

# China's key role in scaling low carbon energy technologies

John Paul Helveston, Ph.D.

Assistant Professor

Engineering Management & Systems Engineering

The George Washington University

October 30, 2019

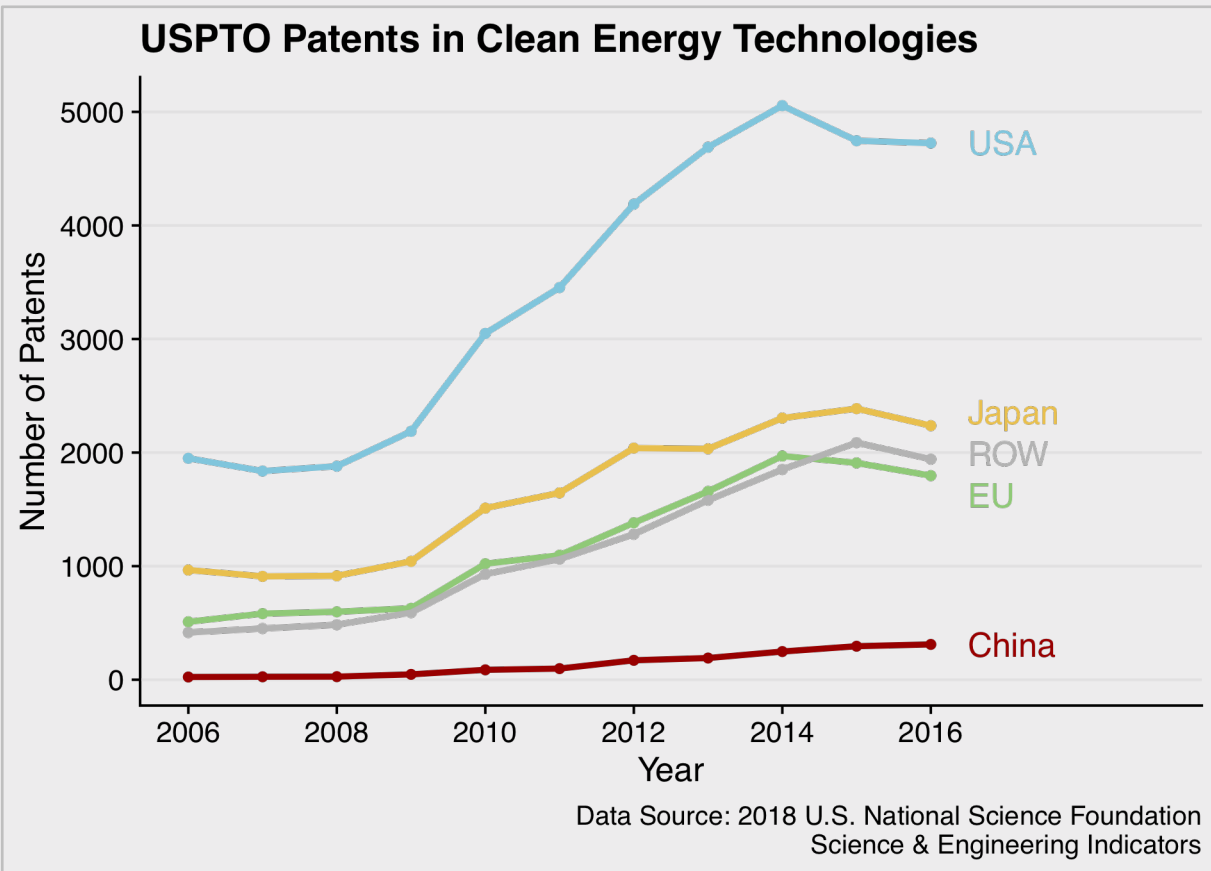
# China is the global leader in the mass production of low carbon energy technologies

|                        |                                  |
|------------------------|----------------------------------|
| Solar Panels:          | From 1% to 40% (2001-2018)       |
| Wind Turbines:         | 1/3 of global supply             |
| Electric Vehicles:     | 53% of global sales in 2018      |
| Lithium-ion Batteries: | 76% of global production by 2025 |
| Nuclear Reactors:      | From 45 to 88 plants by 2030     |

