

#IRENAinnovation



IRENA INNOVATION WEEK

The Age of Renewable Power

Deep-dive Session 6

Advancing the frontiers of reliability and quality

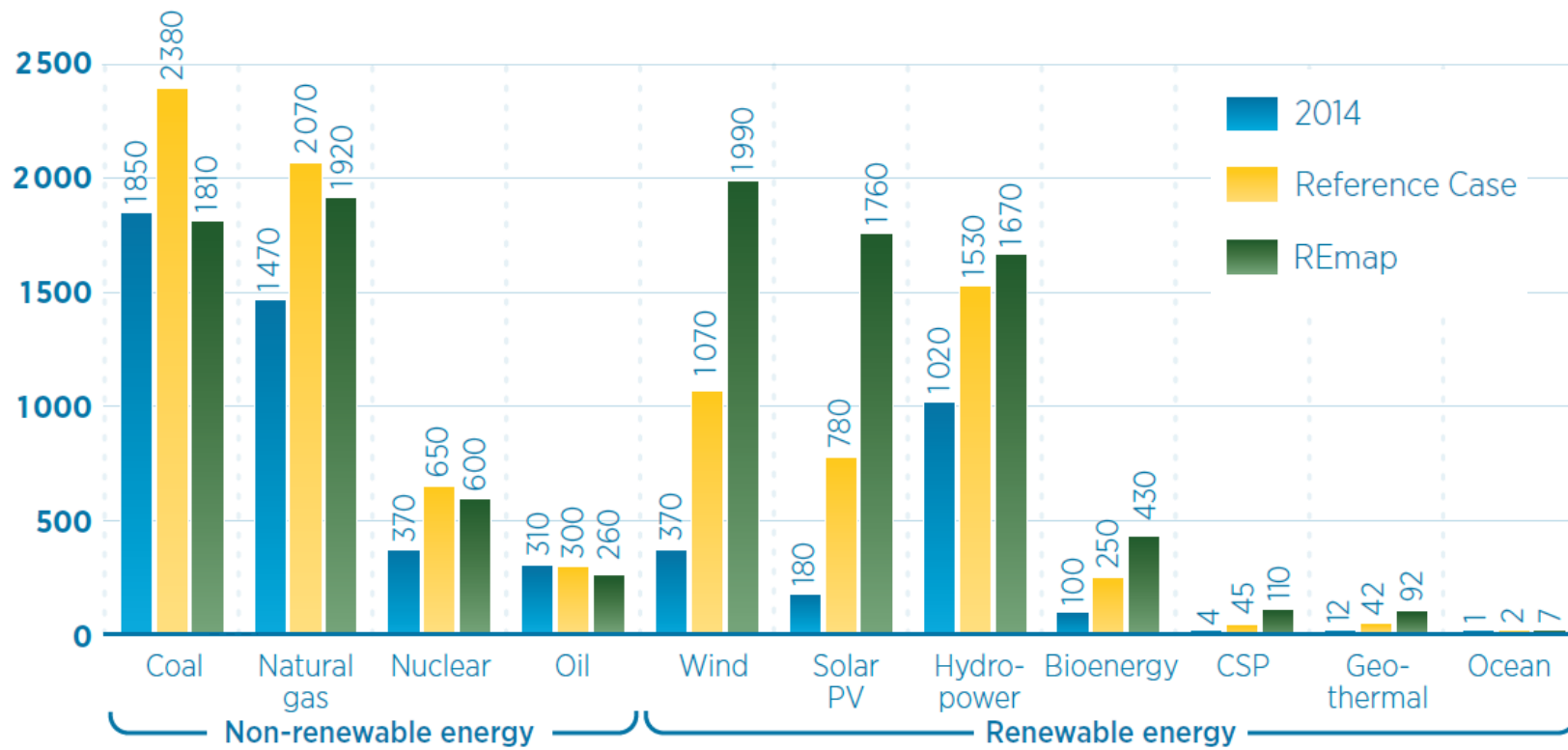
11 – 13 MAY 2016 • BONN, GERMANY

The case for quality control

Doubling RE share by 2030 will need annual investments to rise from USD 360 billion in 2015 to **USD 1.3 trillion** by 2030.

