

Iran's Energy Options

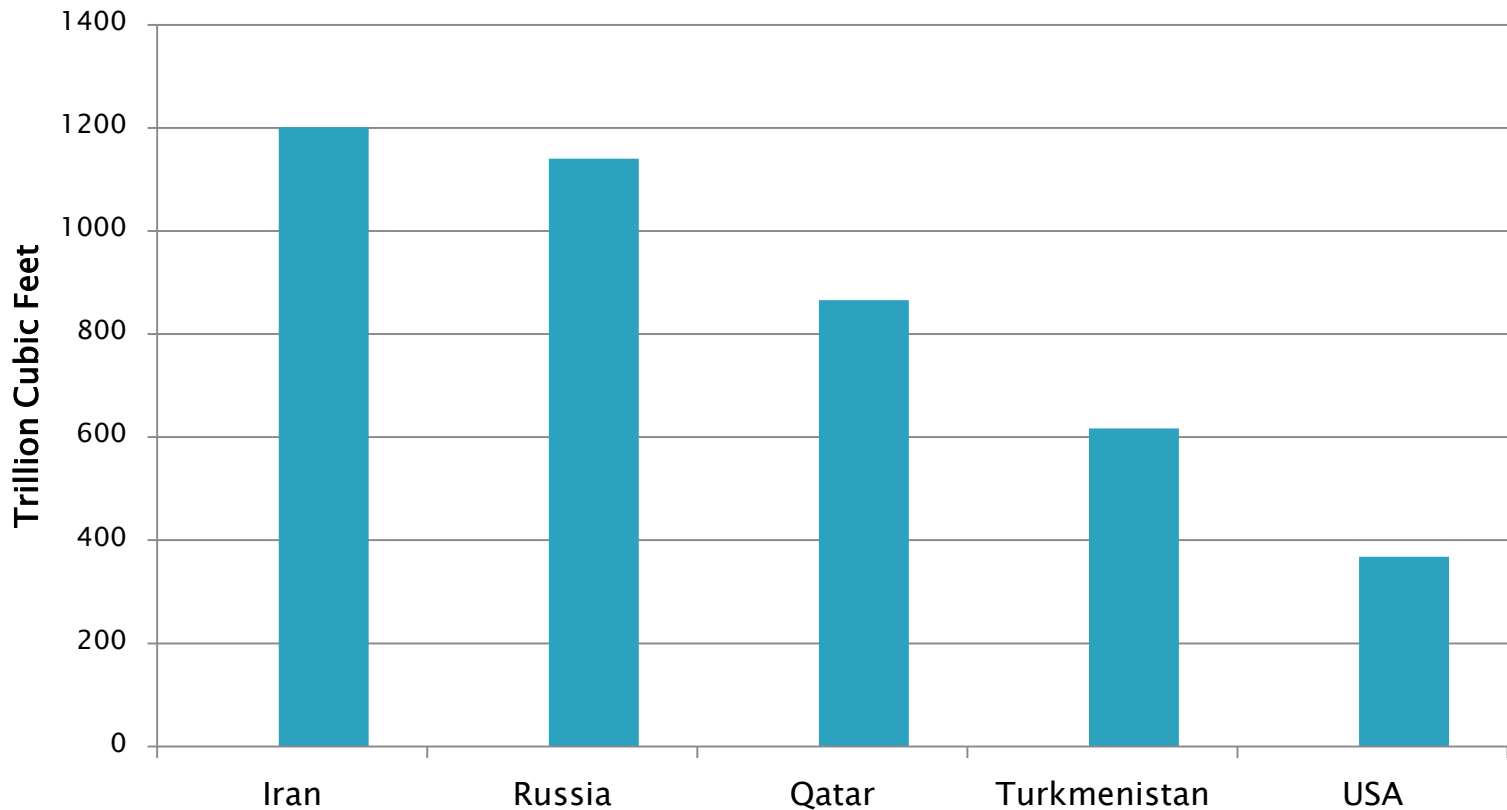
NPEC Retreat, March 4, 2017

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Iran Is An 800 Lb. Gorilla of Gas

