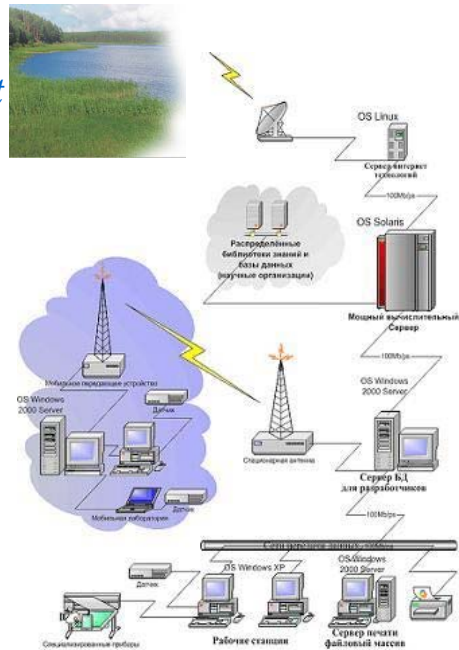




*Intelligent management system of the recreational tourist economic zone on the Seliger Territory*



## ИНФОРМАЦИОННО-АНАЛИТИЧЕСКАЯ СИСТЕМА

ДЛЯ УПРАВЛЕНИЯ  
ГАРМОНИЧНЫМ РАЗВИТИЕМ ТЕРРИТОРИИ  
ОЗЕРА СЕЛИГЕР НА ОСНОВЕ БАЙЕСОВСКИХ  
ИНТЕЛЛЕКТУАЛЬНЫХ ТЕХНОЛОГИЙ

INFORMATION-ANALYTICAL SYSTEM FOR  
MANAGEMENT OF THE LAKE SELIGER REGION  
BASED ON THE DEVELOPMENT OF BAYESIAN INTELLECTUAL TECHNOLOGIES.

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KCK

1. Региональный мониторинг, разработка территориальных кластеров (экономика, энергетика, экология, промышленность и сельское хозяйство, транспорт, коммуникации).
2. Анализ региональной ситуации.
3. Экологическое нормирование и планирование территории на основе национальных и международных стандартов.
4. Оценка рисков и потенциалов территории, прогнозирование ситуаций.
5. Региональное планирование, разработка стратегий сбалансированного развития.
6. Аналитические отчеты, выводы, рекомендации. Принятие решений на региональном и федеральном уровне.
7. Разработка инвестиционных проектов для территорий.

*1. Regional monitoring, creating of the territorial clusters (economy, energetic, ecology, industry and agricultural, transport, communications).*  
*2. Analysis of the regional situation.*  
*3. The developments of ecologic norms and standards, implementation of territories' passports on the base of national and international standards.*  
*4. Risk and potential estimation, prognosis of situations.*  
*5. Regional planning, creating of the balanced territories' strategies for sustainable developments of the territories.*  
*6. Analytical reports, conclusions, recommendations. Managing decision making on regional and federal levels.*  
*7. Creating investment projects for the territories.*

## Region's characteristics

### Tver region

The Tver region is one of the biggest and one of ecological clear region among central Russian regions. It's unique landscapes, forests, rivers, lakes have great recreation potential. Temperate climate is allow to use this region for recreation all the year round.

## Municipal territories of local Seliger's ecosystem



**Otashkovsky area**  
Center – city Otashkov  
Population – 35.7 thousand people  
Area – 3.2 thousand km<sup>2</sup>



**Penovsky area**  
Center – urban-type community Penno  
Population – 9.3 thousand people  
Area – 2.385 thousand km<sup>2</sup>



**Selizharovsky area**  
Center – urban-type community Selizharovo  
Population – 18.1 thousand people  
Area – 3.097 thousand km<sup>2</sup>



### Nilova Pustyn

Sacred places

Black Hermit Ivan Nikolski-Pechek monastery became the founder of the monastery on the place of Nil's cell.  
In 1597 together with the visitors Harter started to build wooden church and cells. In 1598 in the days of the first Russian patriarch Jerkeds and Avrah have received the status of monastery and began to be known as Nilia-Skolobenskiya Pustyn.  
With population of monastery gradually erected new wooden, and then stone buildings. Above steep unapproachable crag made of heavy granite, rises Cathedral of Theophany (Theophany Cathedral) (1627-1633). Below it St. Nil, that were gathered in 1667 heavy construction of Theophany church, next there. A huge bell tower projects over the cathedral and all over the island. Above the monastic yard, surrounded with high cellular buildings, cupolas of three more churches are seen. It is the Peter and Paul church (1704), above the western gate, small, adorned with other constructions, church of All the Skolobenskiya (Theophany) (1721-1736), above the east gate, and entirely carved, the most ancient, Church of All Saints (Narotnyatskaya Church) (1530) with hospital wards. A picturesque Church of Gushanin (Narotnyatskaya) (1728) stands aside from these churches, on the southern cape.

