



**MINISTRY OF ENERGY
INFRASTRUCTURES AND
NATURAL RESOURCES OF
THE REPUBLIC OF ARMENIA**



SUSTAINABLE ENERGY

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DEPUTY MINISTER

MINISTRY OF ENERGY INFRASTRUCTURES AND NATURAL RESOURCES OF RA

OUTLINE

SECTOR OVERVIEW

FOREIGN TRADE RELATIONS

RENEWABLE ENERGY

WHY ARMENIA?



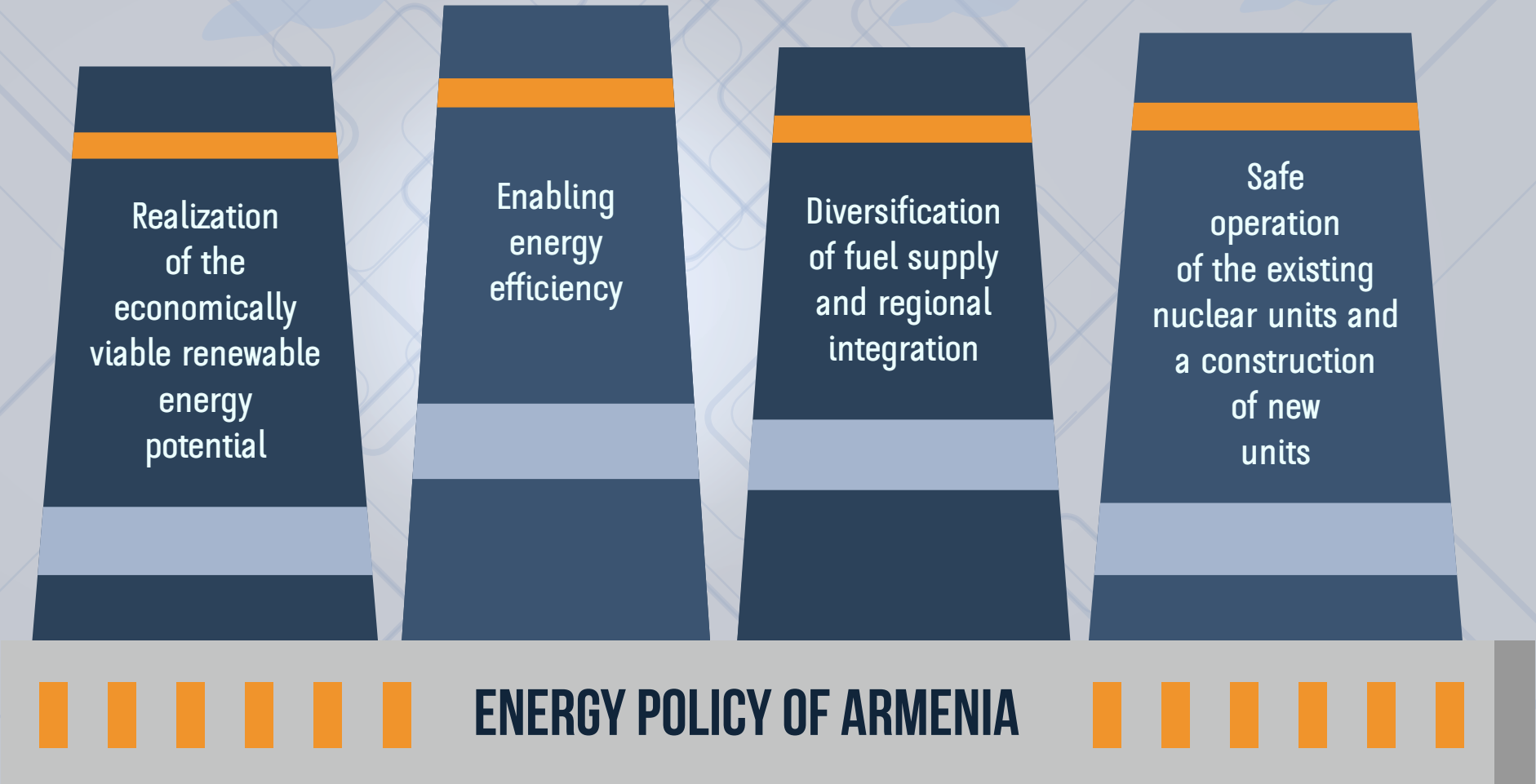
**SUSTAINABLE ENERGY:
SCALING UP
RENEWABLE
ENERGY CAPACITIES**

SECTOR OVERVIEW



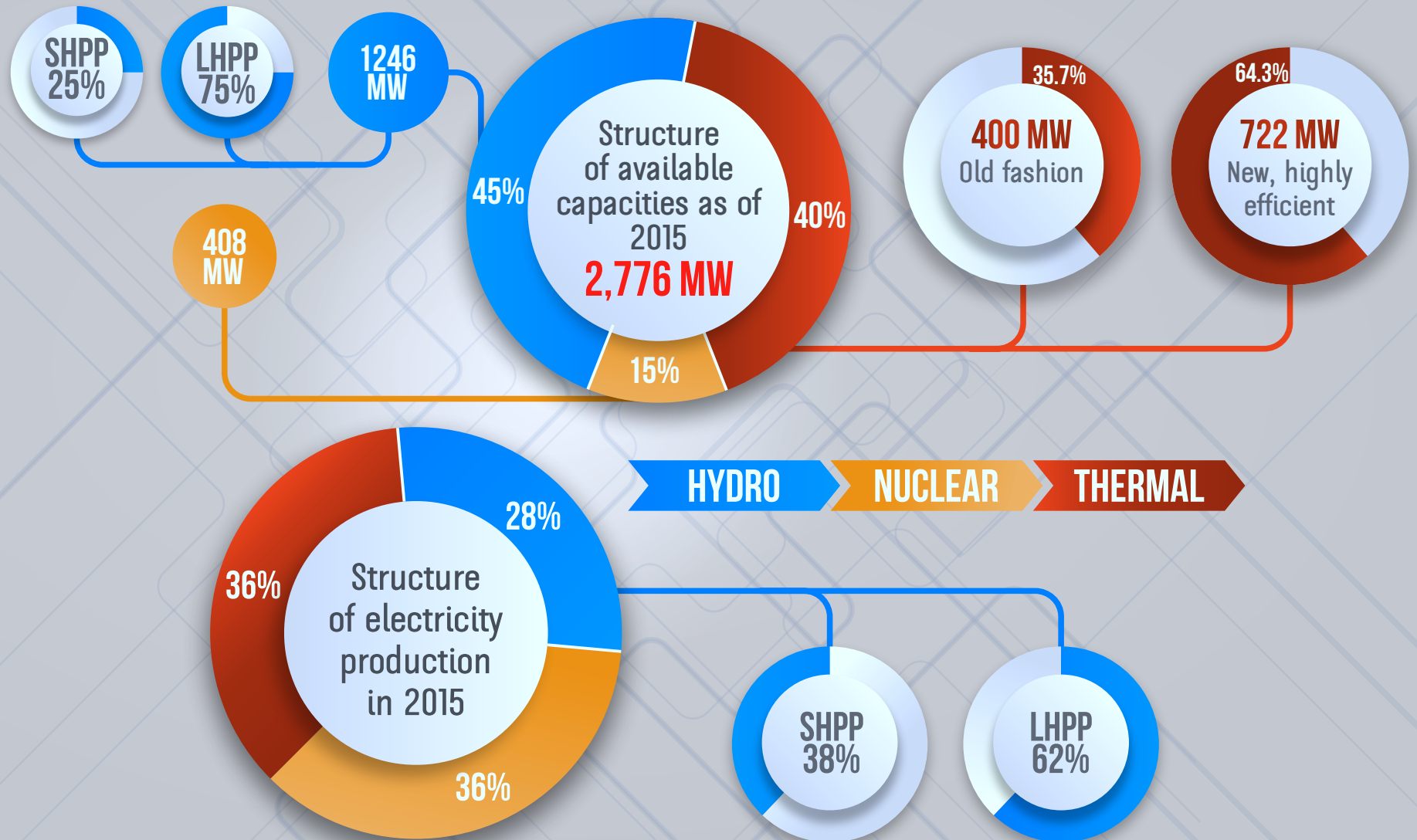
SUSTAINABLE ENERGY:
SCALING UP
