

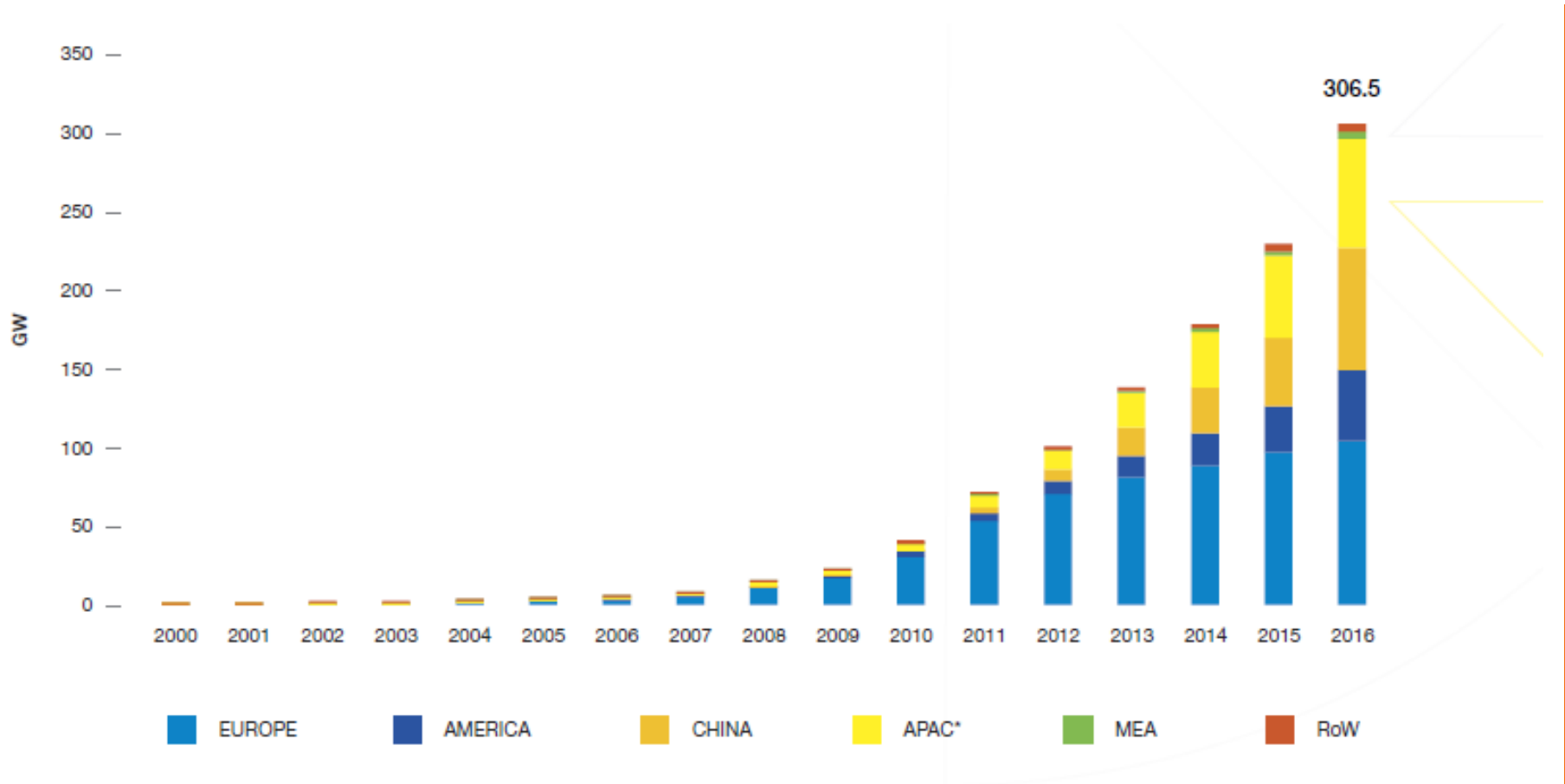
Afghanistan PV Market Outlook: Riding on global trends