### Nilova Pustyn

Sacred places

The name of island Skolobny comes from an extreme antiquity when a heathen temple existed here, and there was a stone idol – "skolob" (looking). Under bushes, there was a small tower Skolobny earlier on island, but it was ruined during invasion of Gory.  
In the summer of 1528 when archbishop Nil has ordered on the previously uninhabited island. All Skolobenskiy has lived in a cave on island for 27 years. To defeat his death, Nil has given a row of other ascetics. He died 71st and 68th years, the sleep, having hung on wooden hooks. The rumor has made Nil exist during his life. He has died on December 7, 1555.

On July 8, 1925 solemn translation of the relics of Venerable Nil from Znamenskiy Cathedral of Ostashkov to Theophany Cathedral of Nilova Pustyn has taken place.  
Now daily services are carried out in one of nearby of Theophany Cathedral, the restoration of constructions of the monastery is realized, the monastery is in progress.





## Seliger's forests

Nature resources



There are many natural resources on the Seliger Nature Territory. First growth class forests occupy about 70% of total territory. Natural resources of Seliger territory are rich: more than 60 kinds of trees and bushes. More than 900 titles of grasses and flowers. Besides the most widespread types of trees (a spruce, a pine, a birch) there are oaks, maples, ashes, elms, larches, cedars and other, rather rare breeds for these places. Widespread bushes: ashberry, elder, dogrose, wahoo, hazel, bird cherry.

Total area of forests:

Area:	By districts:			Total
	Ostashkovsky	Penovsky	Selizharovsky	
Total area, th.	320	310	239	869
Forest area, th.	197,5	219	189	605,
Forest percentage	62%	71%	79%	70%

## Lakes and rivers of Seliger's ecosystem

### The Volga and its feeders



The Volga (ancient names – the Ra, the Irtyl) flows from the big moss swamp situated next to the village Volgovorone. The length of the great river from its head to its estuary – 3530 km (before the construction of water reservoirs). It starts as a streamlet one meter wide, at Rzhev it is 100 m wide, at Kalinin – 200 m, and at its confluence into the Caspian sea – several kilometers. The source of Volga lays at the height of 228 m above the sea level (the World ocean), and the estuary – is 28 m lower (the Caspian Sea's peculiarities account for that).

Thus, the total altitude difference of the river is 256m – 7 cm on 1 km. On the distance from its source to Rzhev it's the greatest. At this point of 220 km the Volga descends by 70m. The upper reaches of the river are rapid and steep. On the distance from the Upper Volga Lakes to Rzhev it has 30 rapids. The Bemly Rapid situated next to the village Elby is the most famous, because here within one kilometer distance the river descends by 3 meters. Another characteristic feature of the Upper Volga is a great number of rivers and lakes that feed it, as it was mentioned before, within the first 100 km of its way, the Volga runs through the lakes the Malyy and Bolshoy Verkhny, the Stergo, the Yuzing, the Peno and the Volgas.



### ОЗЕРА СЕЛИГЕРА

Природные ресурсы

The Seliger lake area in the center of the Volga region. It is also the "cradle" of Russia, the place which the great Russian rivers spring from: the Volga, the Neva, the Dnieper, the Don, the Dniester, and the Dniestr. The lakes are situated on the altitude of 200 meters above the sea level. Their coasts are undulated and heavily covered with coniferous and mixed forests. One of the biggest lakes in the Seliger area is a 200 km<sup>2</sup>. It is one of the reserves Seliger lakes of Russia. The vast expanses and the purity of water of the lakes make them a real natural treasure of Russia.

