Aug 2013 – Aug 2017.

- Environmental Assessment of Separation of Rare Earth Elements from Powder River Basin Coal Ashes. Funded by Department of Energy. (Co-PI: Eric Williams)
- Building a Sense of Place in an Information Era: Accessibility, Connectivity, and Travel. Funded by University Transportation Research Center. (Principle Investigator: Roger Chen)
- Using time diary data to inform the adoption and demand of autonomous vehicles. Funded by Ford University Research Program. (Principle Investigator: Eric Williams)

Research Staff, *Golisano Institute for Sustainability, Rochester Institute of Technology,* Rochester, NY, Aug 2012 – Jul 2013.
Assessed long-term technological progress for alternative transport energy sources (Photovoltaics, Biofuels and Carbon Capture & Sequestration technologies). Funded by National Science Foundation (NSF). (Principle Investigator: Eric Williams)

Research Lead, *The Sustainability Consortium,* Tempe, AZ, Aug 2011 – Jul 2012.
Developed and tested methodologies to identify the life cycle environmental and social hotspots for consumer electronics and metals. (Project Manager: Carole Mars)

Graduate Research Assistant, *Center for Sustainable Engineering, Arizona State University,* Tempe, AZ, Nov 2010 – Jul 2011.
Quantified material stock and flow of new and used computers in and out of North America and Mexico based on residential and business surveys and shipment data. Project funded by Commission for Environmental Cooperation of North America. (Principle Investigator: Eric Williams).

Project Analyst, *General Carbon Advisory Services,* Mumbai, Jan 2010 – May 2010.
Quantified certified emission reductions (CERs) of windmills and biomass based cogeneration plants in India qualified under Kyoto protocol.

Intern, *Carborundum Universal Private Ltd,* Chennai and Hosur, India. Jul 2009 – Dec 2009 and Dec 2008.
Created and maintained the aspect register which lists all the potential risks and hazards associated with industrial operations to obtain ISO 14001 certification. I also managed the operations of the

Effluent and Sewage Treatment Plant.

AWARDS

- $600 Scholarship Student Chapter scholarship to the 2017 ISIE-ISSST Conference and Symposium on Industrial Ecology for Young Professionals in Chicago, June 2017
- Precourt Fellow, Stanford's Precourt Energy Efficiency Center. Awarded $395 to attend the Behavior Energy Climate Change conference, Oct 2016
- Student author of NSF grant: Resolving the effects of heterogeneity and technological progress on carbon mitigation costs. PI: Eric Williams and Co-PI: Eric Hittinger & Roger Chen, June 2016
- Student Lead of University Research Program (URP) Grant awarded by Ford Motors, Dec 2014
- My final project was awarded the "Best project award of the Mechanical Engineering Department," May 2009

PROFESSIONAL ACTIVITIES AND SERVICES

CONFERENCES

1. 2017 Joint Conference ISIE and ISSST, "Decomposing the effects of time-use shifts on energy consumption," Chicago, IL (Presentation), June 2017.
2. Behavior, Energy, and Climate Change Conference, "Personalizing Utility Energy Programs: Case Study on Televisions," Baltimore, MD. (Poster), Oct 2016.
3. Advanced Energy Conference, "Personalizing Utility Energy Programs: Case Study on Televisions," New York City, NY, (Poster), Apr 2016.
4. Syracuse center of excellence: 13th Annual Symposium, "Current and Theoretical Exergy Efficiency of Bio-ethanol and Solar PV," Syracuse NY, Oct 2013.
5. International Symposium on Sustainable Systems & Technology (ISSST), "Integration of Life Cycle Assessment (LCA), Pollution valuation models, and Benefit Cost Analysis. A Case study on Monoethanolamine (MEA) Carbon Capture and Sequestration", Cincinnati OH, May 2013.
6. American Center for Life Cycle Assessment (ACLCA) XII Conference," Combining Life Cycle Assessment and Benefit Cost Analysis – Case study of MEA CCS," Tacoma, WA (Poster), Sep 2012.

REVIEW ACTIVITIES FOR JOURNALS

Energy Research and Social Science; Transportation Research Board; International Journal of Greenhouse Gas Control.

PROFESSIONAL MEMBERSHIPS

- International Society for Industrial Ecology, Current
- International Association for Energy Economics (IAEE), Current
- Association of Energy Engineers (AEE), 2014 to 2016
- American Center for Life Cycle Assessment (ACLCA), 2012 to 2013

TEACHING EXPERIENCE

- 3-hour lecture on Classification techniques. Statistical Analysis and Learning Class, Course Instructor: Varun Rai, Feb 2018, University of Texas at Austin.
- 2-hour lecture on Introduction to Life cycle assessment (LCA) to students of Green

Chemistry and Engineering course, Course Instructor: Thomas W. Smith, Apr 2017, Rochester Institute of Technology.

- 1.5-hour lecture on Introduction to ggplot2 – a graphical package for producing statistical, or data, graphics to students of Data Analysis for Sustainability course. Course Instructor: Roger Chen, Apr 2016, Rochester Institute of Technology.
- Two 1.5-hour lecture on Introduction to R programming to students of Economics of Sustainable Systems (Sep 2015) and Sustainability Practices (Apr 2015), Course Instructor: Roger Chen, Rochester Institute of Technology.