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PILLARS OF THE ENERGY SECURITY STRATEGY OF ARMENIA



SECTOR OVERVIEW

ARMENIA IS A COUNTRY WITH DIVERSIFIED ENERGY MIX



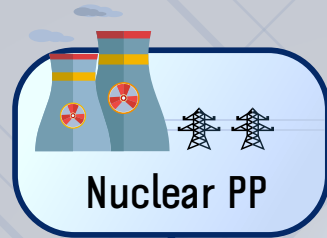
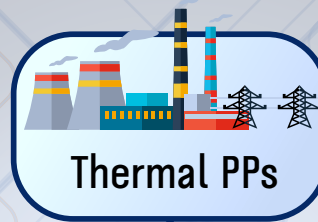
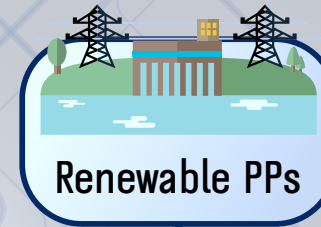
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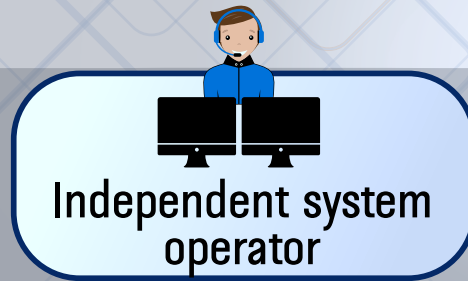
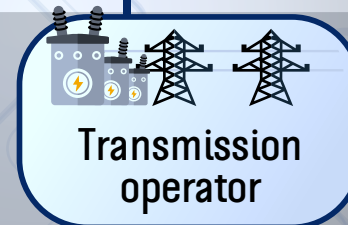
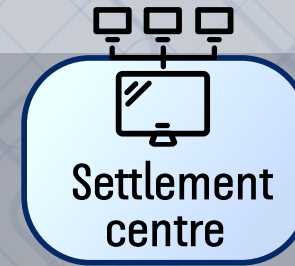
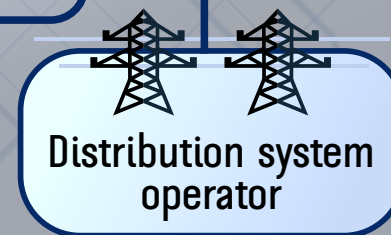
MINISTRY OF ENERGY AND
NATURAL RESOURCES OF
THE REPUBLIC OF ARMENIA
*Policy maker