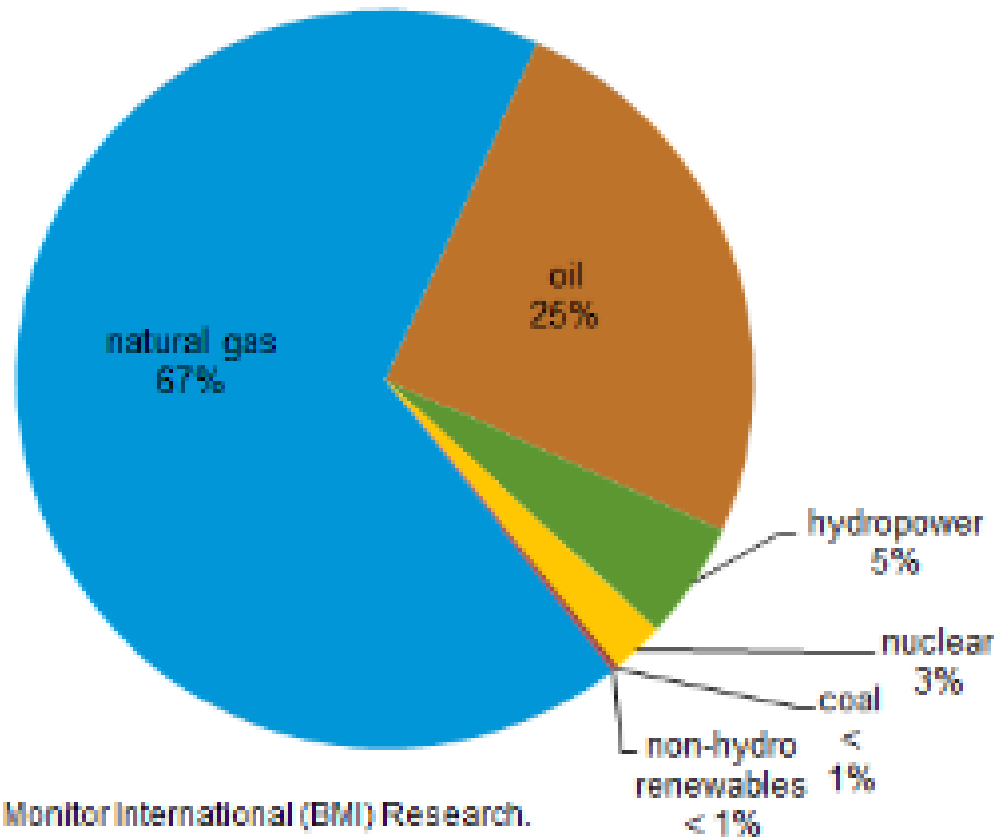
Global Natural Gas Reserves - 2015



Source: 2016 BP Statistical Review of Energy

Gas Dominates Iran's Energy Mix

Iran's electricity generation capacity, by fuel , 2013



Source: Business Monitor International (BMI) Research.

Iran's Non-Fossil Alternatives

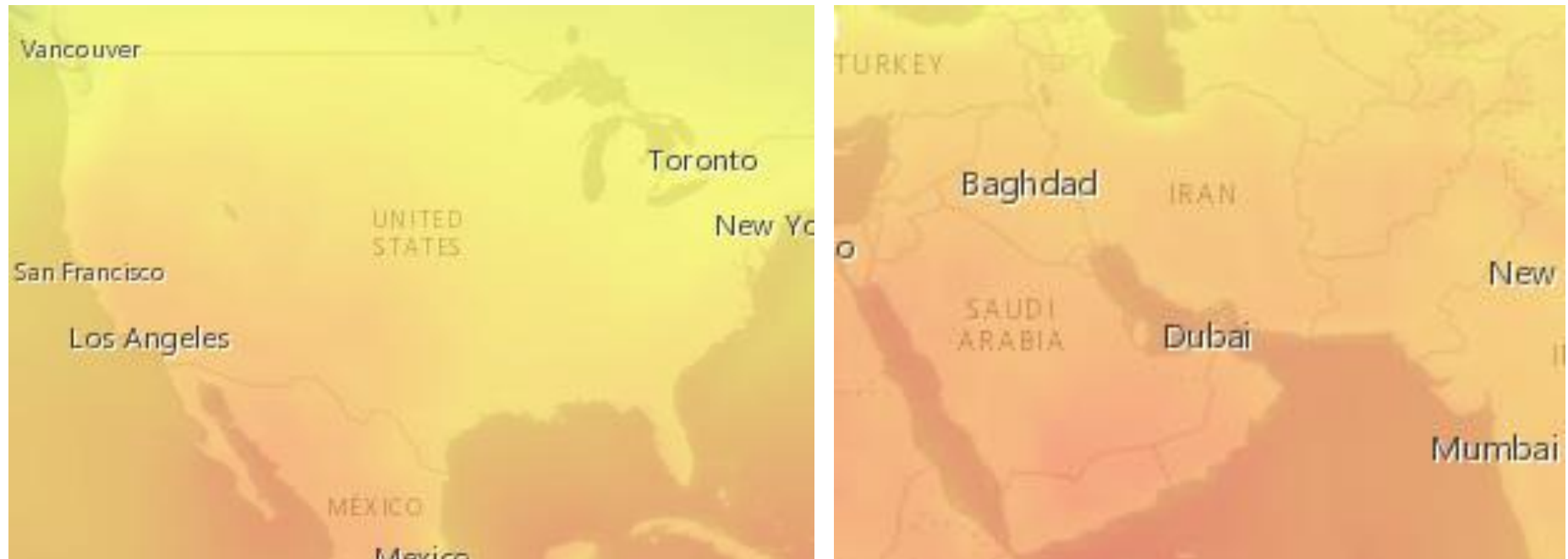
- ▶ Nuclear
- ▶ Renewable Energy (hydro/wind/solar)
 - Dramatically more competitive than last decade
- ▶ What's the driver?
 - Climate concerns?
 - Signatory to Paris but haven't ratified (132/197 have)
 - INDC promises small GHG cuts
 - Oil & Gas displacement for export?
 - Alternatives must cost less than HC for this to pay off
 - Displaced fuel oil would require upgrading for export
 - Air Quality?