MENTORING EXPERIENCE

- Mentored 2 teams (6 members) to successfully complete their projects for Policy Research Project on Global Issues course. Fall - Spring 2018

INVITED TALKS

- Changes in Time Use and Their Effect on Energy Consumption in the United States, Research Colloquium, LBJ School of Public Affairs, Austin, TX, Mar 2018.
- Sustainability perspectives and implications from consumer's activity patterns and their attitudes towards a place, PARC Xerox, Rochester, NY, Nov 2016.
- Life Cycle Benefit-Cost Analysis of Monoethanolamine (MEA) Carbon Capture and Sequestration. GIS Graduate Seminar, Rochester Institute of Technology, Rochester, NY, Apr 2013.

WORKSHOPS ORGANIZED

The Energy Literacy Workshop, Rochester Institute of Technology, July 2013.

- Participants: 8 High School students from the Brighton High School (BHS)
- Co-organized with Eric Williams (RIT), Mike Waller (RIT), Chris Law (BHS), Chris French (BHS) and Sean Metz (BHS).

Workshop on Informing Energy Technology Policy Decisions: Understanding Technological Change, Washington D.C., June 2013.

- Participants: 23 Representatives from Academia, State and Federal Government
- Co-organized with Eric Williams (RIT), Inês Azevedo (CMU), Marilyn Brown (GaTech) and Xiaojing Sun (GaTech)

GRANT WRITING

Lead University of Texas at Austin in partnership with NREL's $1.5 Million proposal for DOE Lab call. Project awarded, expected to start Oct 2018.
Past contributions: NSF – Environmental Sustainability and CyberSEES, ARPA-E TRANSNET, NYSERDA – Advanced building program.

SOFTWARE SKILLS

Data Analysis: ArcGIS, LIMDEP, LINGO, MALLET, MSExcel, SPSS, Stata, TABLEAU, Weka.
Programming: R, MATLAB, C.
Others: AutoCAD, SolidWorks, Pro-E, CATIA, ANSYS, MS Project, XPPAUT.

DIPLOMA AND CERTIFICATIONS

- BEX 101x Behavioral Economics in Action, University of Toronto, Dec 2013

- Certified training program on GRI Sustainability Reporting Process provided by ISOS group, LLC, Apr 2012
- Professional Diploma in AutoCAD, Pro-E, CATIA, ANSYS, MS Project provided by CADD center, May 2008
- DELF A1 certification in French provided by Alliance Français, 2009

ADDITIONAL ACCOMPLISHMENTS

- Vice President, Alumni Association of Satchidananda Jothi Nikethan, 2005 –
- Vice President, Field Hockey Club, Rochester Institute of Technology, 2015 – 2016
- Assistant Coach, Division III Field Hockey Team of SUNY, Geneseo. 2014 – 2015
- Winner, E-Autocross Challenge, ImagineRIT, Rochester Institute of Tech., 2015
- Marathoner: Best Buffalo Marathon (3h:14m), 2014
- Vice President of Field Hockey Club, Arizona State University, 2011 – 2012
- Represented Tamil Nadu (state) in the 35th Annual National Hockey Tournament, India, 2005

SELECTED MEDIA COVERAGE

NEWS ARTICLES

- NYTimes (2018), Americans Are Staying Home More. That's Saving Energy. https://www.nytimes.com/2018/01/29/climate/americans-staying-home-energy.html
- Science Magazine (2018), Tell your boss: When U.S. workers stay home, they save 2 billion joules per year. http://www.sciencemag.org/news/2018/01/tell-your-boss-when-us-workers-stay-home-they-save-2-billion-gigajoules-year
- Greentech Media (2018), Why Spending More Time at Home Could Help Save the Planet. https://www.greentechmedia.com/articles/read/why-spending-more-time-at-home-could-help-save-the-planet#disqus_thread
- The Conversation (2018), Americans are saving energy by staying at home. https://theconversation.com/americans-are-saving-energy-by-staying-at-home-90303
- The Verge (2018), Americans are saving energy because fewer people go outside. https://www.theverge.com/2018/1/29/16944722/america-energy-savings-transportation-labor-time-use-statistics
- Boston Globe (2018), People are staying at home more — and it's saving a boatload of energy. http://www.bostonglobe.com/metro/2018/01/29/people-are-staying-home-more-and-saving-boatload-energy/X40kDVuih6xlM9lPiLjzBN/story.html
- Popular Science (2018), Finally, an excuse to cancel all your plans: staying in is good for the environment. https://www.popsci.com/staying-in-saving-energy
- Nexus Media News (2018), The Surprising Upside of Being a Homebody. https://nexusmedianews.com/the-surprising-upside-of-being-a-homebody-2b1e04e67b26
- Washington Post (2016), "The U.S. has as many televisions as humans. Here's how both can waste less energy". www.washingtonpost.com/news/energy-environment/wp/2016/03/15/why-people-who-watch-a-lot-of-tv-might-really-need-a-new-one/
- The Conversation (2016), "TV-watching couch potatoes have outsized energy footprint". www.theconversation.com/tv-watching-couch-potatoes-have-outsized-energy-footprint-56323

- Science Alert (2016), "Binge-watchers are responsible for one-third of all TV electricity usage". www.sciencealert.com/binge-watchers-are-responsible-for-one-third-of-all-tv-electricity-usage

RADIO AND PODCAST

- Scientific American (2018), Homebodies Economize on Energy Use. https://www.scientificamerican.com/podcast/episode/homebodies-economize-on-energy-use/
- AAAS (2018), Homebodies Economize on Energy Use. http://www.scienceupdate.com/2018/01/energy-saving-homebodies/
- Dan Townsend Show (2018), http://www.byuradio.org/episode/97615cea-c8fb-4da1-b1fa-50a0f418e79b?playhead=658&autoplay=true