STRUCTURE OF ARMENIAN POWER MARKET



PUBLIC SERVICES
REGULATORY
COMMISSION
(PSRC)

* Regulates tariffs,
service quality
and licensing



Single buyer's market



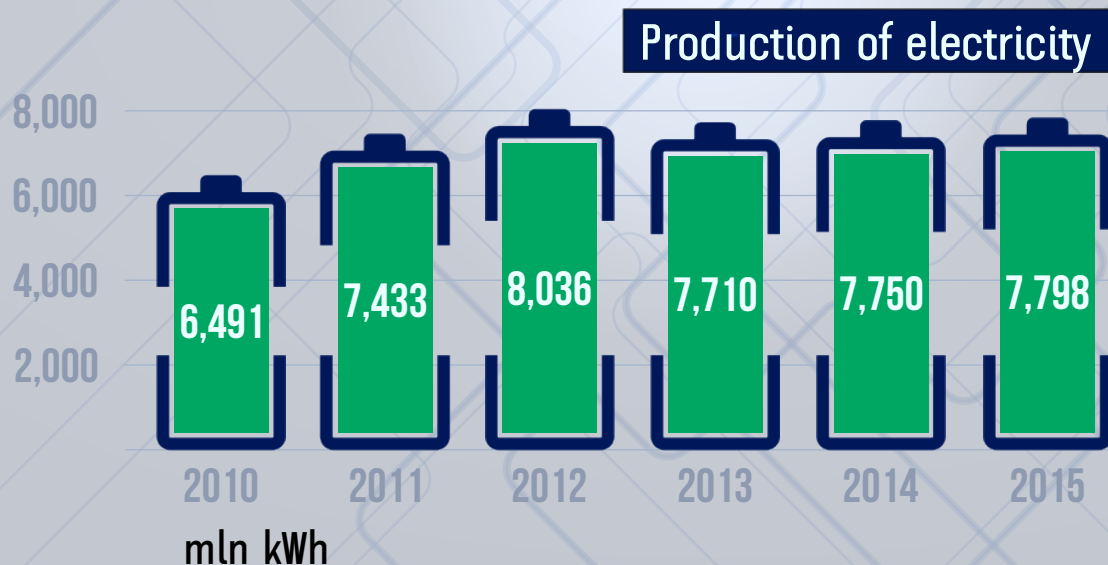
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SECTOR OVERVIEW



SUSTAINABLE ENERGY:
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THE SECTOR IN NUMBERS



Real
growth
46%
2010 vs 2015

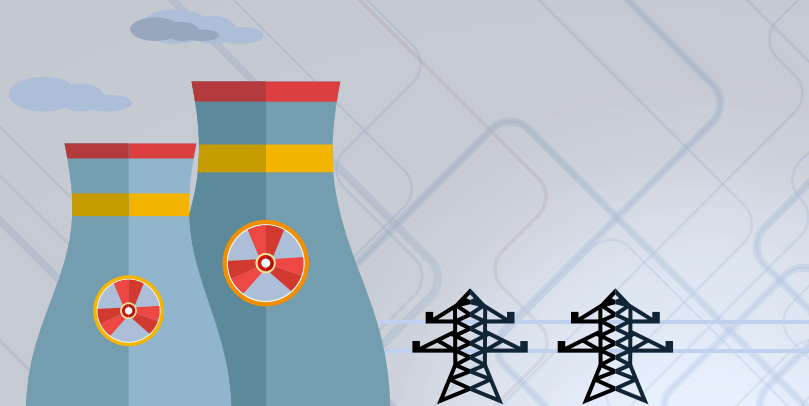
Real
growth
>20%
2010 vs 2015

SECTOR OVERVIEW



SUSTAINABLE ENERGY:
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MORE THAN 40 YEARS OF EXPERTISE IN NUCLEAR ENERGY