Installed capacity for renewable power generation, by technology, 2014-2030

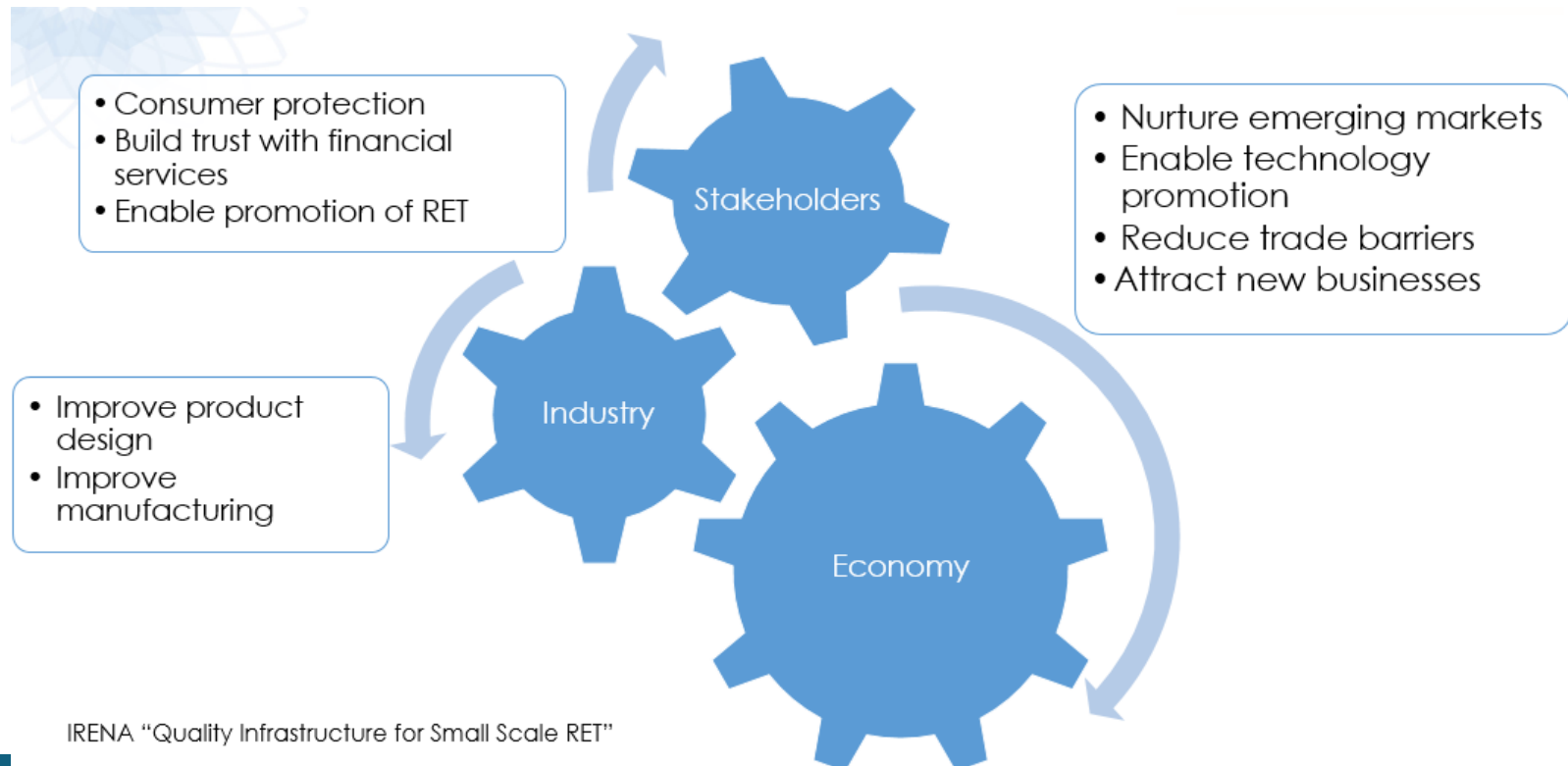
Power generation capacity (GW installed by 2030)



Nurturing rapidly growing RE markets

Which instruments do we have to mitigate technical risk, attract investment and public acceptance, and meet expectations by all stake holders in a USD trillion market?