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Dubai, Sept. 26th, 2017



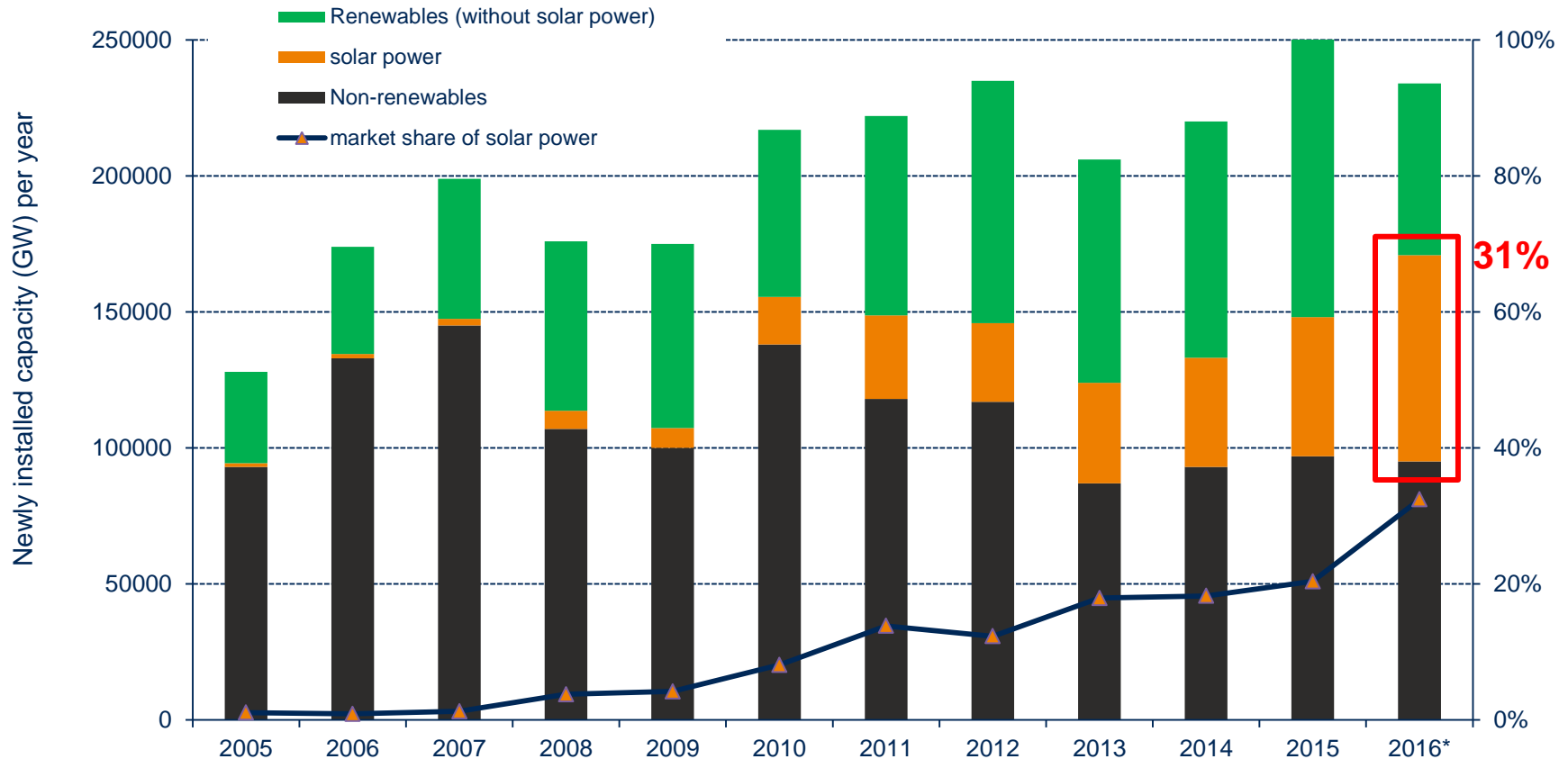
Annual increase of Solar PV results in >300 GW global installed capacity (2016) – Asia is far ahead!