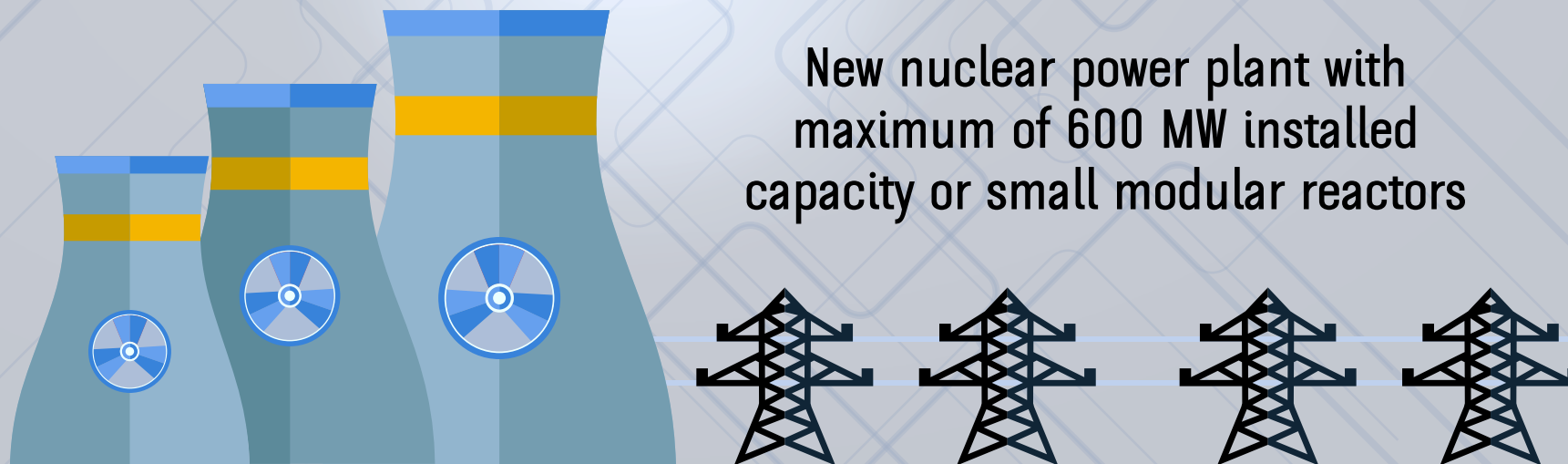


VVER – 440 (V-230)

Investments for upgrading
\$300 mln to prolong the
life cycle until 2026

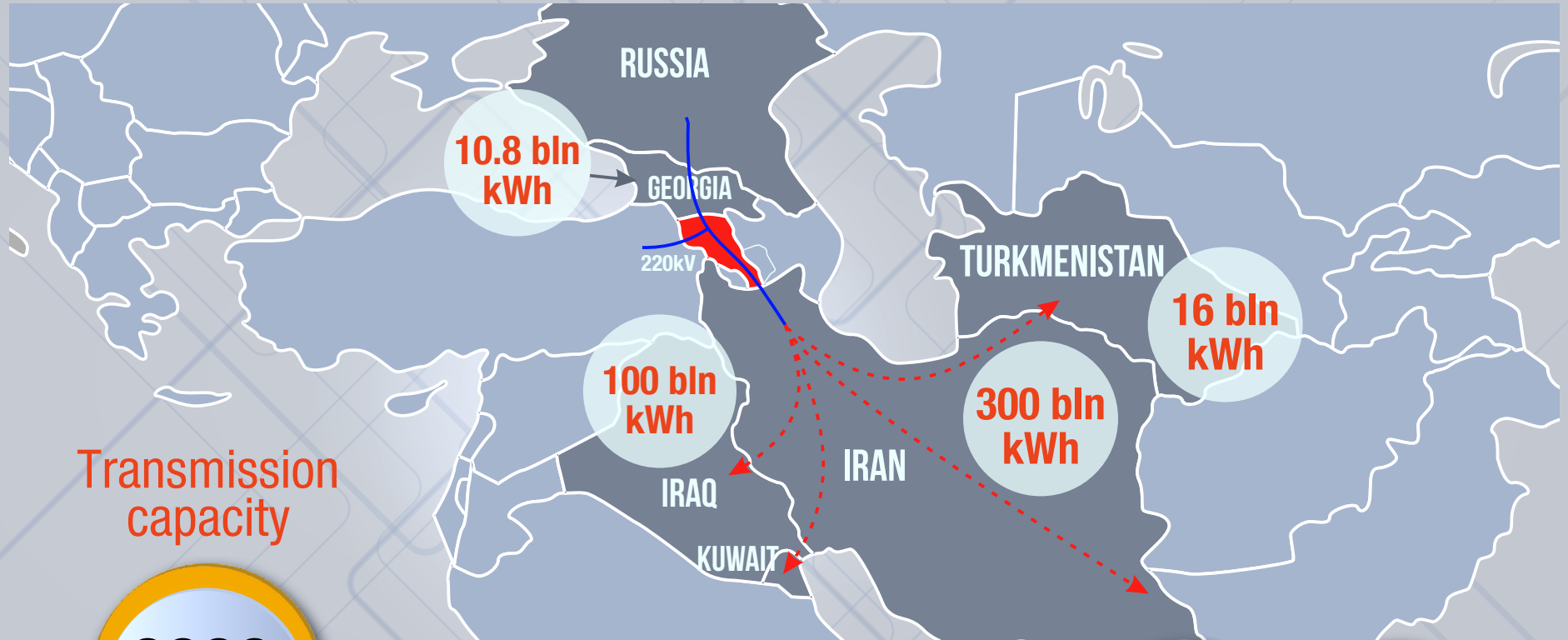
2026

New nuclear power plant with
maximum of 600 MW installed
capacity or small modular reactors