The Seliger Natural Territory lakes area in km<sup>2</sup>





*The forests of the Seliger have preserved their relative virgin calmness and stillness and have a lot of wild animals. There are such ungulate animals as elk, roe, wild boar. Fur game – bear, wolf, lynx, fox, raccoon, squirrel, marten, mountain hare, brown hare, polecat, ermine, weasel; beaver, mink and otter in rivers and springs.*



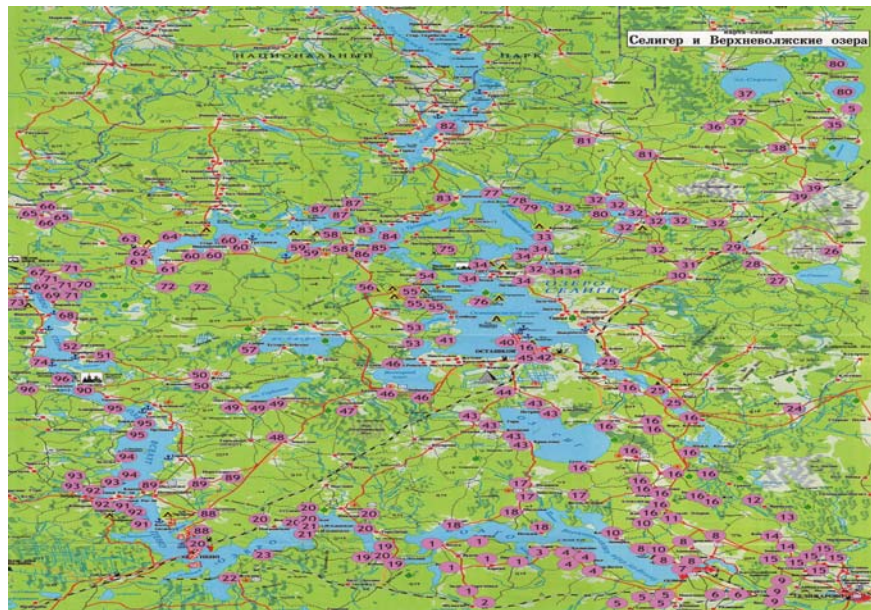
*Gathering of mushrooms and berries is one of the most popular and widespread recreational activities of the Russians.*



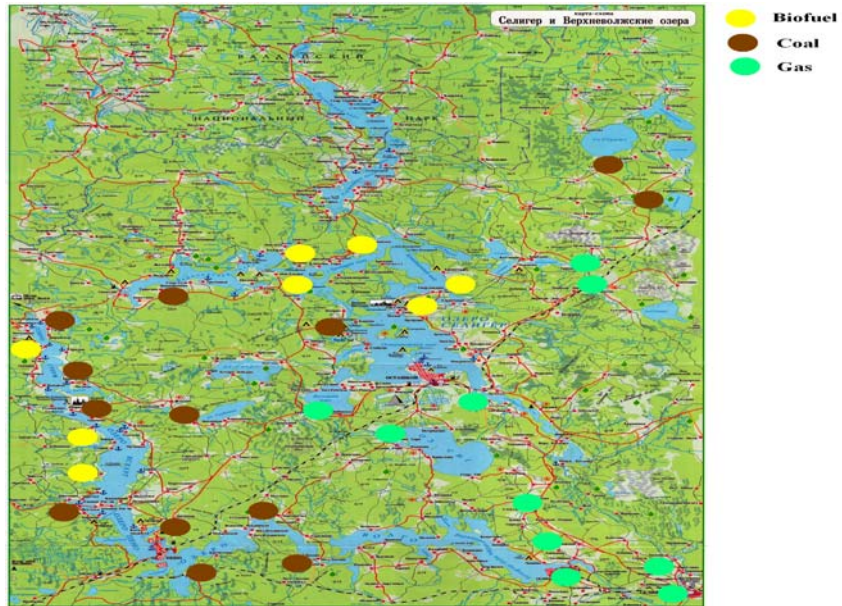
*The Seligers natural territory has preserved forests and swamps with a lot of berries (bilberries, wild strawberries, cowberries, great bilberries, cranberries and cloudberry) and mushrooms.*