*APAC excl. China

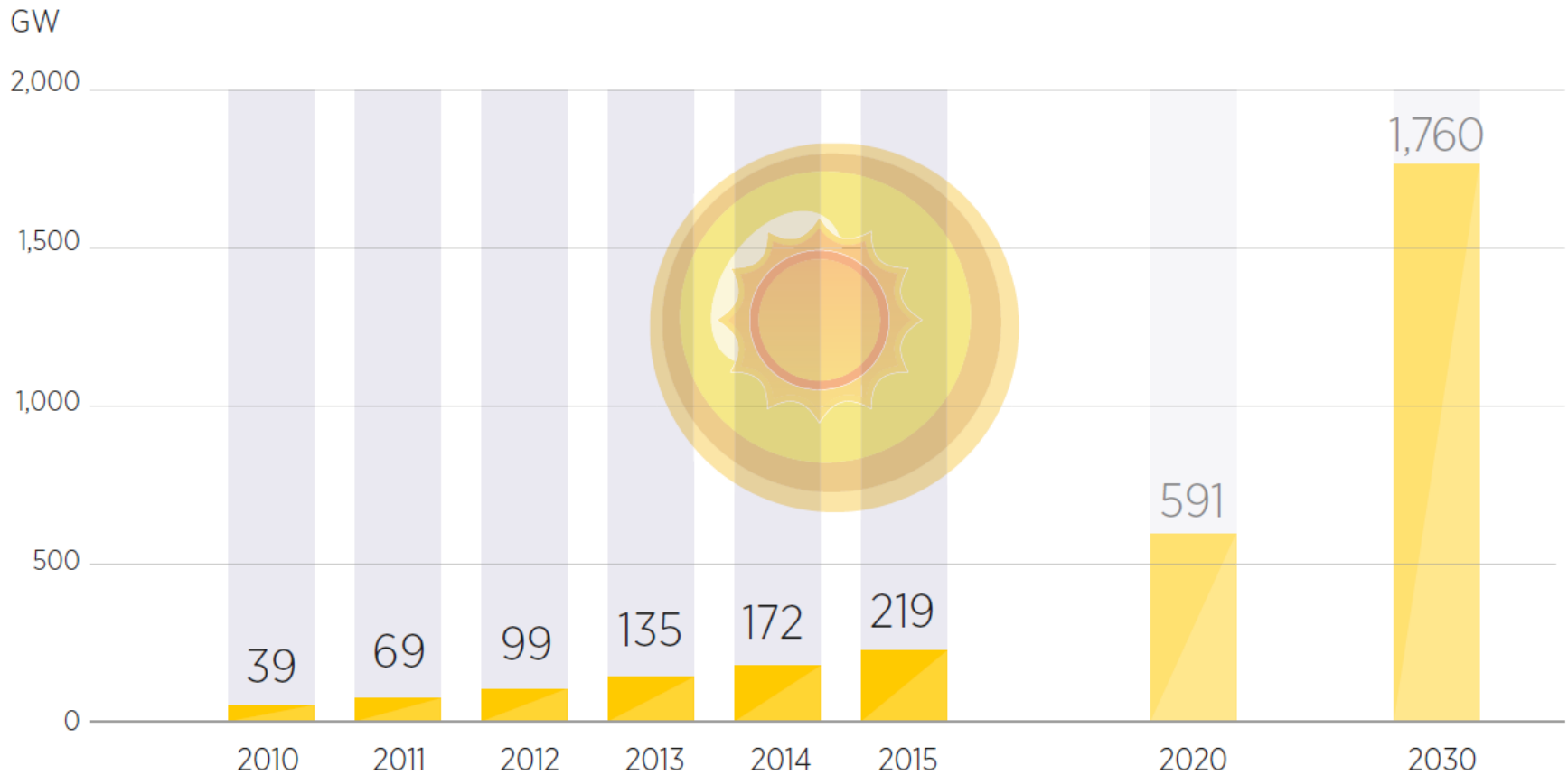
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In 2016, PV made up 1/3 of all newly installed power capacity (global, incl. fossil) - more than ever before