FOREIGN TRADE RELATIONS

ARMENIA HAS DEVELOPED INFRASTRUCTURE TO EXPORT ELECTRICITY



Transmission
capacity

2000
MW

- New 400kV high voltage grid that will increase export 7 times
- Bilateral agreements with Iran and Georgia
- Coming up: common energy markets in EEU



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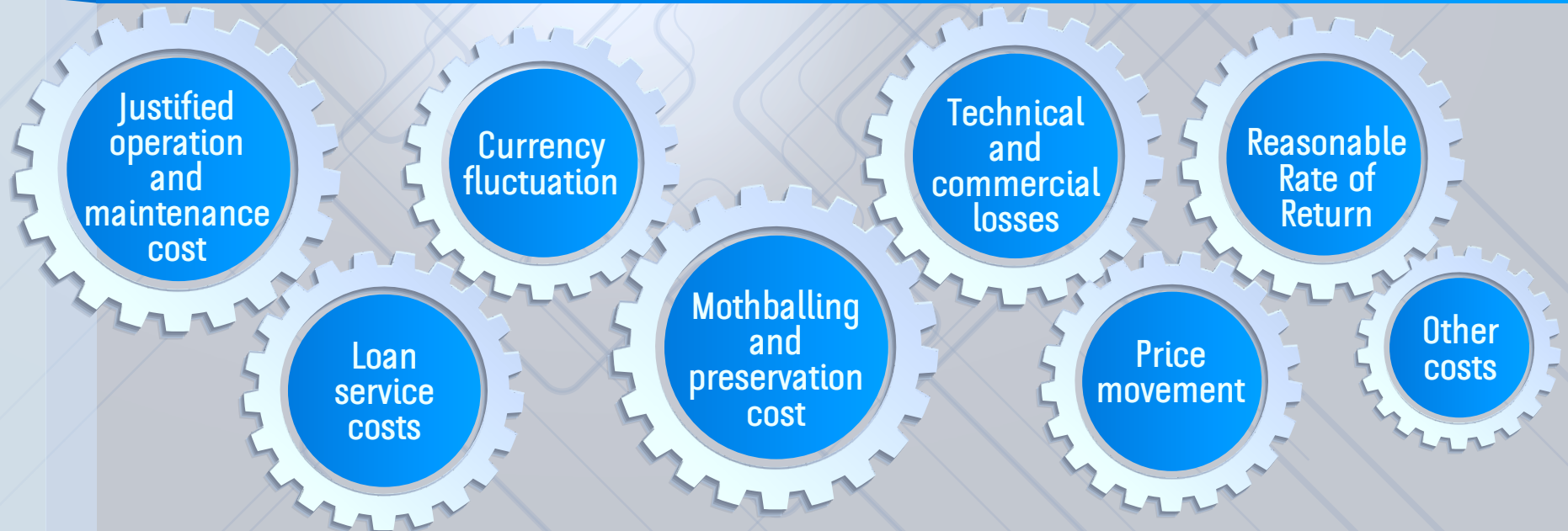
RENEWABLE ENERGY

ENABLING AGGRESSIVE GROWTH FOR RENEWABLE ENERGY

Purchase of all produced electricity is guaranteed by the Law on Energy for 20 years from all renewable plants (15 years for SHPP)

