



ASSOCIATION OF RENEWABLE ENERGY OF KAZAKHSTAN



Astana, Kazakhstan



Main goals of AREK:



Creation of favourable investment climate for development of renewable energy industry



Reduction of greenhouse gas emissions



Creation of export-oriented renewable energy industry



Increase local content in the renewable energy projects



Improve collaboration between inventors and scientists for introduction of innovations to the industry



Facilitate technology transfer and tech. development



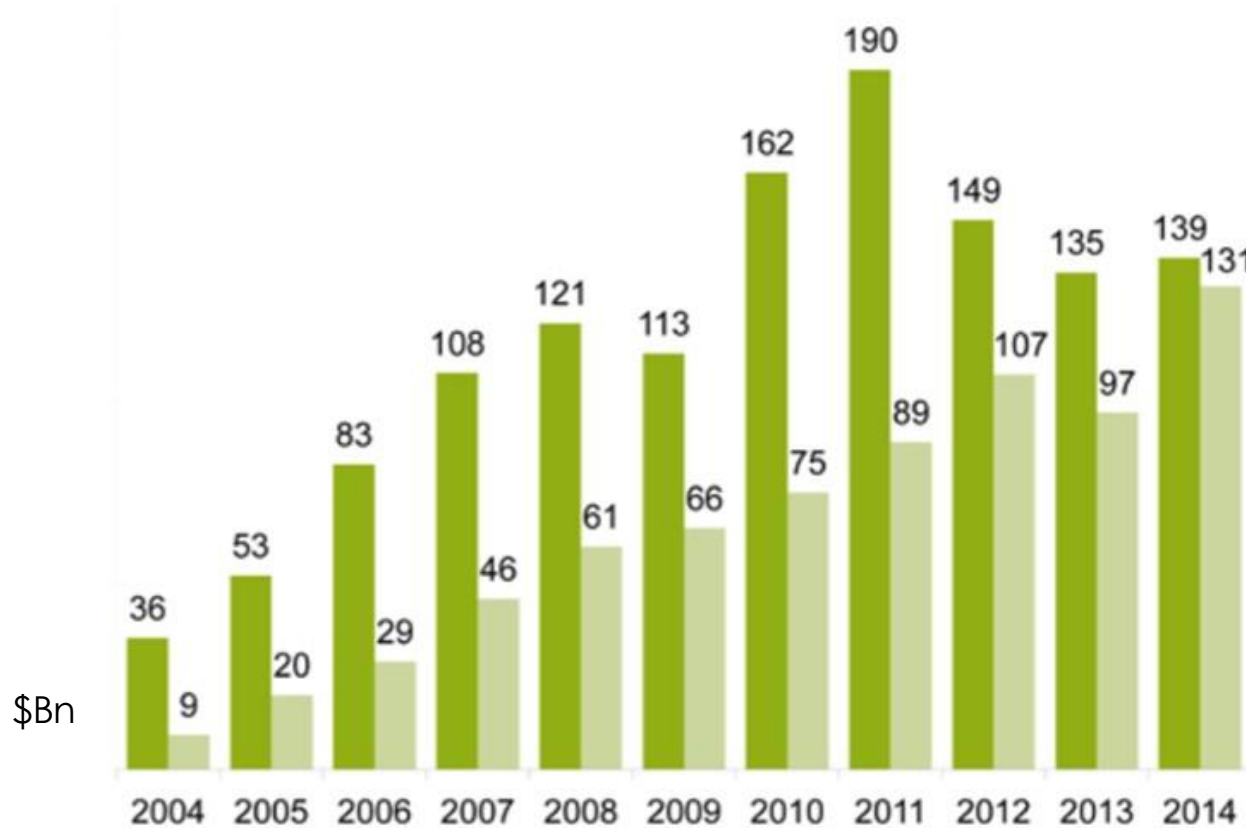
Investment in Renewable projects increased in last 10 years



