

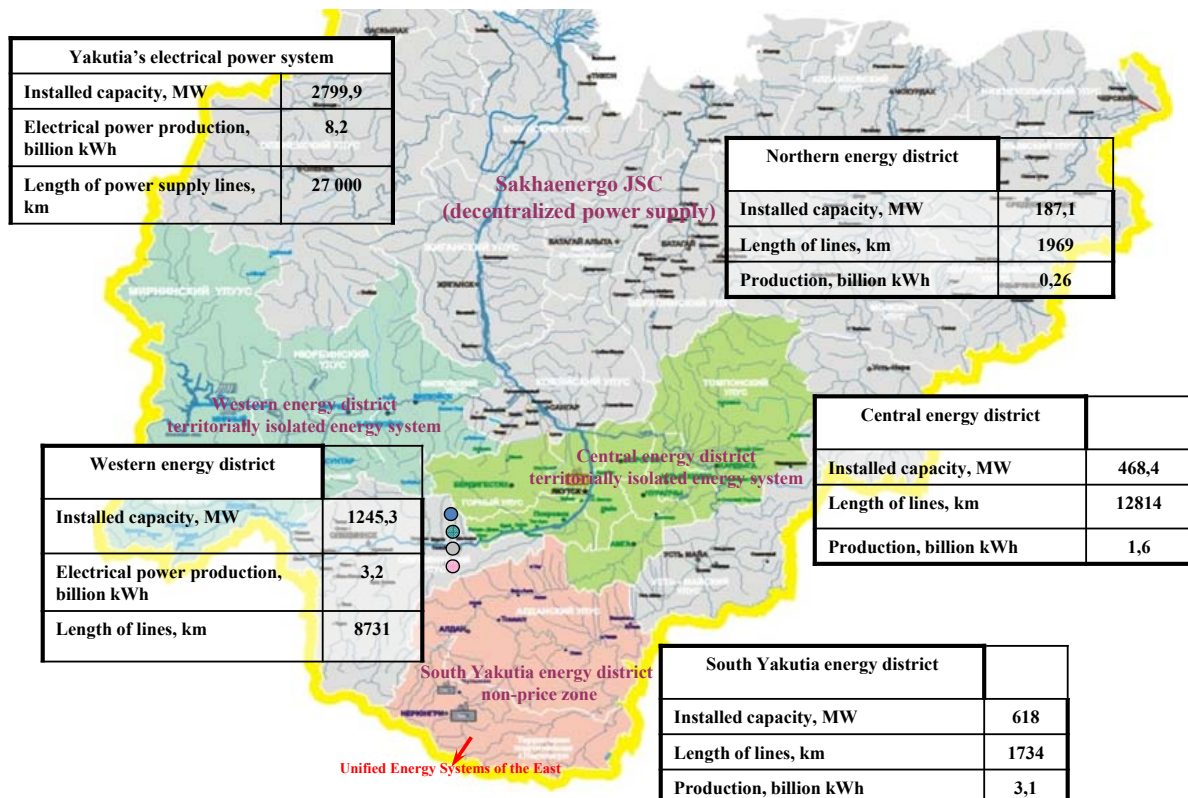


# サハ共和国（Y）における小型分散型 エネルギー及び再生可能エネルギー

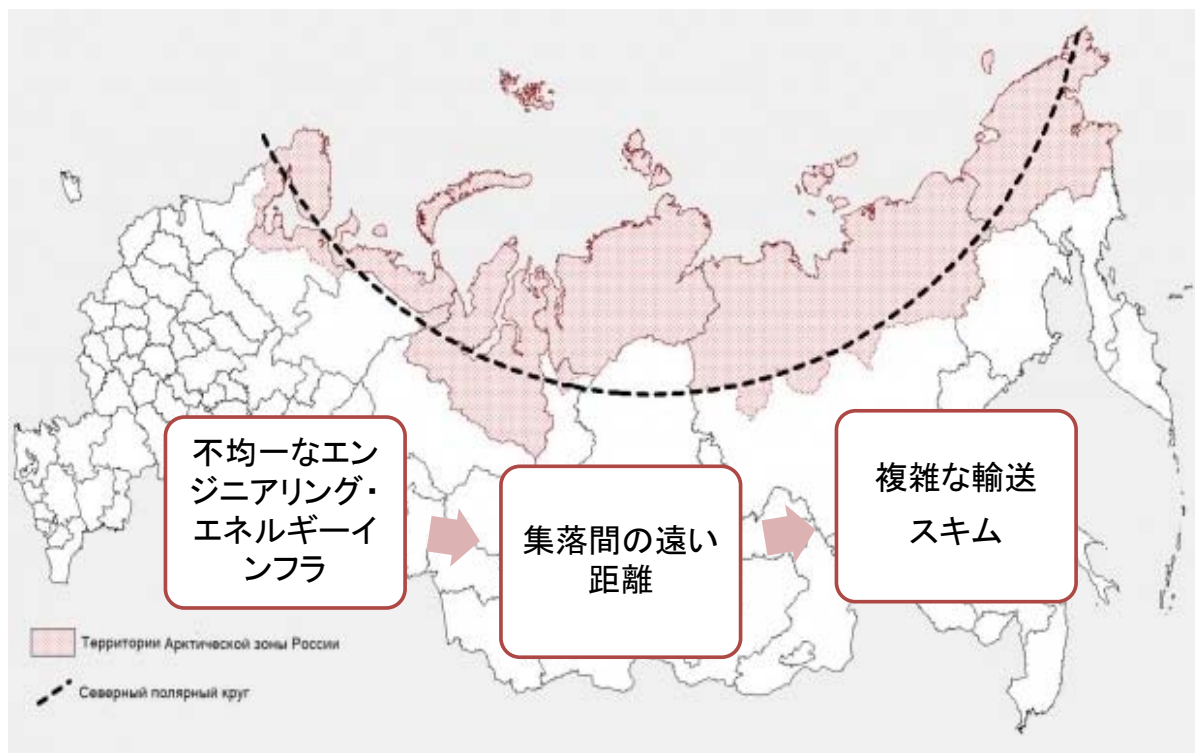
サハ共和国、住宅・公益事業・エネルギー大臣  
アレクセイ・コロデスニコフ

於、日本国新潟, 2015 年11月

## サハ共和国の電源システム特性



## サハ共和国の北極圏展依存の問題

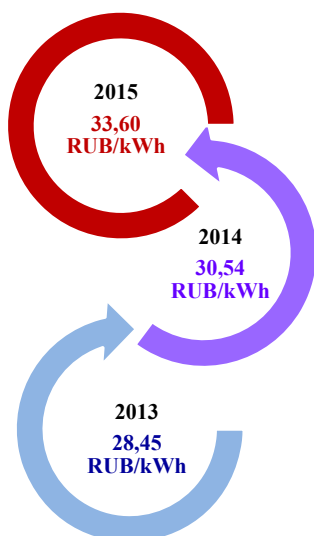


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## サハ共和国、ローカルエネルギー原の問題点

### Problem:

High costs of the diesel power industry maintenance and, thus, annual increase in electricity tariffs in the localized power industry zone



### Cause:

- technological inaccessibility of power systems;
- high number of energy sources (also isolated within one power system) of various types – HPS, CHP and TPP on coal and natural gas, diesel power sources of small capacity;
- absence of main interregional power grids, most power supply lines are wooden, long and have a high degree of depreciation;
- use of expensive diesel fuel (85% in the fuel balance structure), need for fuel delivery for a season in advance, annual higher-than-anticipated growth of diesel price.
- complicated delivery of fuel and material supplies with intermodal exchange scheme (terms of delivery 1,5 to 2,5 years)
- higher requirements to the reliability of power supply under low temperatures and in the climatic and geographical peculiarities of the High North;
- annual amount of loan resources attracted to bring diesel (about RUB 5 bln);
- impossibility of technical upgrade due to lack of own sources formed by the localized power industry.

\*Average annual tariffs, no VAT

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## ローカルエネルギー—最適化のプログラム

Subprogram # 1. Implementation of the programs of energy resource saving. Funding – RUB 6,9 bln. Economic benefit – RUB 0,1 bln. Payback period – 54 years.

Subprogram # 2. RES development. Funding – RUB 2,2 bln. Economic benefit – RUB 0,3 bln. Payback period – 7,6 years.