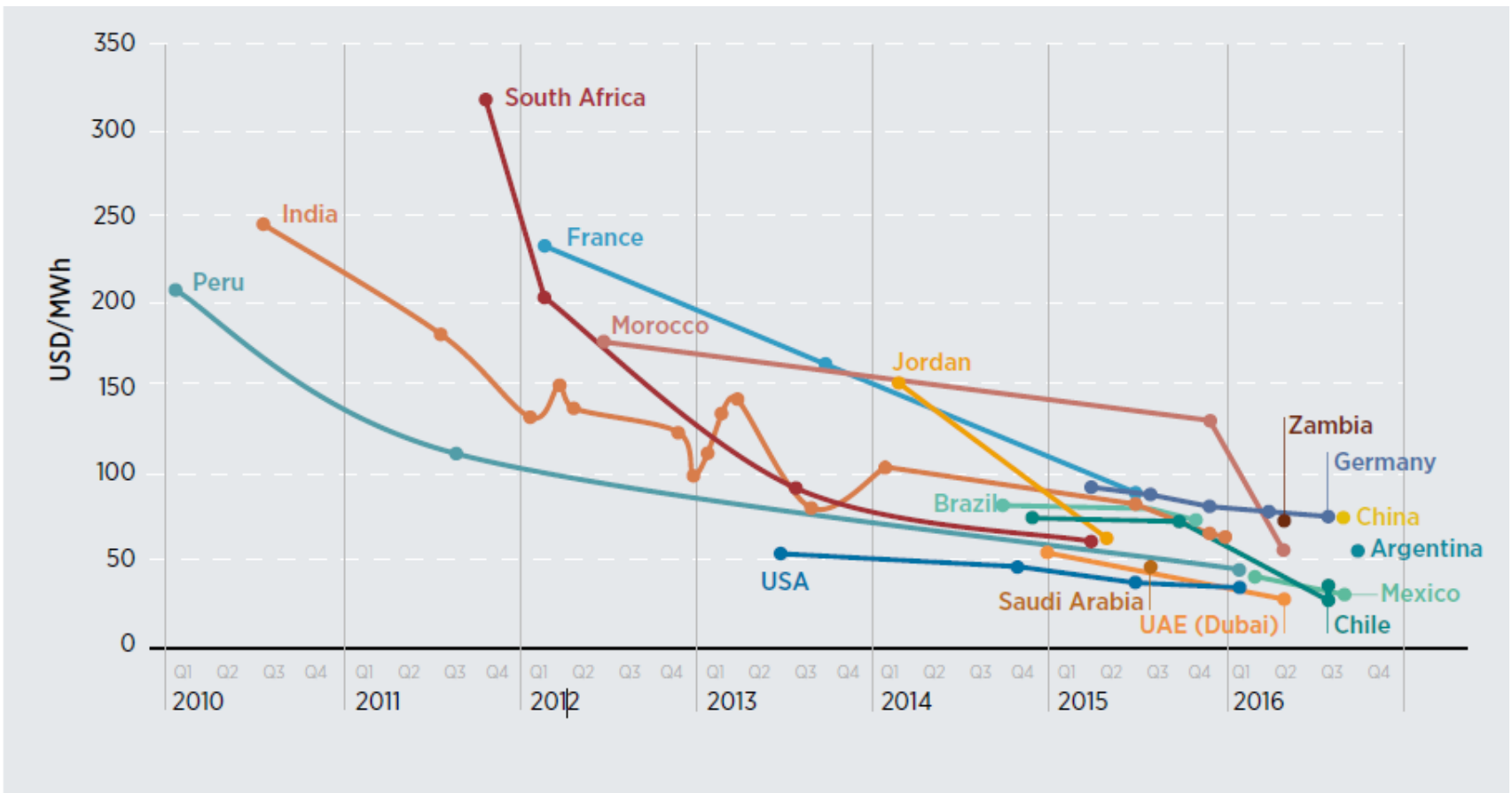
* preliminary, estimation BSW-Solar e.V.
Source: IRENA, 4/2017

Solar PV installed capacity will exceed 500 GW in 2020 and triple till 2030 (IRENA)