International standards and conformity assessment scheme



IRENA activities in Standards and Quality for RET

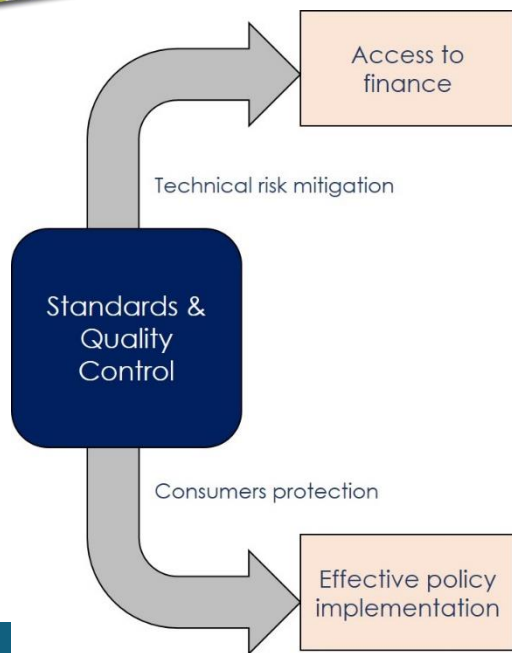


Available

- Policy guidelines to implement quality infrastructure
- Analysis on quality control for Solar thermal in residential sector and Small wind turbines
- Advisory services to the Latin American Region on solar thermal and China on small wind
- Launch INSPIRE platform

2016-2017

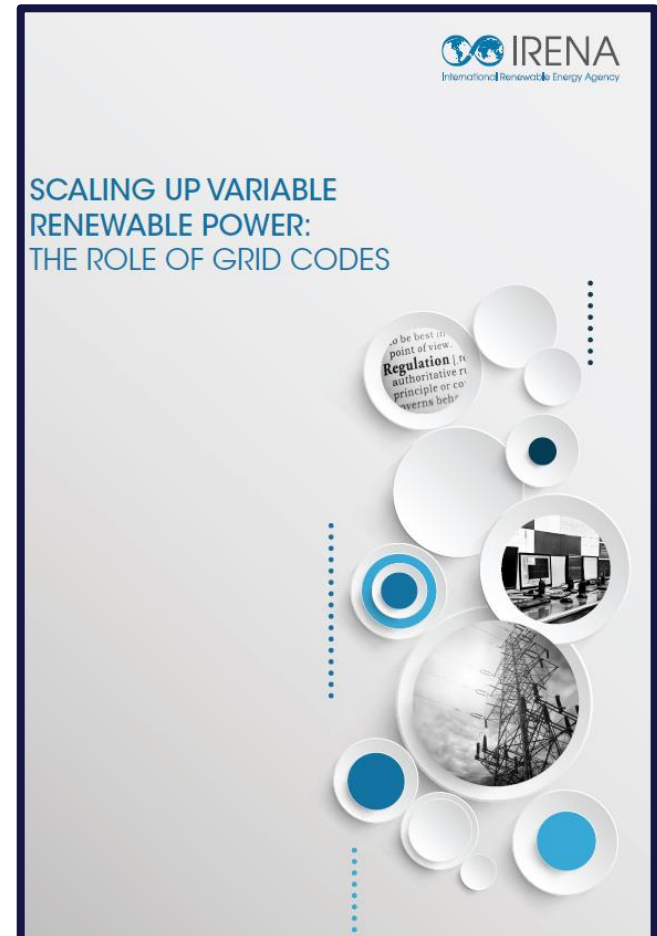
- Grid connection codes
- Quality control guidelines for PV systems
- Standardisation for smart grids
- Continue regional and country support to implement quality control for renewables – China offshore wind, LAC solar thermal, Africa PV systems (VCs needed)
- Strengthen partnership with: ISO, IEC, PTB, UNIDO, WWEA and industry