Subprogram # 3. Program of micro and mini HPS installment. Funding – RUB 0,7 bln. Economic benefit – RUB 0,1 bln. Payback period – 8,5 years.

Subprogram # 4. Reduction of the localized power industry zone. Funding RUB 2,2 bln. Economic benefit – RUB 0,2 bln. Payback period – 12,6 years.

Subprogram # 5. Development of generation objects. Funding - RUB 8,8 bln. Economic benefit – RUB 0,02 bln. No payback period.

The program's funding:

**RUB 20,8 bln.**  
VAT and deflator included

**Economic benefit**  
**RUB 0,7 bln**

**Payback period – 29,0 years**

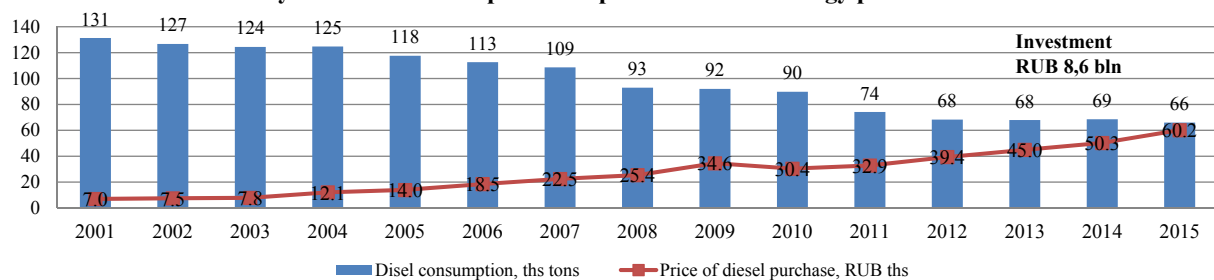
**Reduction in expenditure for diesel by 51,6 %.**

**Reduction in expenditure for the localized power industry maintenance by 12,3%**

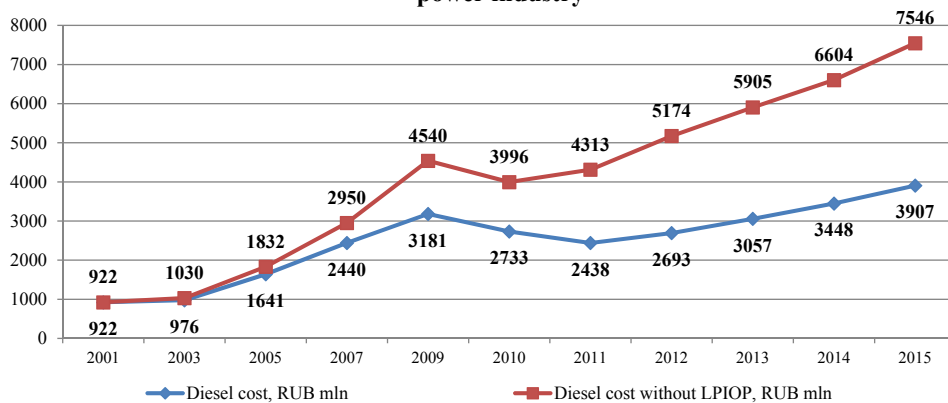
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## 2001年—2014年度の地域最適化プログラムの実施結果

Dynamics of consumption and price of fuel for energy production



Cost of diesel consumption in relation to the arrangements to reduce expenditure in the localized power industry



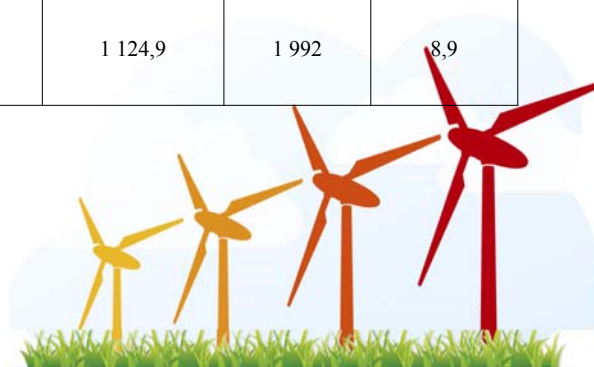
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## ローカル絵ネル義—産業の最適化プログラム