Source: IRENA, 2016d; IRENA, 2016i

Prices for auctioned PV have decreased, mostly below 10US\$cent per kwh

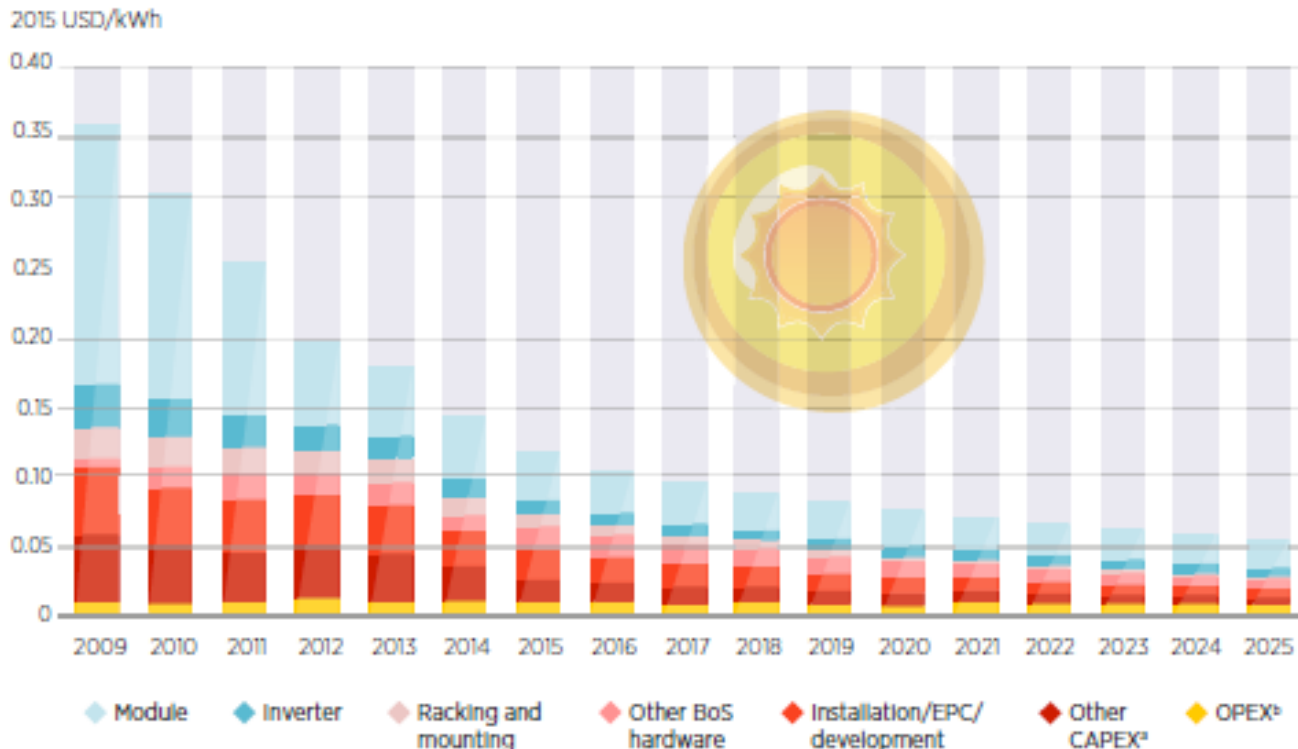


IRENA, 2017 (forthcoming).

Prices for modules, installation and other CAPEX have shrunked sharply and will continue



- Global weighed average utility scale solar PV LCOE, actual (-> 2015) and projected (2016->) according to IRENA 2017