Special Mechanism for Guaranteeing Payments to all Generation Capacities

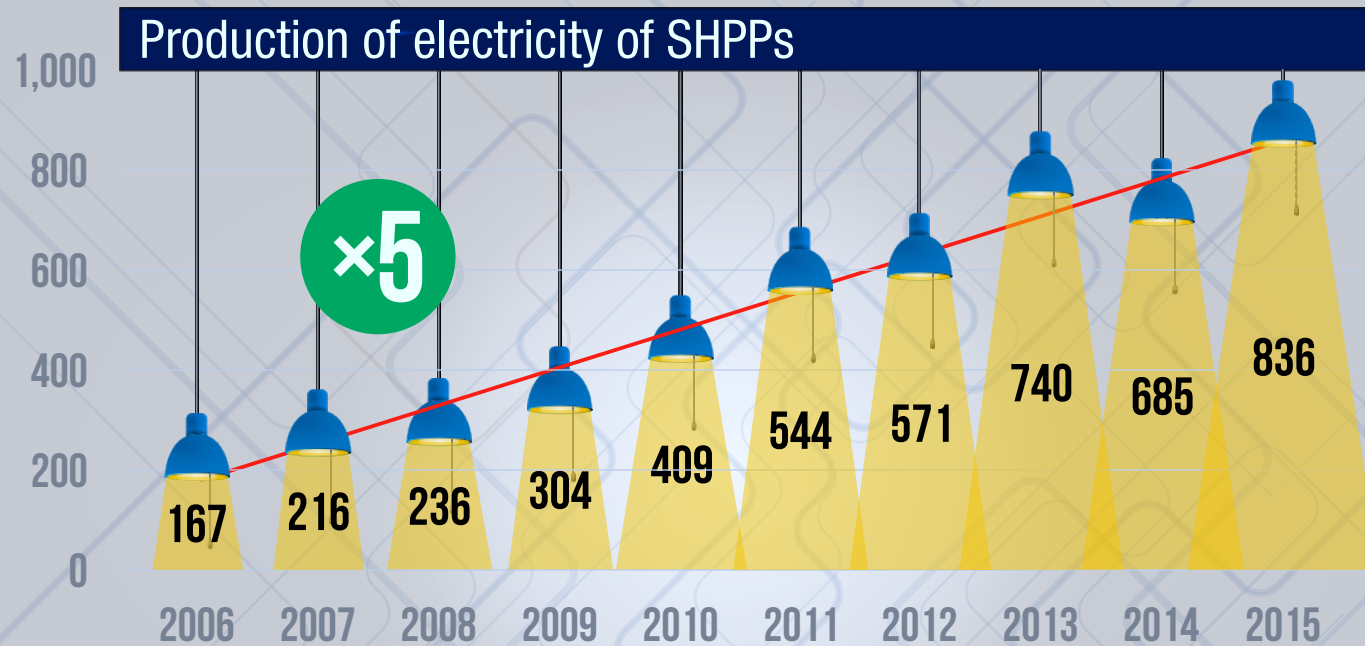
Tariff for renewables are fixed up-front and cover main economic risks