Global investment in Renewable Energy by region, 2004-2014



Global trend in Renewable Energy investments in developing countries

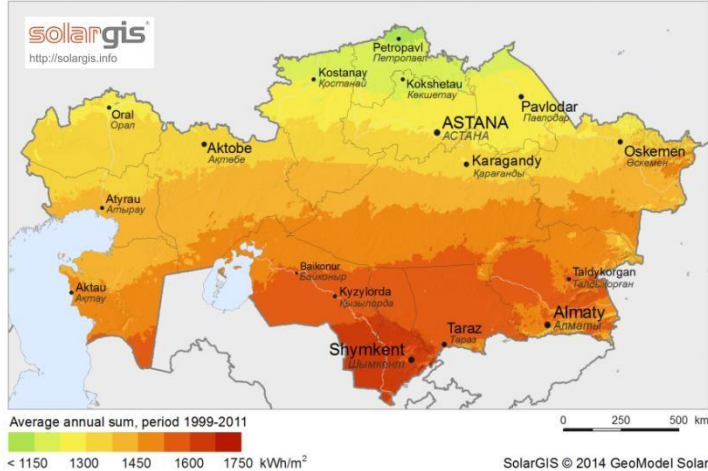


Global investment in RE: Developed VS Developing countries, 2004-2014



Kazakhstan has huge potential in Renewable Energy generation

Global horizontal irradiation Kazakhstan



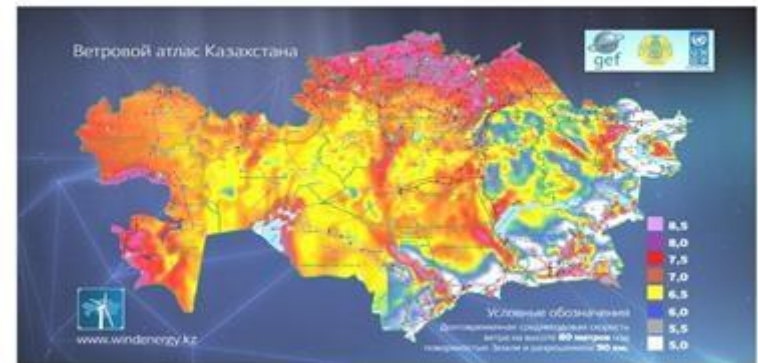
Solar energy resource

Average insolation duration	2200-3000 hr/yr
Average insolation	1300-1800 kW/m ³ /yr
Potential	3,76 TWh

Wind energy resource

Average wind speed	<ul style="list-style-type: none"> - More than 50% of territory 4-5 m/s; - More than 10 places 8-10 m/s
Favorable allocation	South, East and Southeast Kazakhstan
Potential	1,8 TWh

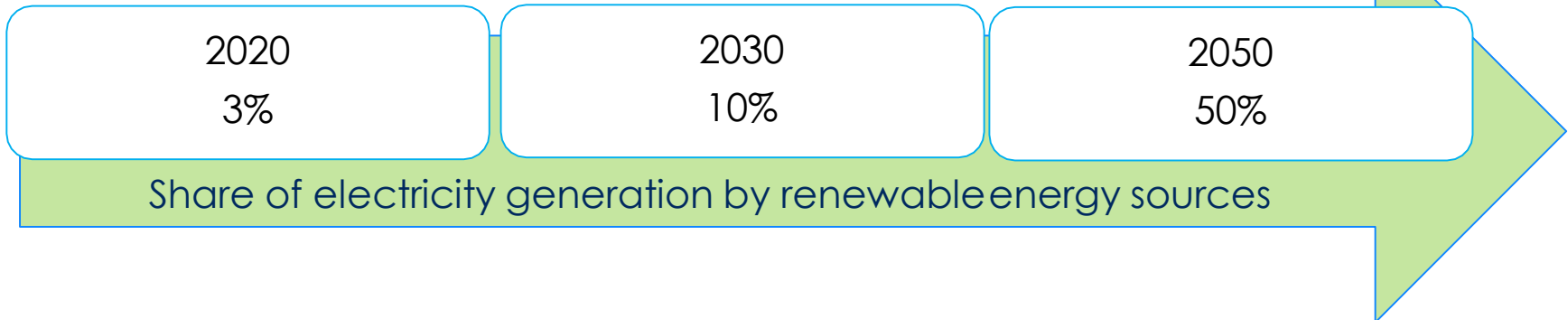
Wind Atlas Of Kazakhstan



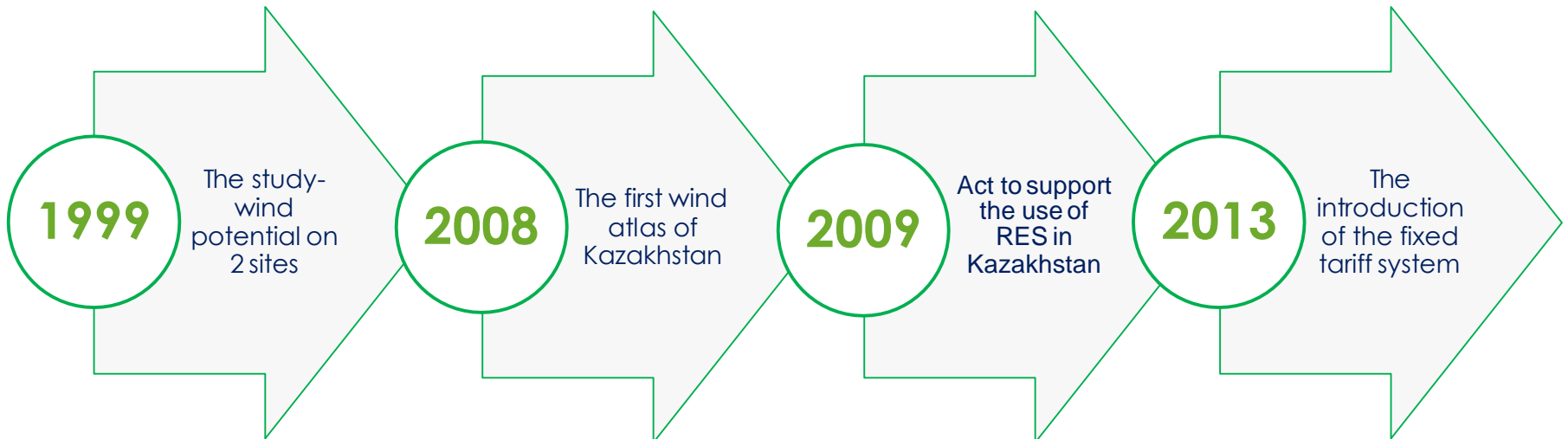


Policy Matters!