US & China have complementary capabilities in low-carbon energy tech

# US & China have complementary capabilities in low-carbon energy tech

US is global leader in  
*Invention*

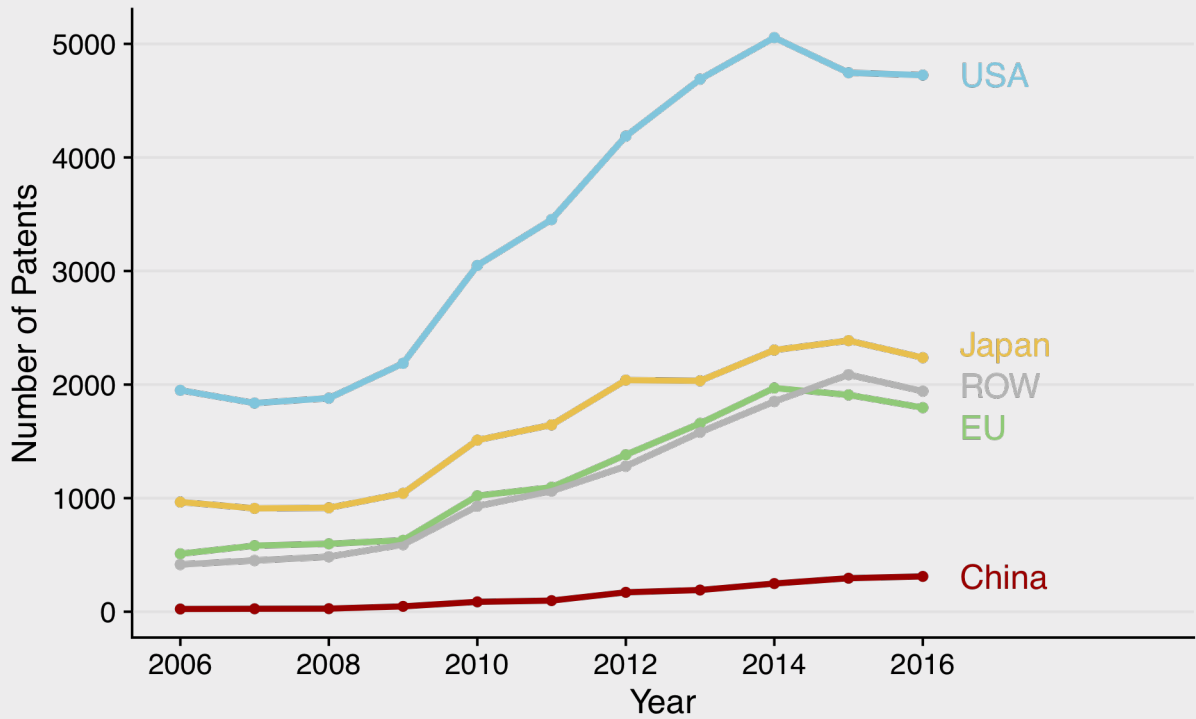


# US & China have complementary capabilities in low-carbon energy tech

US is global leader in  
*Invention*

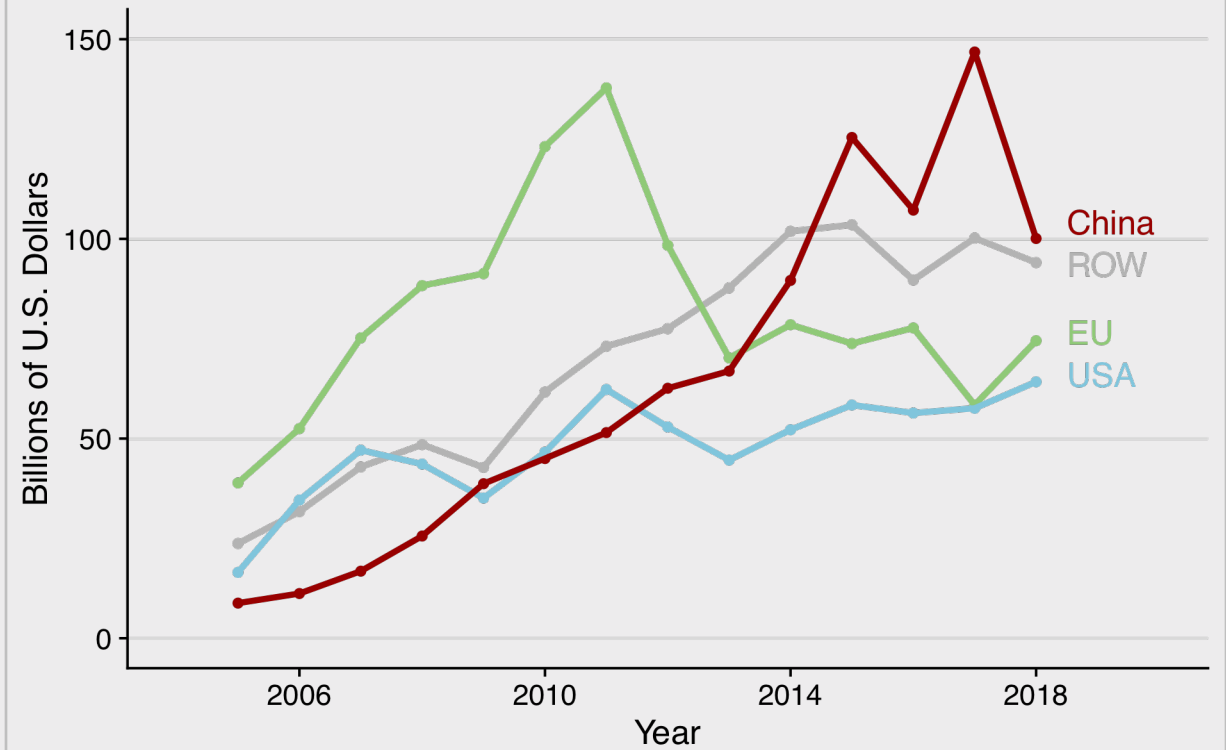
China is global leader in  
*Commercialization*

### USPTO Patents in Clean Energy Technologies



Data Source: 2018 U.S. National Science Foundation  
Science & Engineering Indicators

### New Investment in Clean Energy



Data Source: Bloomberg New Energy Finance

# Thanks!

jph@gwu.edu  
www.jhelvy.com

微信 (Wechat): jhelvy



Link to charts:

<https://github.com/jhelvy/charts>