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## Modeling and control of power systems in microgrids

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Propositions  
belonging to the thesis  
**Modeling and Control of Power Systems  
in Microgrids**

by

Pooya Monshizadeh

1. There is ambiguity in the meaning of *inductivity* as a general property of an RL network comprised of lines with different  $\frac{L}{R}$  ratio (Chapter 3).
2. The more connected a power network is, the more the output impedances diffuse into the network (Chapter 3).
3. Modern electrical grids use inverters that can follow the frequency of the network. A similar strategy can be used to control the microgrids with a dominant power source (Chapter 4).
4. All models are wrong, but some are more wrong. It is worthwhile to derive models for synchronous generator that are not as wrong as the swing equation (Chapter 5).
5. The energy stored in the inverters DC-link capacitor, can be a natural successor to the kinetic energy (inertia) of synchronous generators (Chapter 6).
6. In many physical systems, the control input is applied as a *force*; however, in some systems the control input acts as a *power* injection (Chapter 7).
7. "The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom."—Isaac Asimov  
Technical issues might not be the main obstacle to developing microgrids and usage of renewable energies.
8. "The less there is to justify a traditional custom, the harder it is to get rid of it."—Mark Twain  
DC microgrids might never find their way into future power systems.
9. "Engineers like to solve problems. If there are no problems handily available, they will create their own problems."—Scott Adams