



# PPPs in the Energy Sector (Including Renewables) General Overview

Ana-Katarina Hajduka

[ana-katarina.hajduka@trinityllp.com](mailto:ana-katarina.hajduka@trinityllp.com)

---

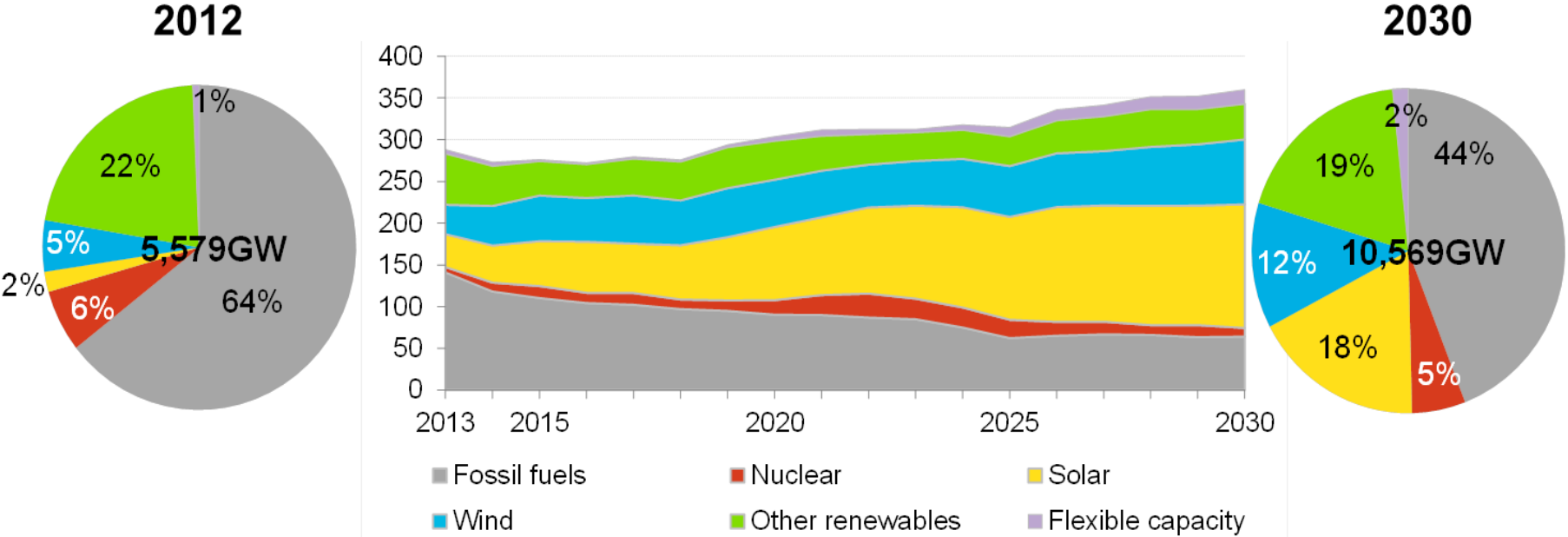
July 10 2014

# Global Energy Infrastructure Investment Requirements Overview

- ❖ More than \$1600 billion was invested in 2013 to provide the world's consumers with energy
- ❖ Investment in renewable energy increased from \$60billion in 2000 to approaching \$300 billion in 2011
- ❖ Cumulative global investment bill up until 2035 is more than \$48 trillion – including:
  1. \$23 trillion in fossil fuel extraction, transport and oil refining
  2. \$10 trillion in power generation of which low carbon technologies – renewables (\$6 trillion) and nuclear (1trillion) account for almost three quarters
  3. \$7 trillion in transmission and distribution