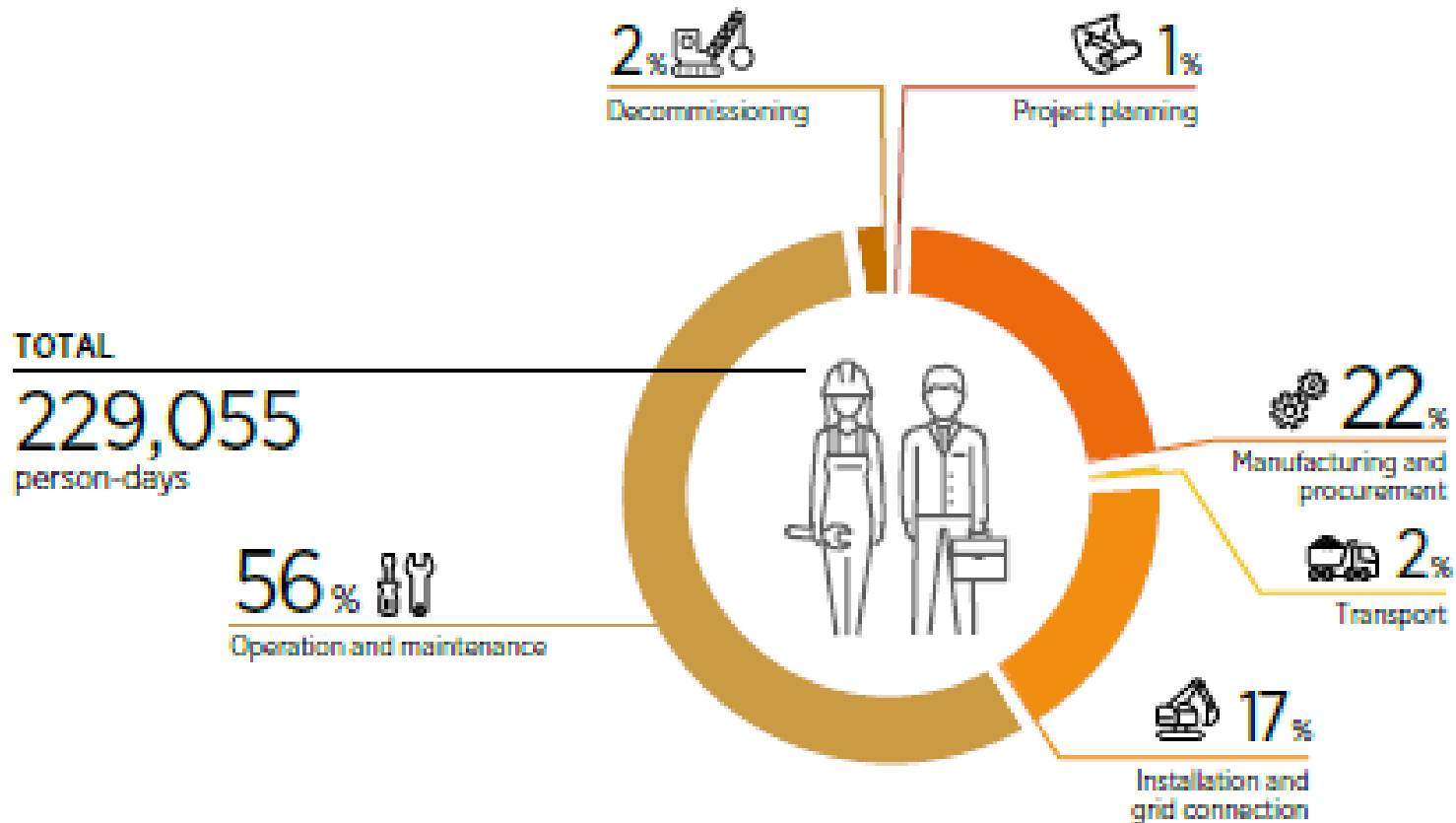
Note: a) CAPEX = capital expenditures, b) OPEX = operating expenses

Source: Results use a 7.5% weighted average cost of capital (WACC); all other input assumptions are from IRENA (2016p)

^a This estimate assumes that 200-300 TWh solar PV replaces coal power plants, which operate at 35% efficiency and emit 1 million tonnes of CO₂ per TWh.