Standards and Technical Regulations for Integration of VRE in Electricity Grids

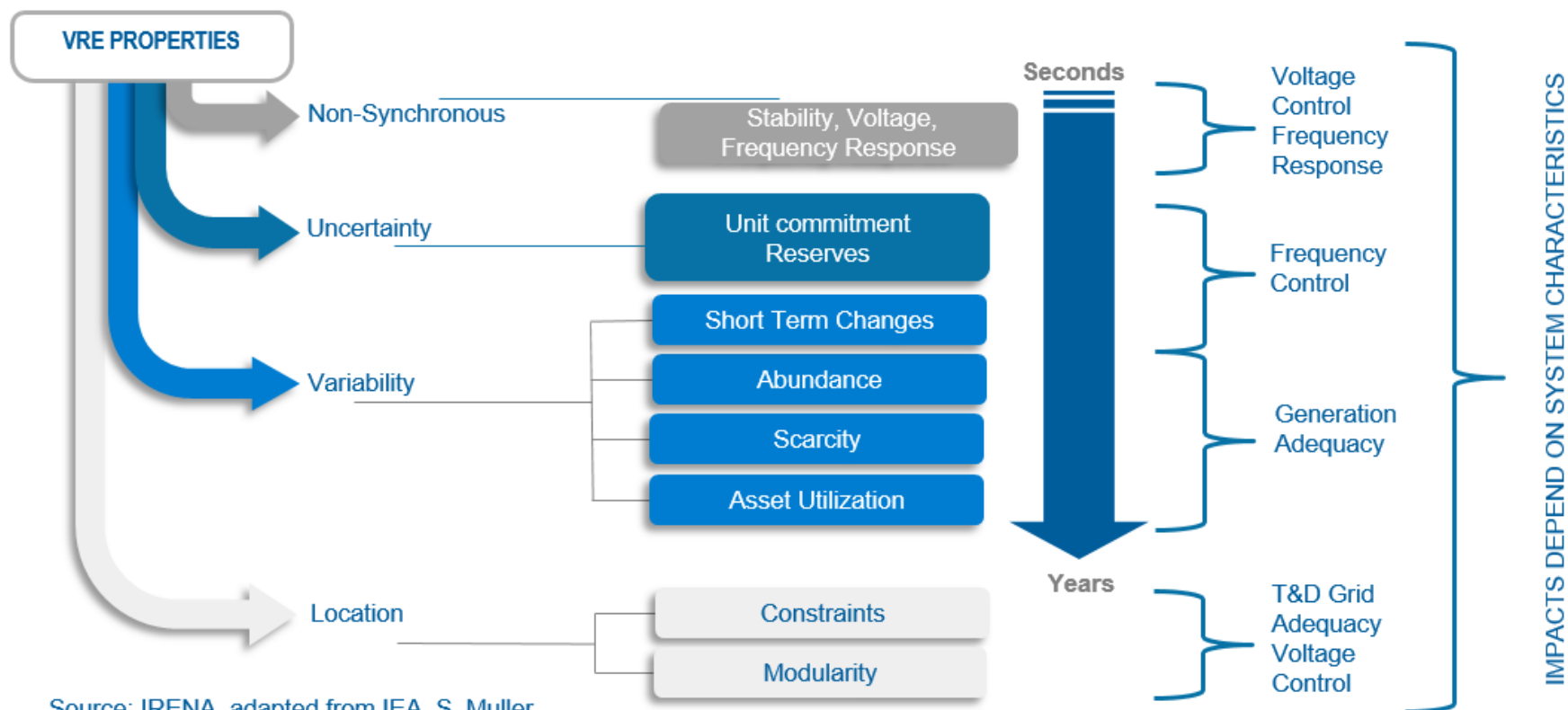
New IRENA report released today

- Collects good practices and lessons learnt from different countries in developing grid codes
- Provides clear guidelines for countries, with ambitious targets for VRE, on how to design and implement a grid connection code considering local conditions and policy targets