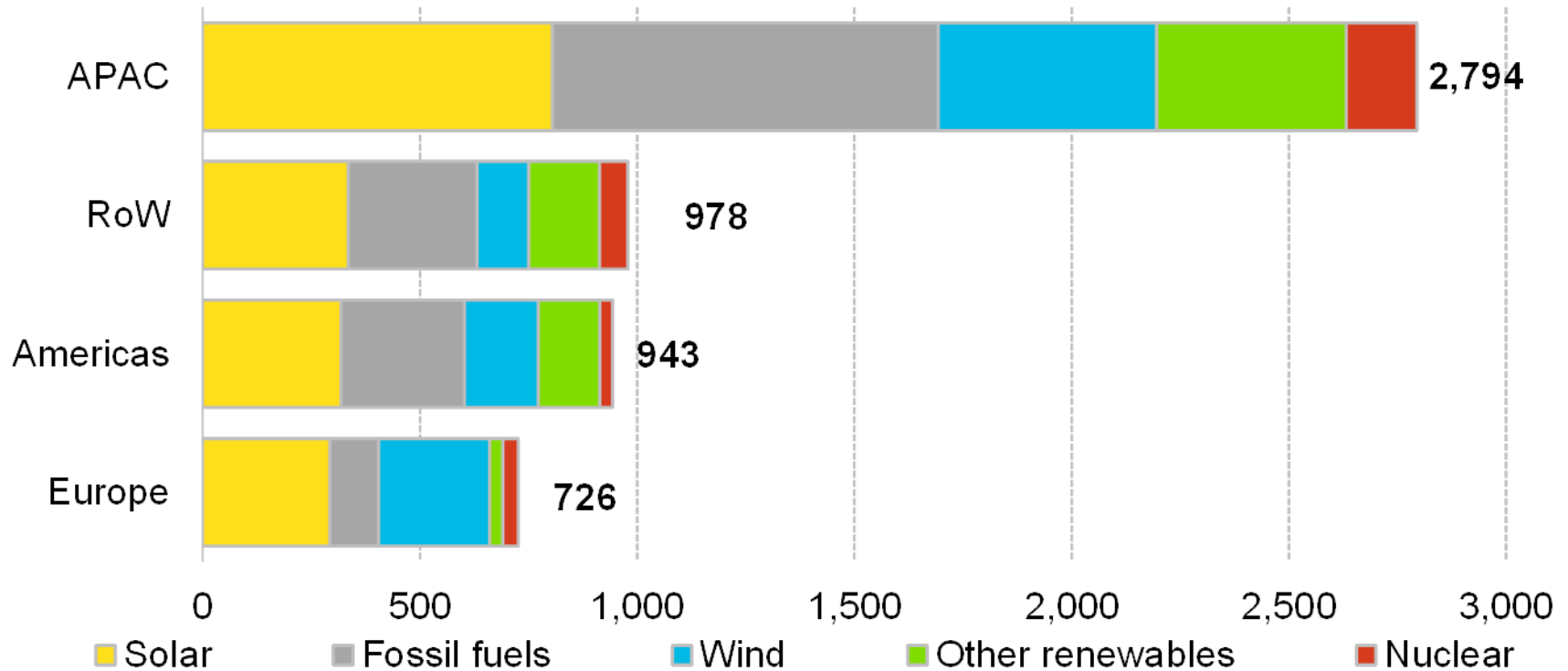
Source: IAE World Energy Outlook 2014

# Global installed generating capacity mix and projected additions, by technology (GW)



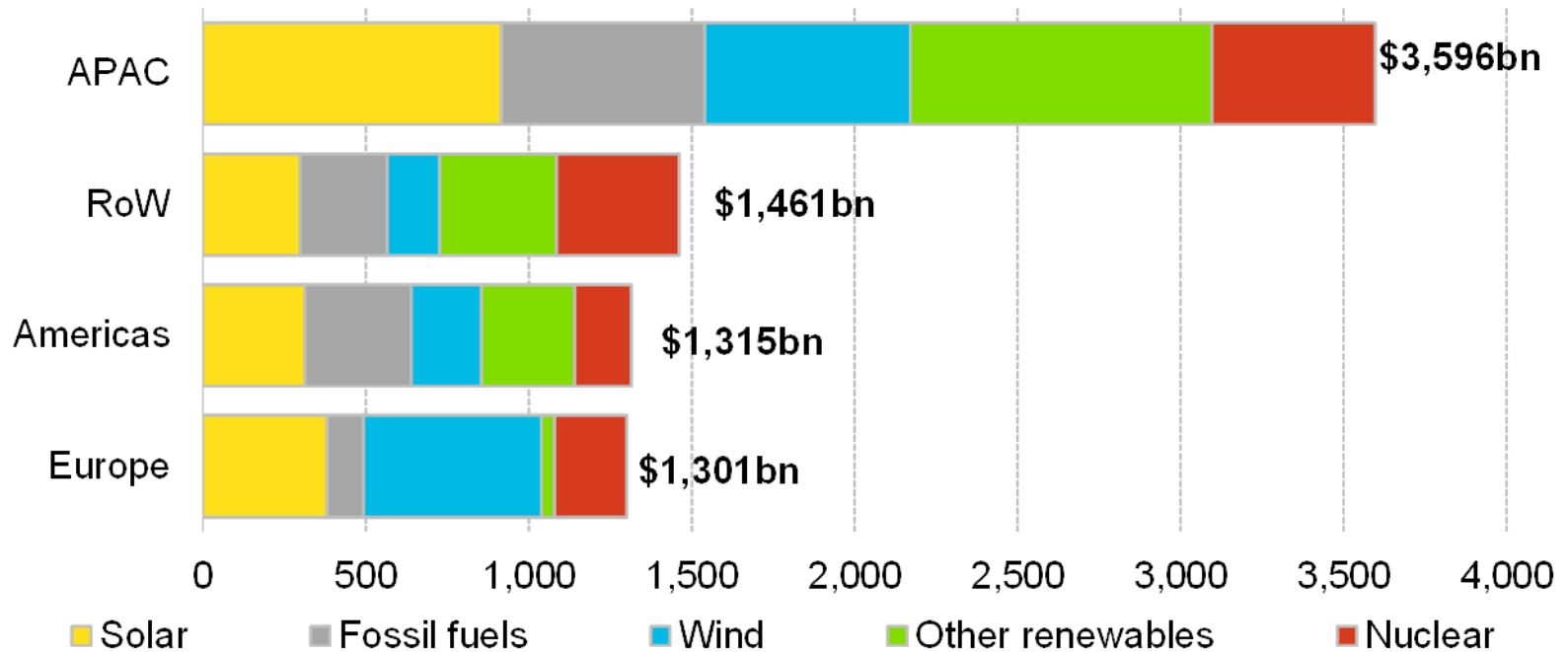
Source: Bloomberg New Energy Finance

## Gross capacity additions by region and by technology, 2013-30 (GW)




Source: Bloomberg New Energy Finance

## Capital investment by region and by technology, 2013-26 (\$bn nominal)



Source: Bloomberg New Energy Finance

# Renewable Energy Development Global Overview

		START 2004 <sup>1</sup>	END 2012	END 2013
<b>INVESTMENT</b>				
New Investment (annual) In renewable power and fuels <sup>2</sup>	billion USD	39.5	249.5	<b>214.4 (249.4)</b>
<b>POWER</b>				
Renewable power capacity (total, not including hydro)	GW	85	480	<b>560</b>
Renewable power capacity (total, including hydro)	GW	800	1,440	<b>1,560</b>
 Hydropower capacity (total) <sup>2</sup>	GW	715	960	<b>1,000</b>
 Bio-power capacity	GW	<36	83	<b>88</b>
 Bio-power generation	TWh	227	350	<b>405</b>
 Geothermal power capacity	GW	8.9	11.5	<b>12</b>
 Solar PV capacity (total)	GW	2.6	100	<b>139</b>
 Concentrating solar thermal power (total)	GW	0.4	2.5	<b>3.4</b>
 Wind power capacity (total)	GW	48	283	<b>318</b>

# Energy in Belarus

---

Imports of fuel and energy are around 85% of the total consumption of primary energy resources.