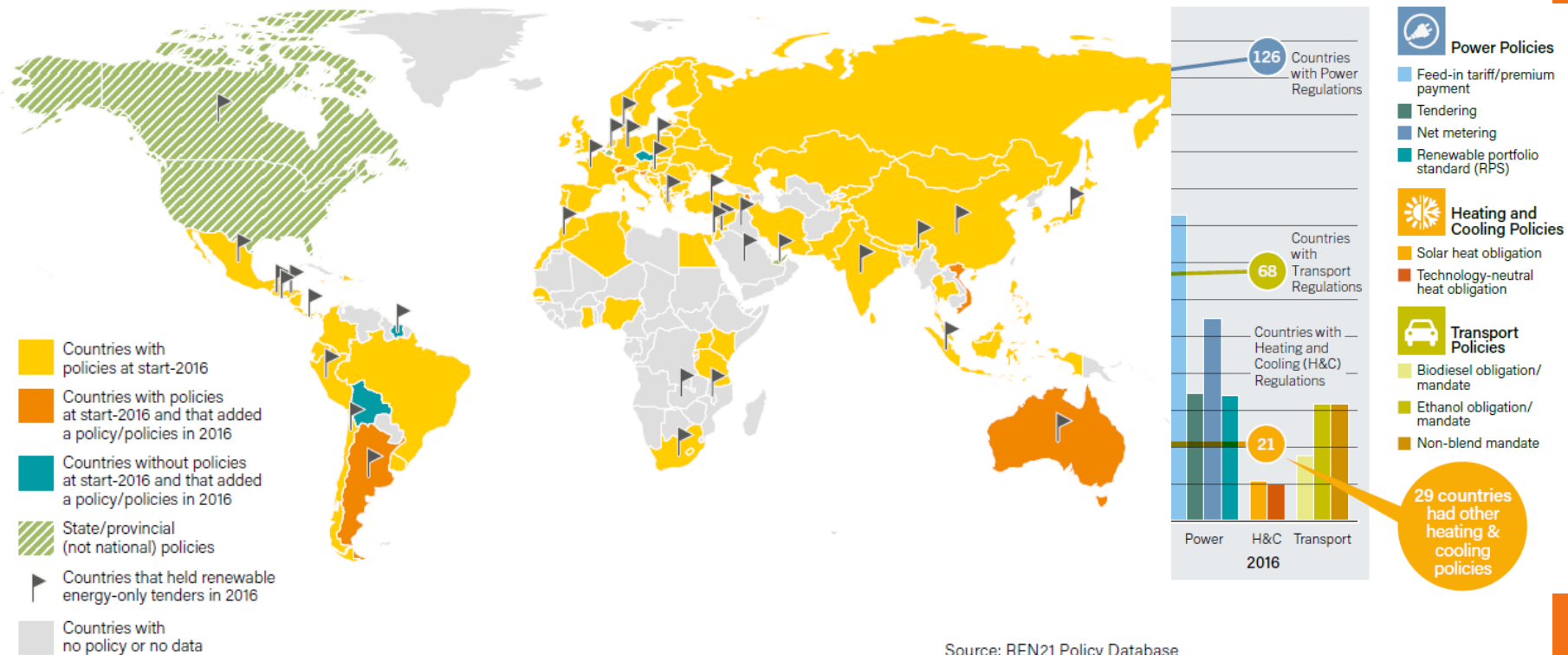
Most jobs are created in the downstream solar business, where the plants are installed

- Distribution of human resources required along the value chain for the development of a 50 MW solar PV plant by activity (IRENA 2017)



Dense world map of renewable power policies and increasing number of FiTs compensate for market inadequacies