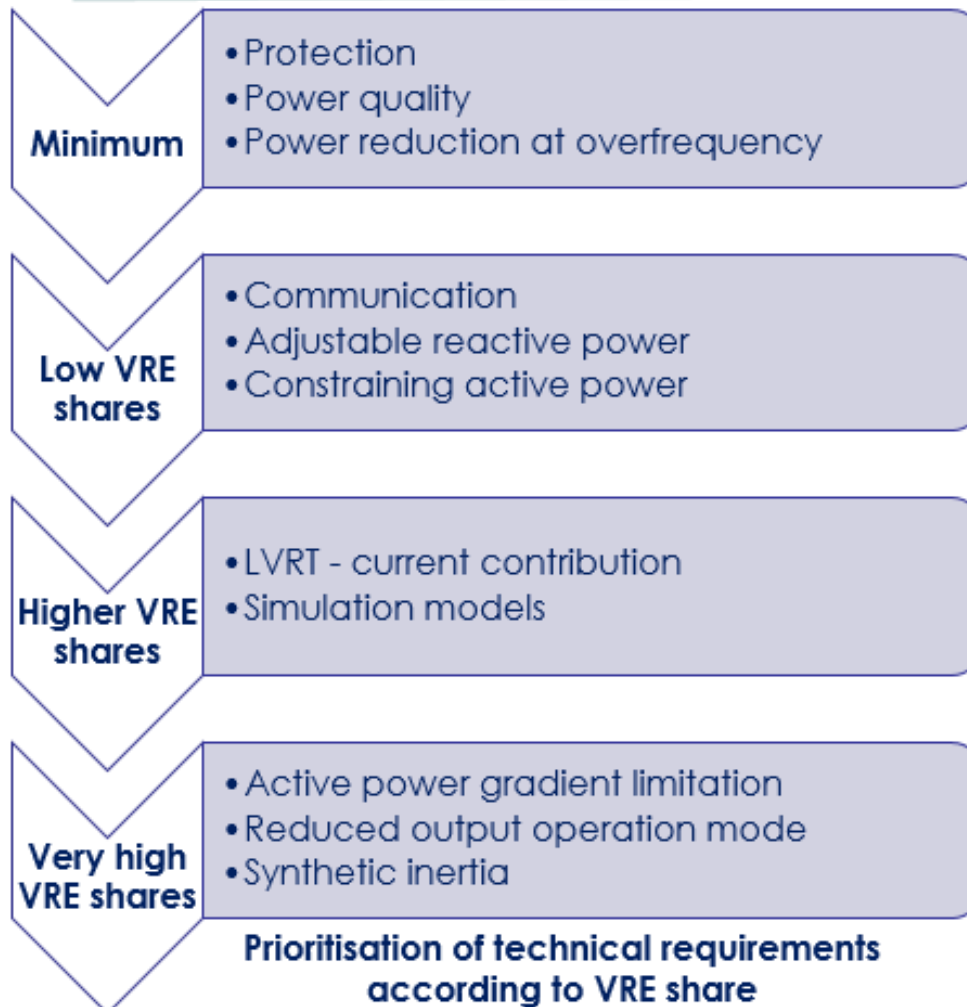
Challenges of VRE grid integration

- Time-dependent availability
- Generation geographically and voltage level non-centralized but distributed (DG)
- New technology features, non-synchronous generators and power electronic converters



Implementation of grid connection codes

Technical requirement



Country cases

IRELAND

- High share of wind power and limited interconnections → focus on frequency control requirements