A general view shows smog over northwestern Tehran, Iran, Nov. 23, 2010.
(photo by REUTERS/Raheb Homavandi)

Iran's Excellent Solar Resource

Annual Solar Irradiance, Peak-Sun Hours

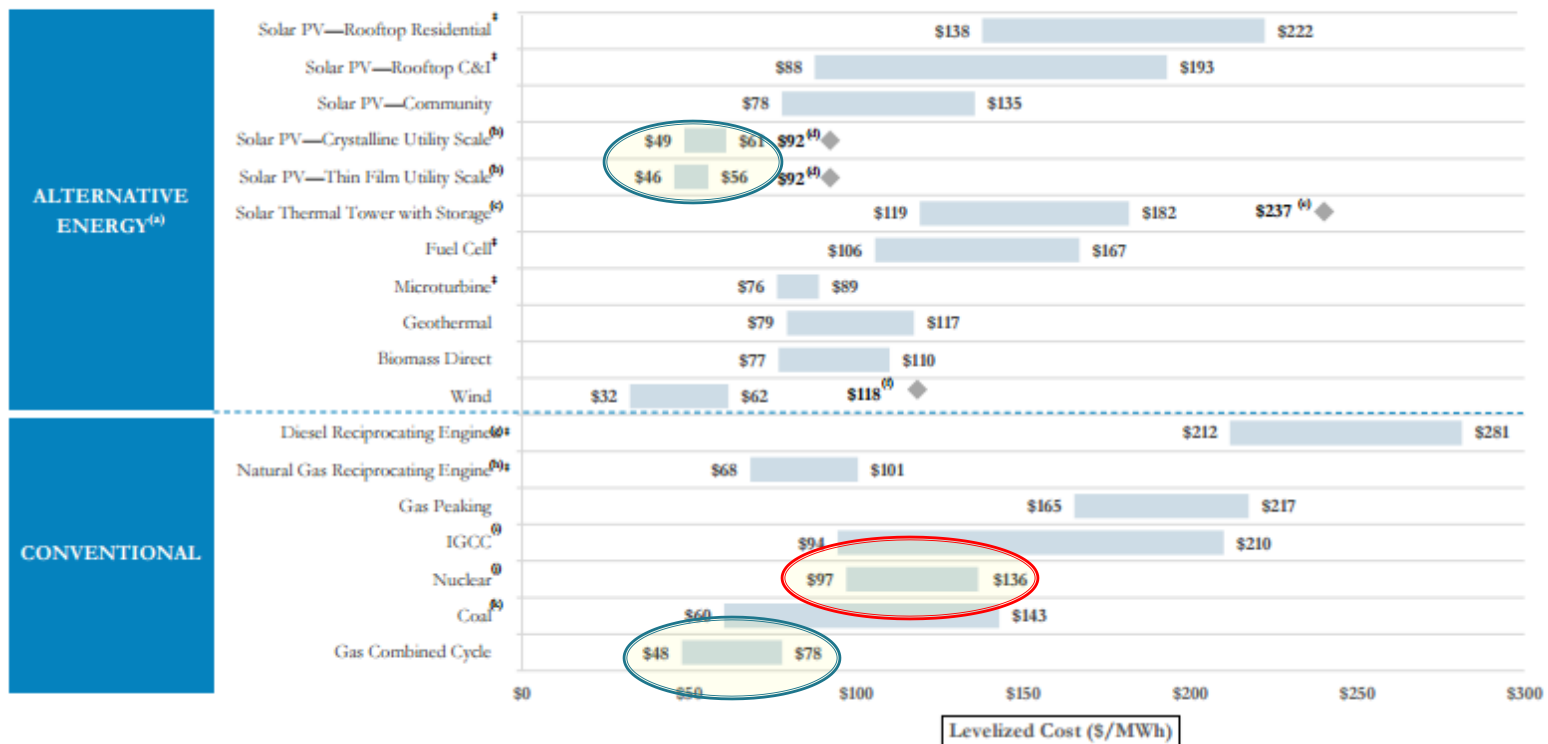


Source: NASA SSE GIS

Cost of Energy Comparisons

Unsubsidized Levelized Cost of Energy Comparison

Certain Alternative Energy generation technologies are cost-competitive with conventional generation technologies under some scenarios; such observation does not take into account