Figure 46. Countries with Renewable Energy Power Policies, by Type, 2016



Source: REN21 Policy Database

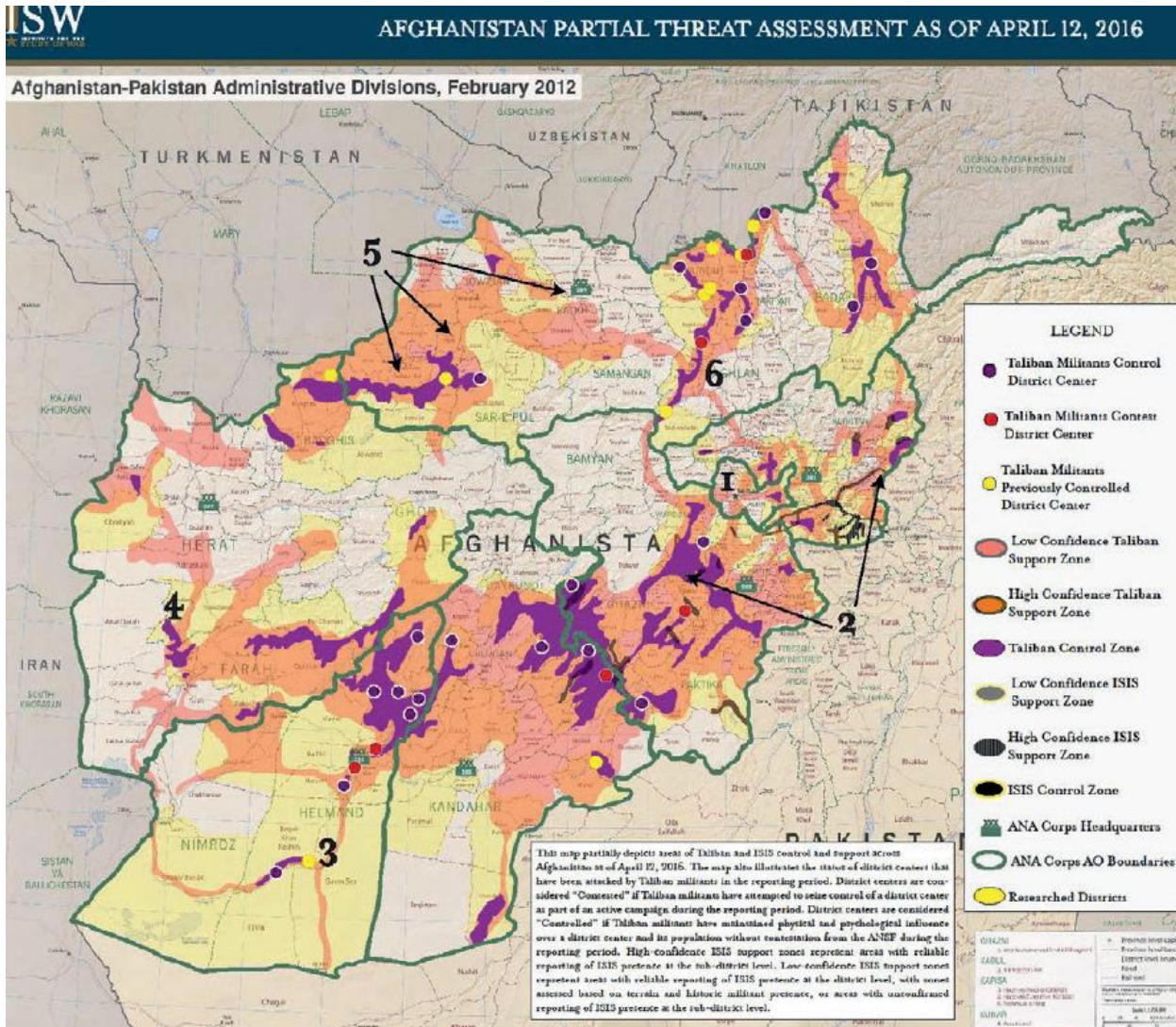
Note: Figure shows countries with Renewable Portfolio Standards, feed-in tariffs/premium payments and net metering policies. Countries are considered to have policies when at least one national-level policy is in place; these countries may have state/provincial-level policies in place as well. Diagonal lines indicate that countries have no policies in place at the national level but have at least one policy at the state/provincial level.

Afghanistan Business Outlook



- Afghanistan's formal admittance to the World Trade Organization (WTO) in July 2016 brought a large number of benefits, including: access to global markets, facilitation of transit and the resolution of trade disputes
- Though in the "ease of doing business", in 2016 the country ranked 182 of 190, in the activity "starting a business", Afghanistan had a good ranking (38th of 190)

Afghanistan Business Outlook: Security issues



- Parwan, Kapisa, Panjshir, Bamyān, Daikundi, and Samangan are among the safest places with min. casualty rates in the past 15 years.
- The central provinces and districts and their closer surroundings are also considered safe areas. These are the most populated areas of the country and have the potential for PV integration.
- Risks and costs need to be identified and covered. They should be included in the bid of tenders, which increase the PPA-tariff

Afghanistan Trade Conditions and Restrictions

- Currently, there are no deductions, legal or otherwise, including tax, value-added tax (VAT) for solar products in Afghanistan. According to the “Tariff Schedule, import & export” issued by the Afghan Customs Department, the following import taxes apply to imported photovoltaic products.
 - Photovoltaic cells whether or not assembled in modules or made up into panels: 2,5 percent
 - For batteries: 5 percent
 - For inverters: 5 percent

Conclusion: Afghanistan is a true challenge, but ready to become a significant PV market



- Afghanistan's solar market shows that the existing potential for PV systems can be gradually boosted over the next few years.
- Security provisions have to be closely followed, but this is not a criteria that excludes doing business in this market.
- Afghanistan will benefit from the ongoing global decline of the PV system price and will provide solar energy below prices of non-subsidized fossil energy
- Mainly donor-based projects or projects with predominant equity financing are financially viable
- New or extended financing schemes (esp. small tickets) will explore potential in the fields of RESCO- and rooftop net-metering business