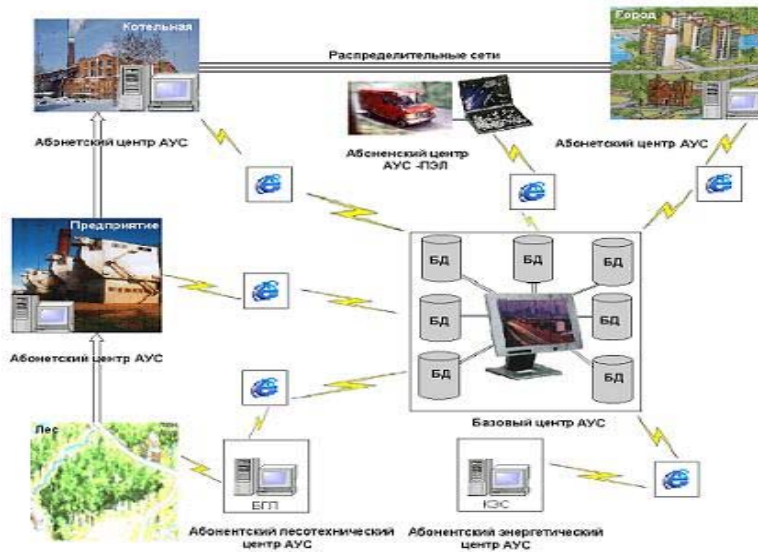
## Investment objects of the project “Seliger”



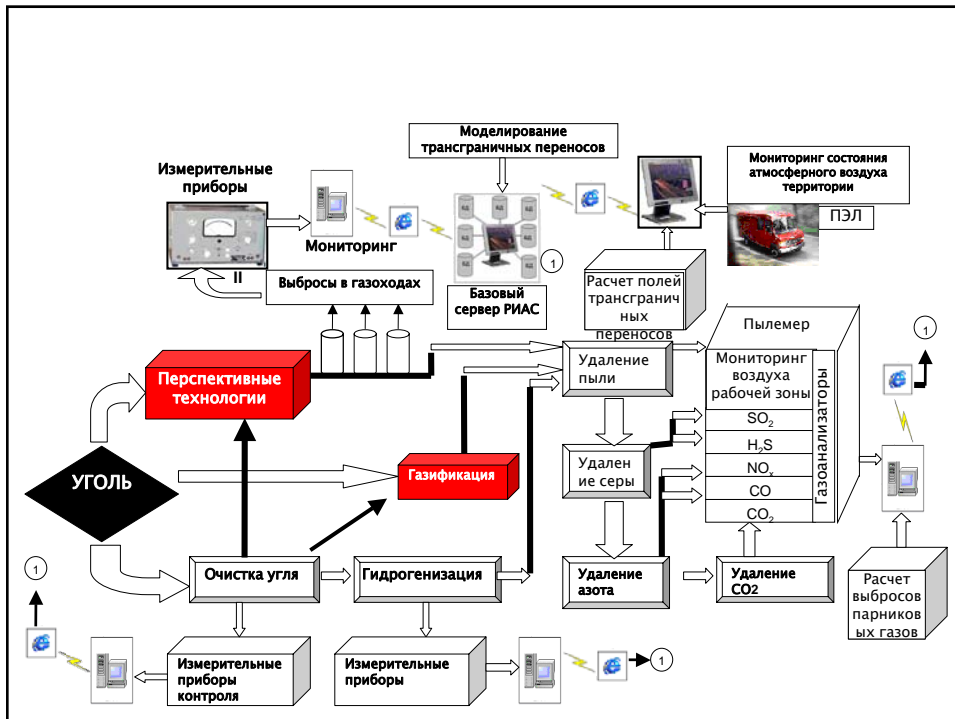
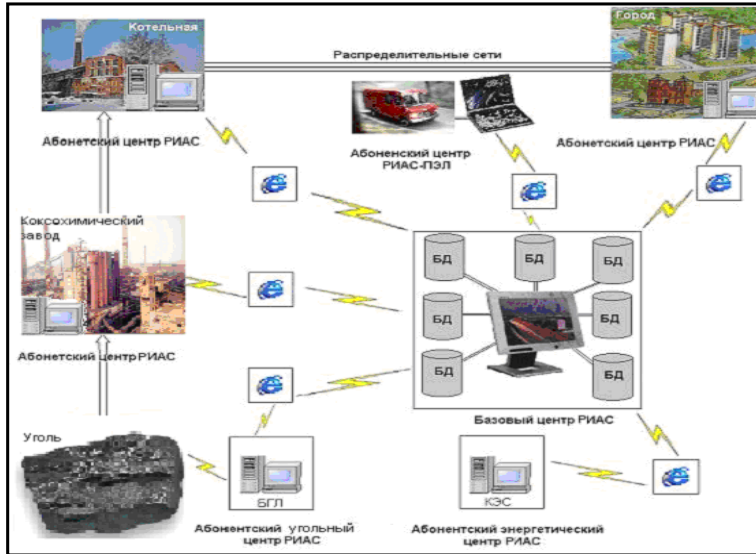
## Boiler-houses to build