### サブ・プログラム # 2. 再生可能エネルギー発展

| Name                     | Number of plants, items | Total capacity, MW | Construction cost, RUB mln | Estimated diesel economy, tons | Payback period, years |
|--------------------------|-------------------------|--------------------|----------------------------|--------------------------------|-----------------------|
| <b>Total</b>             | <b>72</b>               | <b>15,52</b>       | <b>2 238,1</b>             | <b>4 510</b>                   | <b>7,6</b>            |
| Wind power plants (WPP)  | 9                       | 3,49               | 1 113,2                    | 2 518                          | 7,0                   |
| Solar power plants (SPP) | 63                      | 6,52               | 1 124,9                    | 1 992                          | 8,9                   |



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### サハ共和国の再生可能エネルギーに関わる法令

On November 27, 2014 in the Sakha Republic (Yakutia) there was adopted a Law 1380-3 № 313-V “On renewable energy sources of the Sakha Republic (Yakutia)”, which made a **major legal framework** regulating relationship emerging in the process of activity in the area of RES, to create favorable prerequisites for a priority use of renewable energy sources in the Sakha Republic (Yakutia) for the sake of improving social and ecological living standards and for saving energy resources.

The law contains general provisions of state regulation in the area and a number of concrete legal norms to support the use of RES.

#### Main principles of state policy in the field of RES use based on the principles:

strengthen energy safety of the republic, secure environmental protection, create legal and financial and economic mechanisms and attract investments

#### There are provided

the authorities of different levels of power and management bodies

#### There are identified

economic and organizational and legal mechanisms in the field of using renewable energy sources, including state support and major RES development measures

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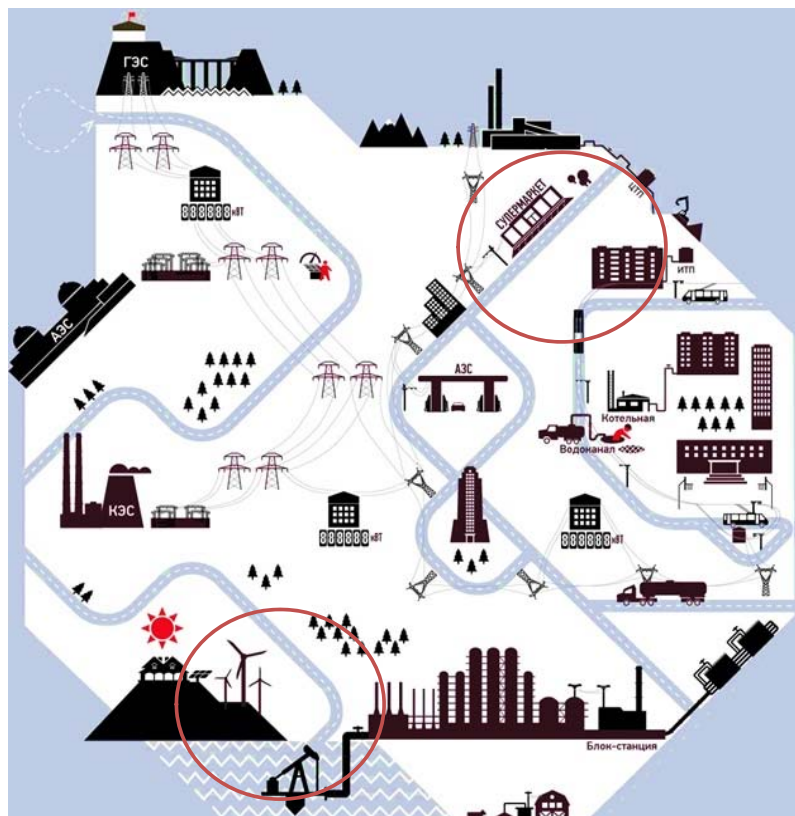
サハ共和国の基本戦略計画