Energy and energy efficiency policy strategy of Belarus until 2020:

- ❖ Share of domestic energy resources in the energy balance — 30% in 2015 and 32% in 2020.

Concept of Energy Security of the Republic of Belarus (approved by Decree of the President of RB dated 17 September 2007 No. 433, hereinafter referred to as the Concept).

## **Key priorities:**

- ❖ Diversification of fuel resources and energy resources suppliers in energy mix due to:
- ❖ reducing the use of natural gas as the primary fuel for electricity and heat generation;
- ❖ constructing a NPP with an installed capacity of about 2,000 MW, coal power plants, HPPs (Zapadnaya Dvina and Neman);
- ❖ promoting the use of local fuels (wood fuel, peat, lignite and shale), RES, biomass, small HPPs and biofuel.

# Energy in Belarus

---

## National Programme of Local and Renewable Energy Sources Development for 2011–2015

- ❖ Wind energy potential: a total of 1,840 sites for the location of WPPs have been identified in Belarus, with a theoretical energy potential of 1,600 MW
- ❖ Belarus has significant potential in terms of the use of technologies for the production of ethanol fuel and biodiesel from rape, soybeans and sugar beet.
- ❖ Solar energy: the average annual level of solar radiation in Belarus, taking into account night hours and claudage, equals 2.8 kWh/sq. m daily
- ❖ Biogas and municipal wastes: the testing of biogas installations for the production of gas from waste from livestock breeding complexes has confirmed their efficiency. The potential production of marketable biogas from all sources is estimated to be 160 ktce per annum.

The Law on Renewable Energy Sources has been adopted

In addition:

- ❖ State support mechanisms for private and foreign investors already exists
- ❖ The legislation of Belarus guarantees the connection of independent electricity producers to the state power grid and the purchase of electricity generated by them
- ❖ The Energy Strategy also provides for the step by step restructuring of the electricity sector through unbundling of generation, transmission and distribution



# Why PPPs for Energy Infrastructure Development?

---

Traditional public procurement or PPP?

Traditional procurement issues:

- ❖ The state needs to pay upfront using existing capital
- ❖ Less incentive to the private sector to provide quality
- ❖ Little risk transfer to the private sector

## PPP Benefits

- ❖ Ability to control life cycle costs
- ❖ Ability to efficiently allocate risks
- ❖ Innovativeness and technological changes
- ❖ PPPs can help bridge the infrastructure financing gap needed to finance new infrastructure
- ❖ PPP can help bring long term finance required for the development of much needed infrastructure
- ❖ Public sector doesn't have an adequate budgets for all their infra needs
- ❖ Selection of appropriate infrastructure projects

PPPs are not a panacea for all infrastructure development initiatives. It is therefore crucial that in the planning phase relevant PPP projects are selected based on the market and private sector interest.

# Key PPP Considerations

---

## Ensuring Value for Money (VfM) in a Project

- ❖ The PPP **must be a VfM transaction** by generating a net profit for a public institution in terms of quantity, quality or service, cost and risk transfer

## To achieve VfM the governments need to develop:

- ❖ A robust procurement procedure
- ❖ A clear and predictable institutional framework
- ❖ All investment project should be prioritised at senior political level
- ❖ No institutional, procedural or accounting bias either in favour of or against PPPs

# Key PPP Considerations

---

**The following elements should be included in a VfM examination:**

- ❖ What are the comparative costs of (a) finance, (b) construction (c) operation, as calculated over the whole lifetime of the project?
- ❖ Can the risks of the project be clearly defined, identified and measured?
- ❖ Can the right types of risk be transferred to the private partner to ensure value for money?
- ❖ Is the risk appetite of potential private sector partners sufficiently robust to explore a PPP?
- ❖ Do potential private sector partners have a track record of good service delivery, responsible business conduct and PPP experience?
- ❖ Is there sufficient market interest in the project to generate a robust competition that will ensure a value for money outcome?
- ❖ Can the risks, cost and quality trade-offs be quantified and managed by the public sector?
- ❖ Is the potential PPP project of a size sufficiently large to justify transaction costs?