**SUSTAINABLE ENERGY:
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RENEWABLE ENERGY

SUCCESS STORY OF SMALL HYDRO POWER SECTOR



×10
OF NUMBER
OF SHPPS

During last
10 years

All 173 SHPPs,
without an exception,
were built by private
investors

Estimated \$300 mln
of investments,
including FDI

There is still
potential for
growth

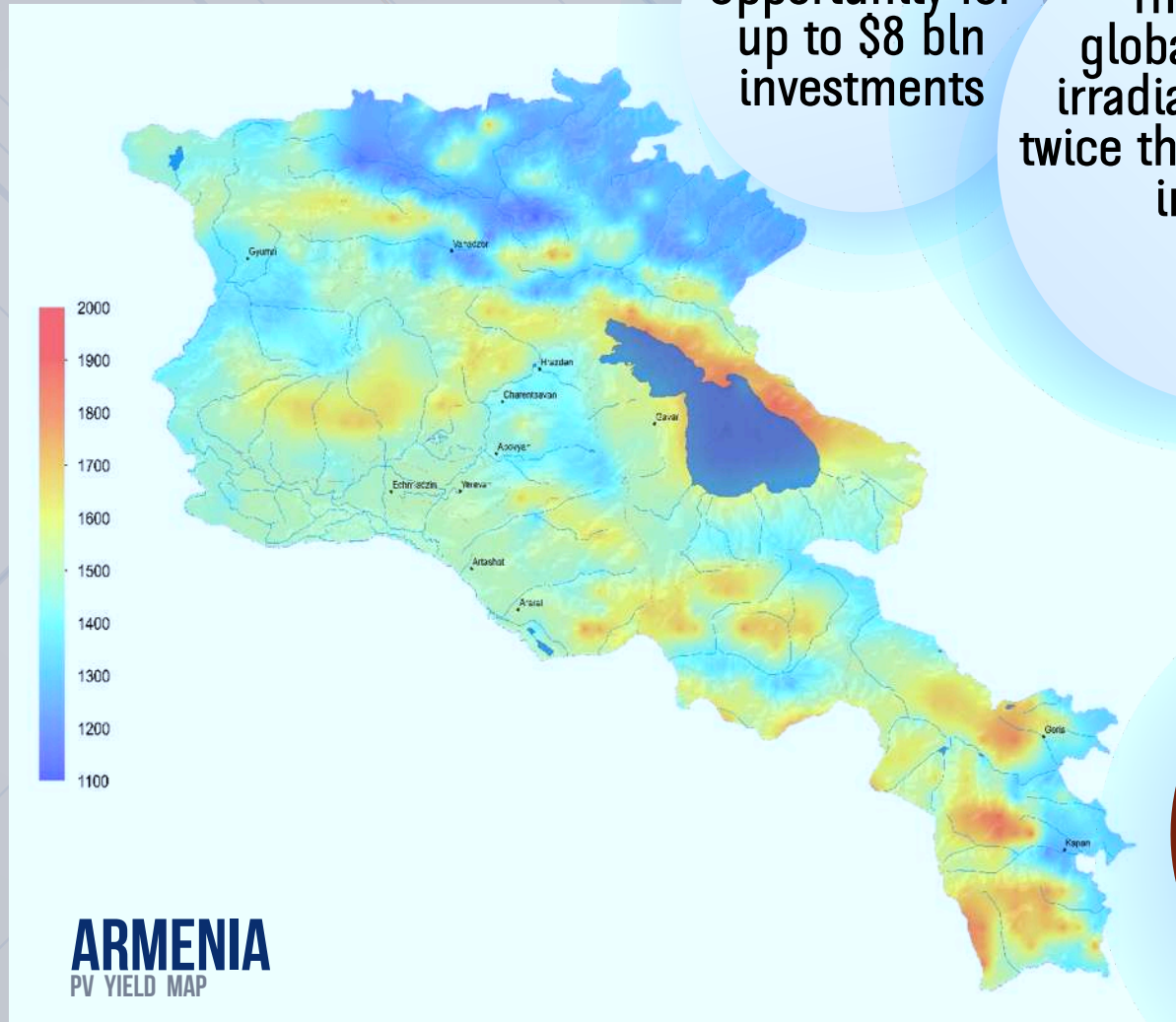


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SUSTAINABLE ENERGY:
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OPPORTUNITIES IN SOLAR PV

Opportunity for
up to \$8 bln
investments

The average
global horizontal
irradiation is about
twice than the average
in Europe

“Net-
Metering”

First
international
bidding for the 50MW
solar PV plant is to
take place in 2017

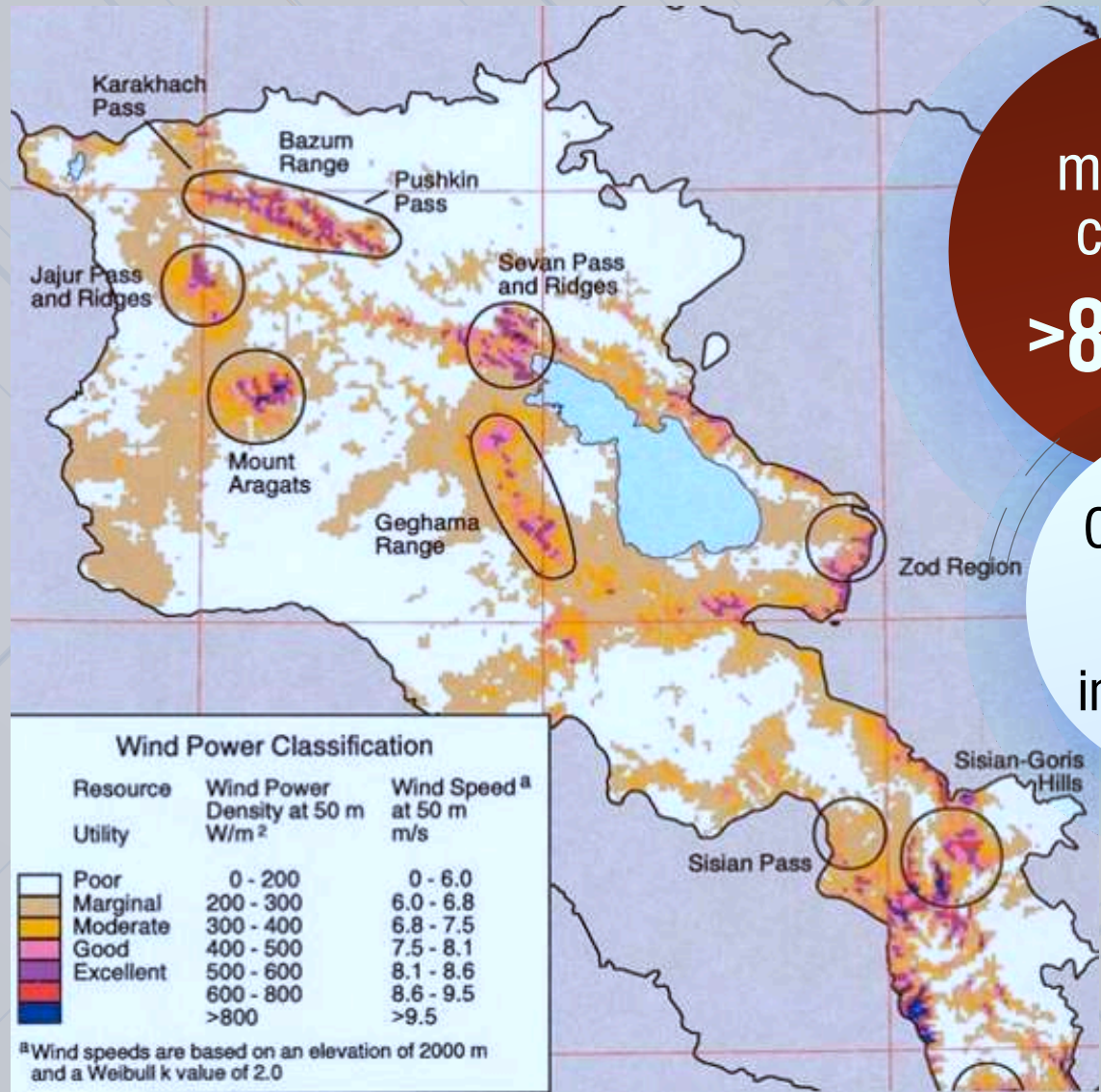
Total
capacity
6.000 MW

RENEWABLE ENERGY



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OPPORTUNITIES IN WIND ENERGY