GERMANY

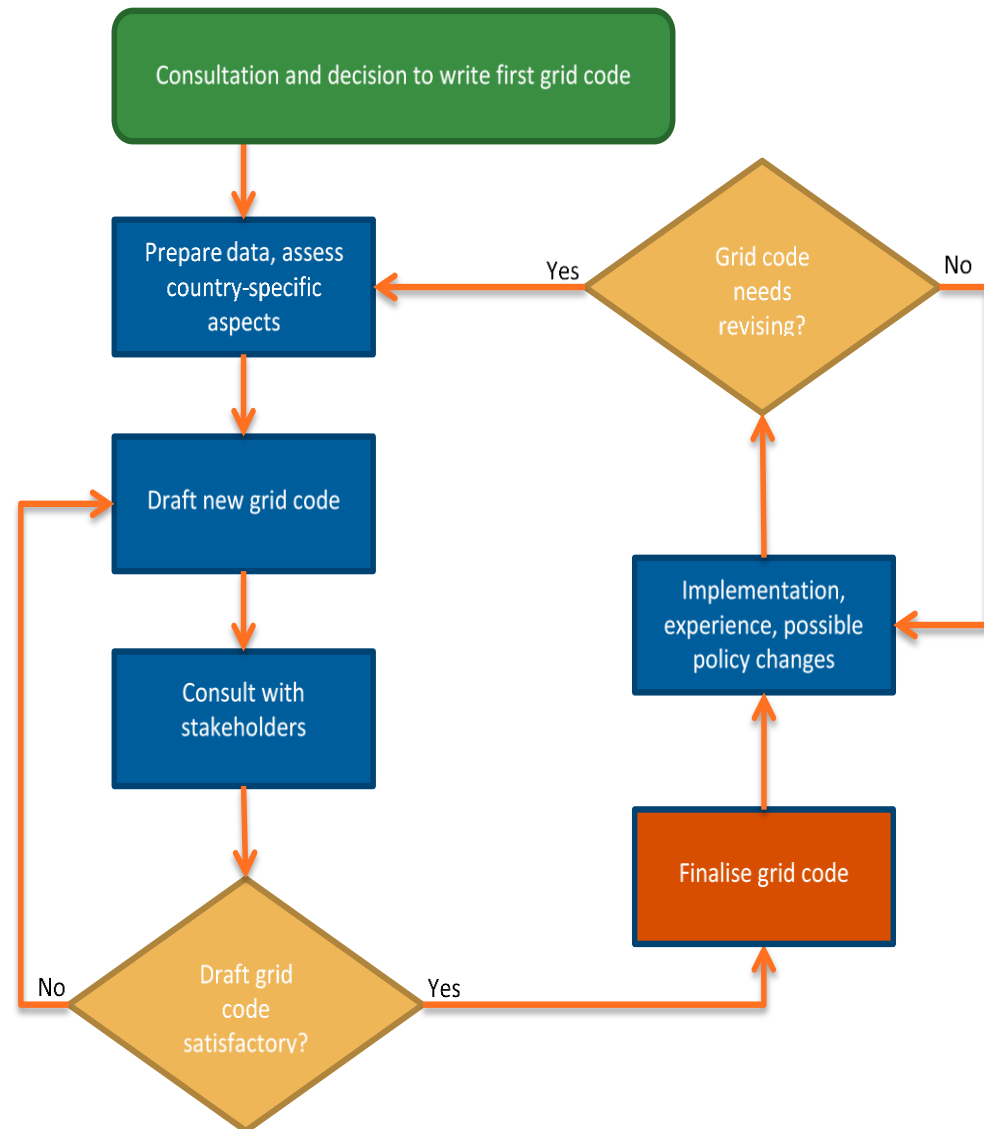
- Significant penetration of PV systems in low-voltage networks → reactive power capabilities in distribution systems

AUSTRALIA

- National sub-systems → different requirements within the country

Key messages

- Grid codes collect and enforce appropriate solutions to the challenges of integrating VRE in grids
- Grid codes interlink technology, operation and policy
- Grid codes bring all stakeholders of power systems together, creating a power sector play field
- Consideration of local conditions is crucial



Download the report for free at:
www.irena.org/Publications



Thank you

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