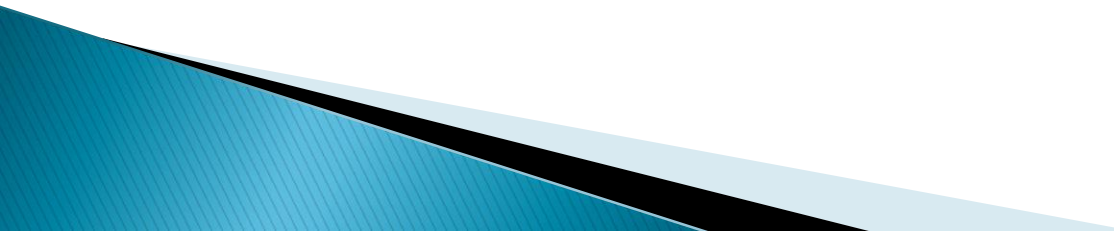
# Top ten barriers to a successful delivery of PPP energy projects in emerging markets

---

All respondents	Position	Weighted to closed deals
Lack of legislative or regulatory framework	1	Lack of development/seed capital
Lack of development/seed capital	2	Issues relating to government support (guarantees etc.)
Lack of knowledge/capacity in public sector	3	Other governmental interference
General political risk	4	Lack of knowledge/capacity in public sector
Issues relating to government support (guarantees etc.)	5	General political risk
Other governmental interference	6	Lack of legislative or regulatory framework
Lack of sector-specific/enabling legislation	7	Lack of sector-specific/enabling legislation
Uncertain regulatory framework (changes in government approach)	8	Concerns with public sector corruption
Lack of economic viability (start-up costs/low tariffs) government approach)	9	Uncertain regulatory framework (changes in
Concerns with public sector corruption	10	Issues relating to property law (e.g. tribal lands/ ownership rights)

# Potential solutions for energy PPP development

---

- ❖ Prepare the legal and regulatory framework for PPPs and IPPs in particular
  - ❖ Gather good resource data
  - ❖ Build capacity for the development of renewable energy projects
  - ❖ Introduce Policy Solutions for Mobilizing Renewable Energy Development
- 

**REGULATORY POLICIES**

**FISCAL INCENTIVES**

**PUBLIC FINANCING**

Feed-in tariff (incl. premium payment)

Electric utility quota obligation/RPS

Net metering

Biofuels obligation/mandate

Heat obligation/mandate

Tradable REC

Capital subsidy, grant, or rebate

Investment or production tax credits

Reductions in sales, energy, CO<sub>2</sub>, VAT, or other taxes

Energy production payment

Public investment, loans, or grants

Public competitive bidding

**HIGH-INCOME COUNTRIES**

	Feed-in tariff (incl. premium payment)	Electric utility quota obligation/RPS	Net metering	Biofuels obligation/mandate	Heat obligation/mandate	Tradable REC	Capital subsidy, grant, or rebate	Investment or production tax credits	Reductions in sales, energy, CO <sub>2</sub> , VAT, or other taxes	Energy production payment	Public investment, loans, or grants	Public competitive bidding
Australia	▲			▲		●	●				●	
Austria	●			●		●	●	●			●	
Belgium		▲	●	●		●	●	●	●			
Canada	▲	▲	●	●			●	●	●		●	●
Croatia	●						●				●	
Cyprus	●						●					
Czech Republic	●			●		●	●	●	●			
Denmark	●		●	●		●	●	●	●		●	●
Estonia	●			●			●		●	●		
Finland	●			●		●	●		●	●		
France	●			●		●	●	●	●		●	●
Germany	●			●	●		●	●	●		●	
Greece	●		●				●	●			●	
Hungary	●			●			●		●		●	
Ireland	●				▲	●						●