Total measured capacity
>800 MW

2 pilot projects are already implemented, while multiple projects are in the pipeline

Opportunity for up to \$1.2 bln investments

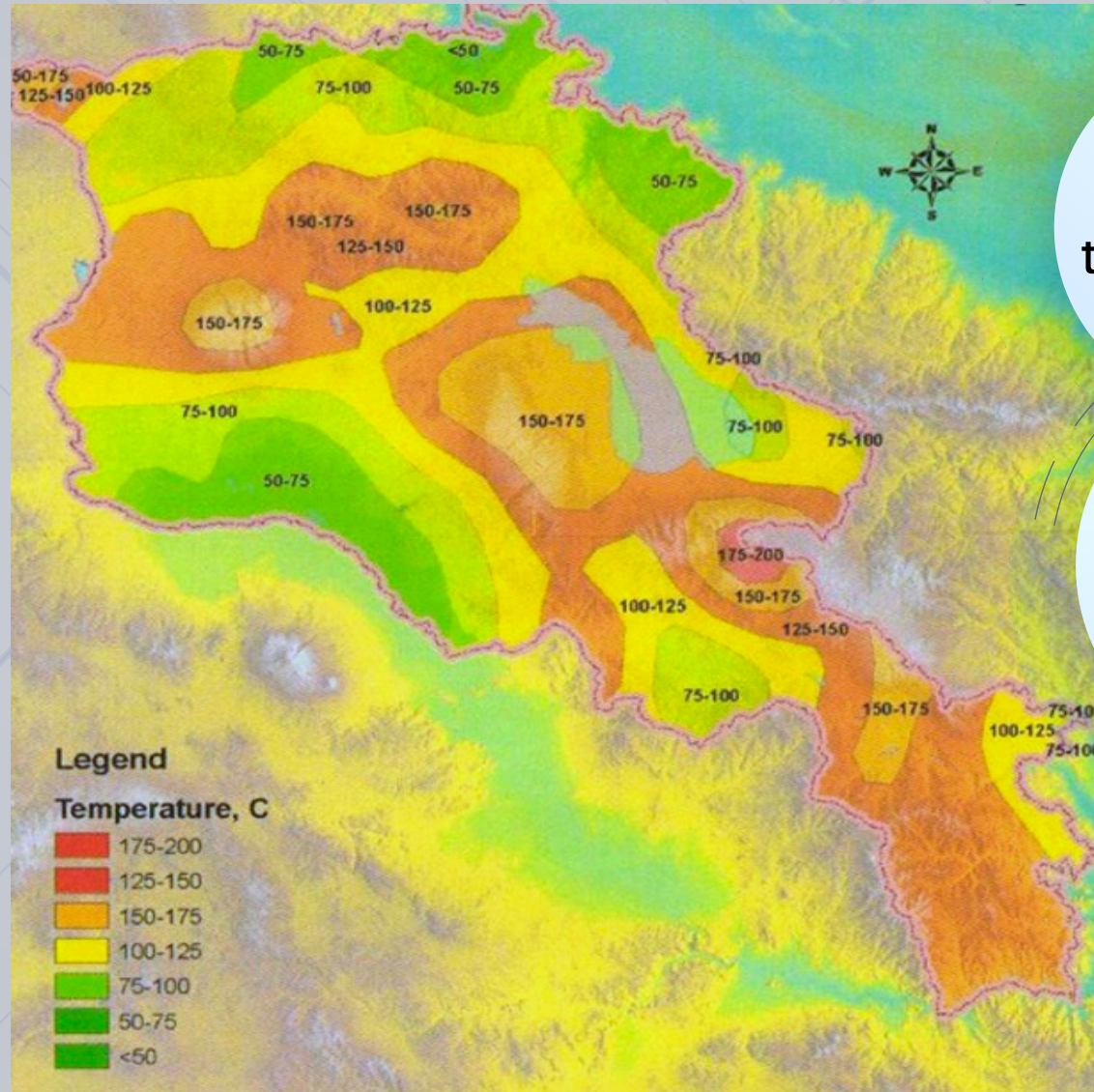
Target 2020:
200 MW
wind parks

RENEWABLE ENERGY



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OPPORTUNITIES IN GEOTHERMAL ENERGY



First pilot project is in the exploratory drilling stage

International bidding for the construction rights is planned for 2018

Opportunity for up to \$100 mln investments

Additional 3 sites with high potential are identified

Total estimated capacity for the first site
30 MW

WHY ARMENIA ?



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STRENGTHS

PPA is
guaranteed
by Law for
renewables with
feed-in-tariffs

Diversified
supply and
competitive
price of
natural gas

Significant
renewable
resources



Regional
electricity and gas
trade agreements

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SUSTAINABLE ENERGY

