

# Autonomous Energy Trading Agents

Daniel Urieli  
with  
Prof. Peter Stone

`urieli@utexas.edu`  
Learning Agents Research Group  
Department of Computer Science  
The University of Texas at Austin

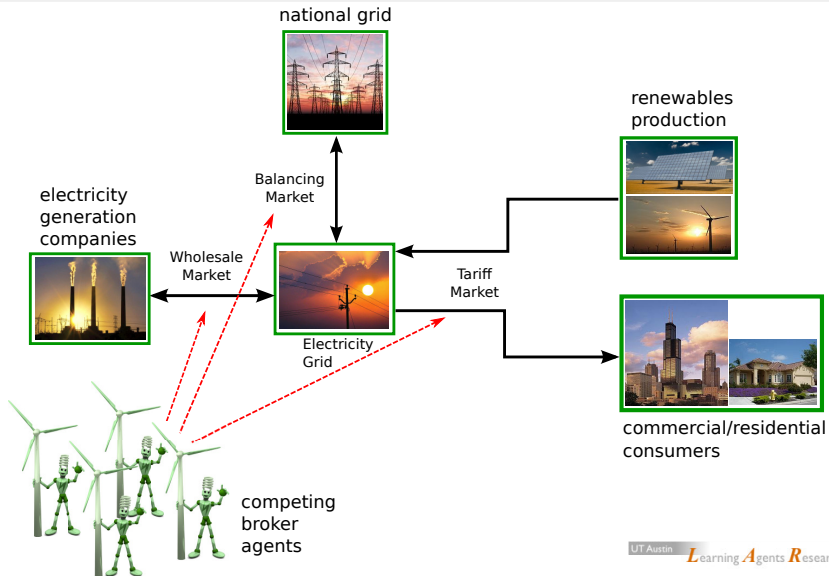
2014 IGERT External Advisory Committee Meeting

## Investigating New Energy Market Structures

- Renewables do not provide energy on demand
  - Old paradigm: **supply follows demand**
  - New paradigm: **demand follows supply**
- **Needed:** new market structures that motivate sustainable behaviors
- **Issues to address:** reliability, balancing
- **Risks:** California crisis, East-Coast blackout

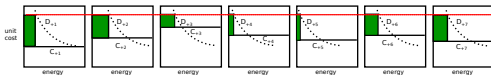


# Power TAC: low-risk, rich platform for investigating retail power markets

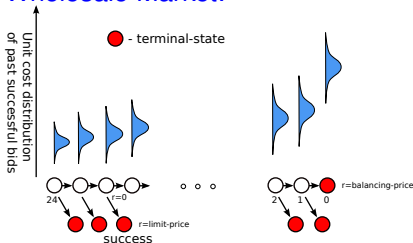


# Approach and Future Work

- Power TAC 2013 finals: 7 teams (American & European)
- TacTex'13: an adaptive champion power trading agent
- TacTex'13 solves **interdependent** optimization problems
  - **Tariff Market:**



- **Wholesale Market:**



- Future work will investigate:
  - **Technologies** for autonomous energy trading
  - Their **overall impact** on the smart grid