再生エネルギー技術及び様々の最新技術を導入しエネルギー、電気産業を再生する

再生エネルギーと既存燃料を利用するコンビ発電所を建築

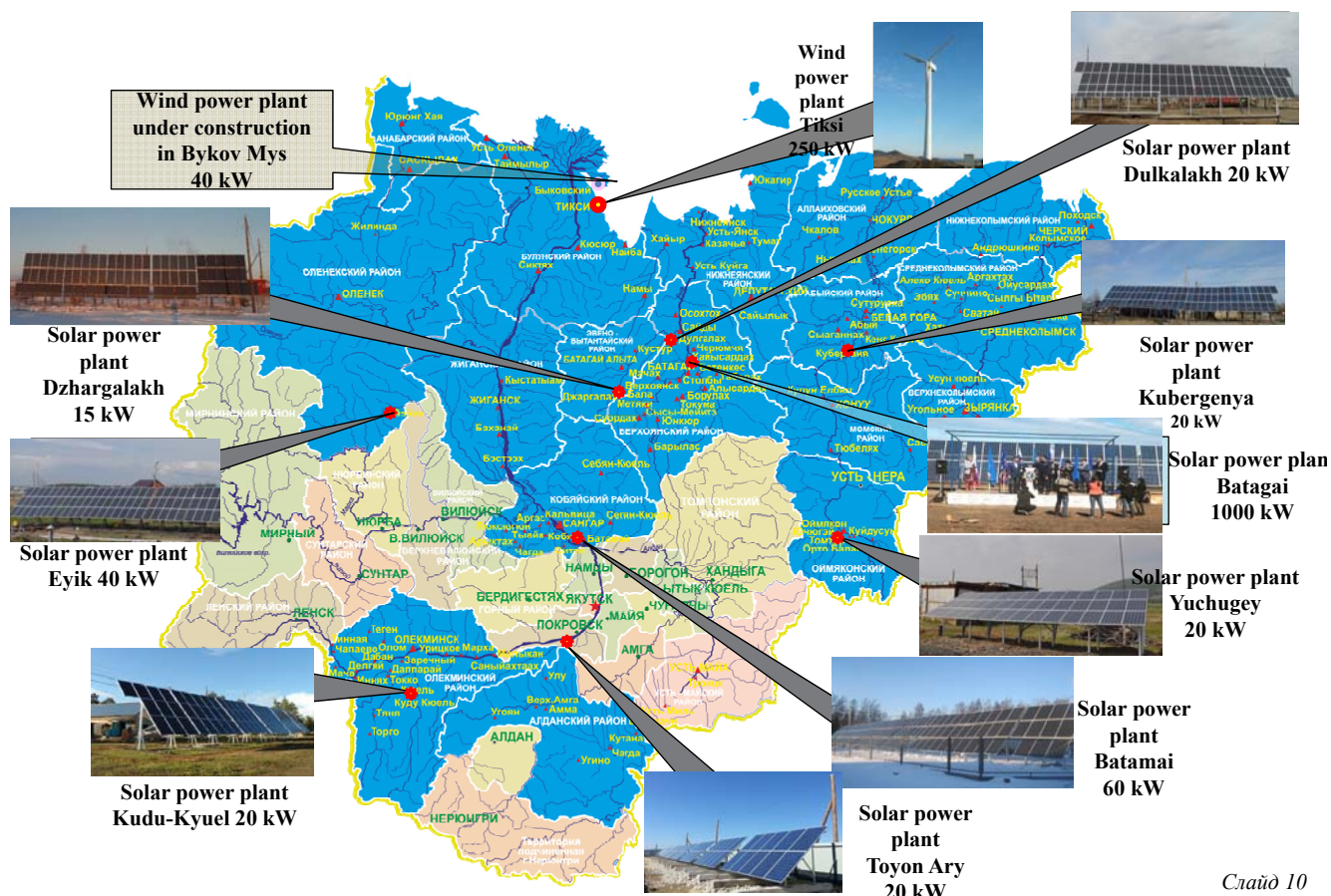
サハ共和国における再生エネルギー技術導入事例:  
9機—太陽光発電設備  
1機—風力発電機

再生エネルギー設備を導入後  
ディーゼル燃料の削減は—230トン



Слайд 9

サハ共和国における再生エネルギーの現状



Слайд 10

**Regular international conferences “Renewable energy generation in the isolated systems of the Russian Far East” in Yakutsk**



**ご清聴ありがとうございました!**