Key strategic indicators for Renewable Energy Development



The main stages of the development of renewable energy sources in Kazakhstan





Expected Layout of Renewable Energy facilities until 2020

By 2020 it is planned to put into operation about 106 renewable energy facilities with a total installed capacity of 3054.55 MW:

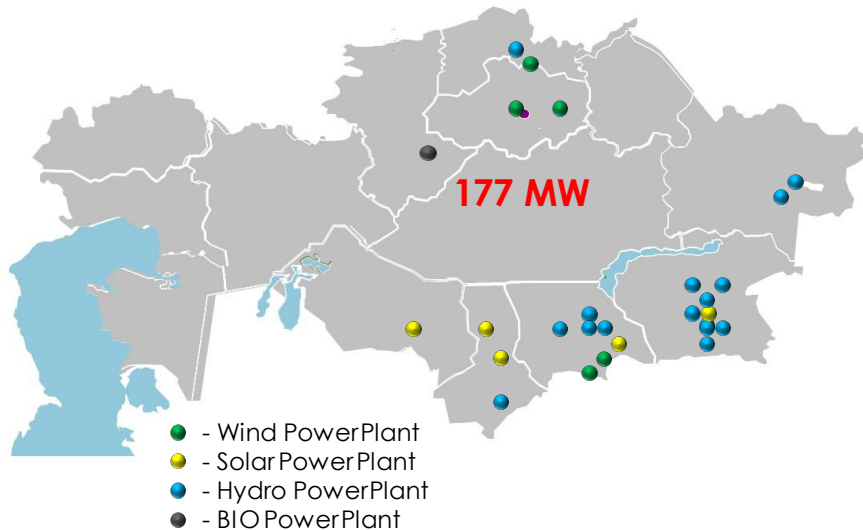
34 Wind
(1787 MW)

41 Hydro
(539 MW)

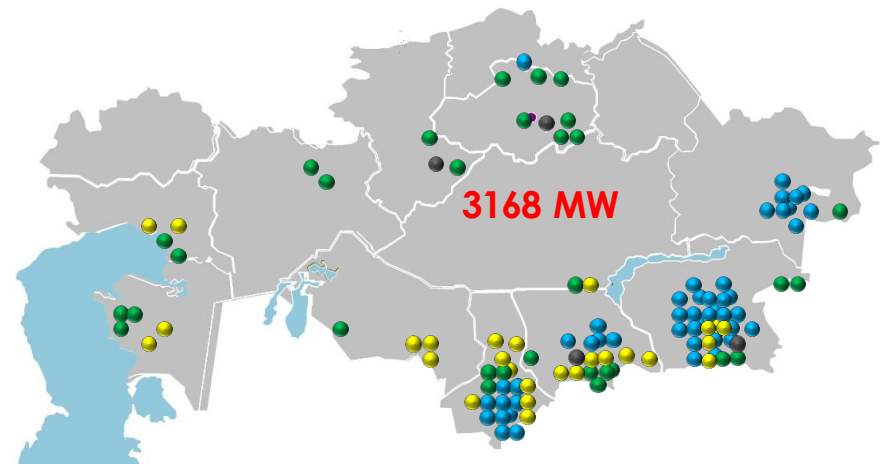
28 Solar
(713,5 MW)

3 BIO
(15,05 MW)

2014 - completed projects



2020 - future projects





The process of implementing renewable energy project

Project Site selection

- According to the Plan for renewable energy development the sites are identified for all regions (last updated of the plan in 2014)

The allocation of land

- Akimats to allocate land in accordance with the Plan and the Land Code

Grid connection

- Determine the nearest point of grid connection for renewables
- Develop and approve the issuance of the power circuit (according to the electric network rules)
- Get the technical conditions for connection to the network from an owner or KEGOC

Project preparation

- Develop project design estimates and feasibility studies
- Feasibility studies, project design estimates needs to pass regulatory authority's approval

Signing PPA

- Application submission to the Min.Energy. ME includes project to a list of RE facilities
- RFC enters into agreement with renewable energy from the ME list of RE facilities

*PPA for 15 years + 3 years of construction period.



Current problems in Renewable Energy industry

1. Legislation. Frequent change in legislation: investors do not like it.
2. Auctions. New legislative framework will be required, AREK will take part in working group to help MinEnergo.
3. Financing. Almost no funds in tenge inside Kazakhstan, foreign investment institutions require guarantees, letters of comfort, takes a lot of time for internal procedures, etc.
4. Mining & metallurgical antilobby.
5. Government. It has done its big and important work. Now it is turn for private investors to further grow the market.
6. Expo. Fear that renewable story will finish after Astana Expo 2017.
7. Way forward. To implement KZ Green Economy Strategy.



THANK YOU FOR YOUR ATTENTION!



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