potential social and environmental externalities (e.g., social costs of distributed generation, environmental consequences of certain conventional generation technologies, etc.), reliability or intermittency-related considerations (e.g., transmission and back-up generation costs associated with certain Alternative Energy technologies)

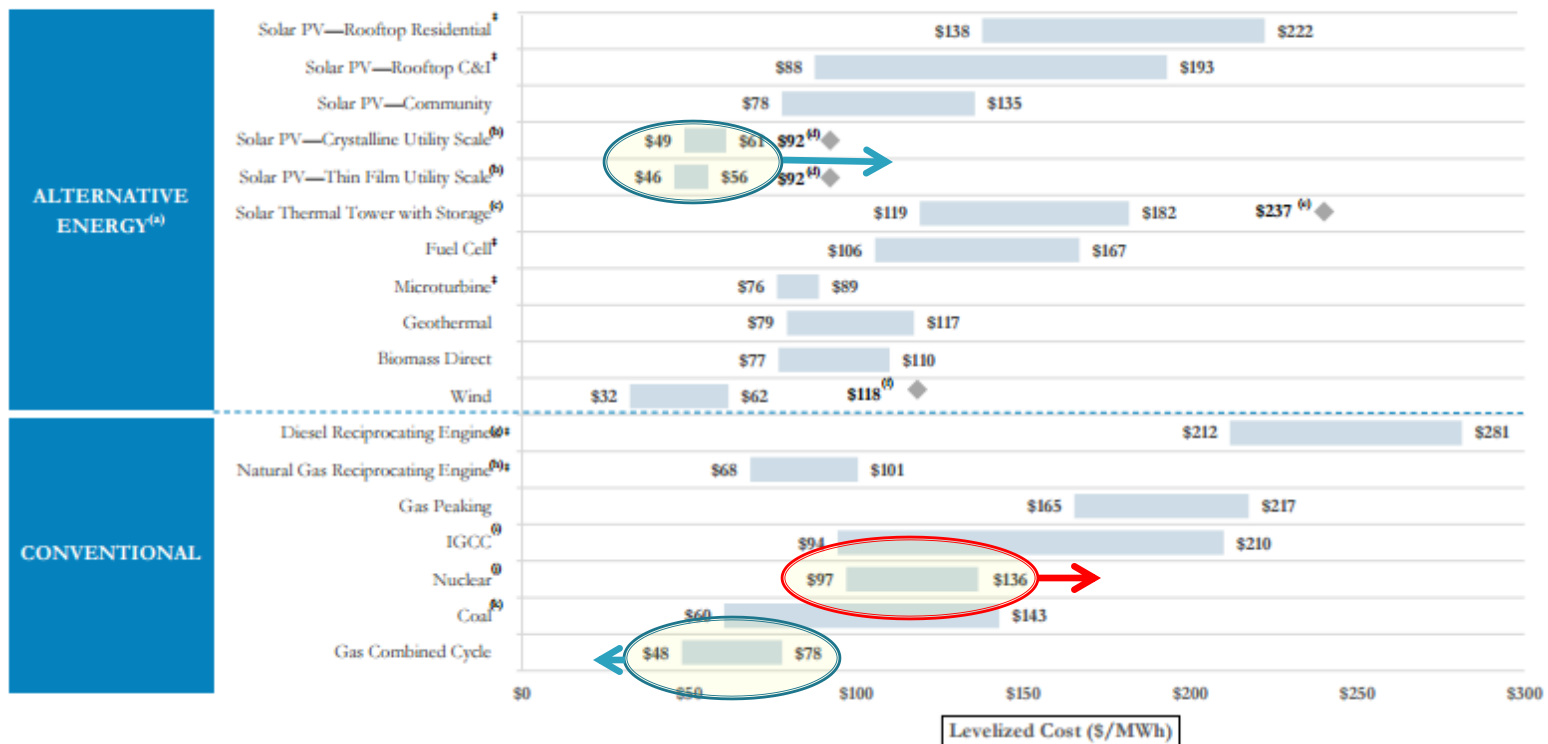


Source: Lazard “Levelized Cost of Energy Analysis – Version 10.0”

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