

1. *Physical availability* of energy, i.e. energy surety, the historical bedrock of energy security, containing the components of
 - security of supply
 - self-sufficiency
 - energy diversification (in particular inclusion of renewable energy in the mix)
2. *Technology development*
 - maturity (of infrastructure)
 - energy (and grid) efficiency, energy conservation
 - transportation systems
 - decentralization, i.e. diffusion of small scale systems
 - research (intensity), development and innovation
3. *Economic affordability*
 - affordability of electricity and gasoline prices (in Purchasing Power Parity)
 - stability (i.e. lack of price volatility) and predictability of prices
 - competition, subsidization (per capita), profitability
 - energy intensity (i.e. electricity use per capita and monetary unit of GDP) and fuel economy of passenger vehicles
 - investment and trade, e.g. energy exports
4. *Social accessibility*, i.e. social stewardship
 - dependency (i.e. imported energy per capita)
 - electrification, i.e. percent of population with (reliable) access to grid
 - energy democracy, e.g. percent of households that are fuel poor
 - social equity, e.g. percent of households relying on traditional energy sources (such as wood) for cooking and heating
 - consumer education and attitudes, e.g. towards renewable energy sources ([Paravantis et al., 2018](#); [Stigka, Paravantis & Mihalakakou, 2014](#))
5. *Governance*
 - type of polity (democracy or otherwise); both small and big polity entities (countries) may be doing well in respect to energy
 - political stability, e.g. years since previous regime change
 - geopolitics, interconnectedness and (international) governance (e.g. as depicted in worldwide governance rating)
 - data quality and intelligence (which, may be a separate dimension [IK])
 - military power
 - transparency and accountability (i.e. lack of corruption)
 - regulation and “fit” energy policies, e.g. catering to all societal energy tribes ([Caputo, 2009](#); [Thomson, 1987](#))

6. *Manmade threats to energy infrastructure*

- perhaps include war to the governance dimension or ignore war (its effect is included in availability)
- perhaps include only asymmetric/paramilitary/nonconventional threats (conducted by actors other than nations, like organizations) in this dimension e.g. Iranian revolution, Arab Spring?
- accidents caused by human error
- durability and safety (of infrastructure)
- terrorism incidents, including cyber threats

7. *Natural environment*

- (existence of) tragedy of the energy commons, resource curse
- environmental pollution, e.g. SO₂ emissions (per capita) and their mitigation
- global climate change, e.g. CO₂ emissions (per capita) and their mitigation
- forest cover, land use (management)
- water availability, i.e. quality and quantity, (lack) of water stress and scarcity, population access to improved water
- environmental (sustainability) management
- human health issues and fatalities caused by environmental threats, e.g. (high concentration of) toxic substances
- black-swan type of natural disasters