## Analytical management system



## Analytical management system



## Ecological monitoring on the territory of the Seliger



## Energy saving, environmental protection activity support for Tver region

**Wärtsilä Biopower benefits include:**

- A single-source supplier for engineering, manufacturing, contracting and O&M services worldwide
- Reliable and proven technology
- Unique patented combustion technology capable of handling fuels with a moisture content up to 65% with high fuel efficiency and low emission levels
- Conservative design approach resulting in reliable and durable plant construction
- Highly automated plants with modern control methods enabling unmanned operation
- Wide range of services from project financing to plant operation



**Standard grates:**

	Outer diameter (cm)	Weight (ton)
BioGrate 3	415	10
BioGrate 5	503	15
BioGrate 8	615	25
BioGrate 10	665	29
BioGrate 12	745	35
BioGrate 15	847	40
BioGrate 17	950	52

### **International project «Seliger»**

The project presupposes the construction of 31 recreational tourist complexes with 25 000 employees.

#### **Structure:**

- 8 VIP complexes accommodating 250 people each;
- 3 sanitary resort complexes accommodating 3000 people;
- 20 recreational tourist complexes accommodating 20 000 people.

The first construction phase includes the construction of VIP complexes, the energy and infrastructure objects and also the road and transport development of the area.

### **International project «Seliger»**

#### **It is planned to build:**

- 31 boiler-houses (about 300 MW);
- water-supply systems with the output of 13 000 m<sup>3</sup> per day;
- 150 km of roads;
- power stations (over 100 MW).

The total area used for construction and recreation is 250 km<sup>2</sup>.

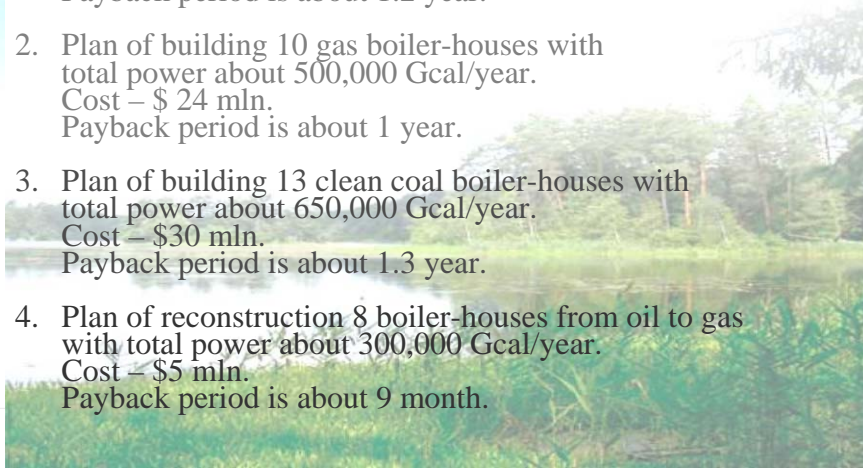
The estimated amount of investments is about \$250 mln. for infrastructure.

Total cost of the project is about \$1.5 billion.

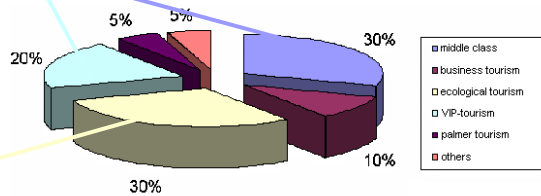
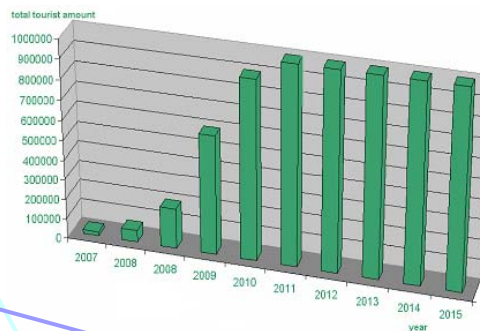
The predictable tourist flow is estimated more than million tourists per year.

## Energetic business plans

1. Plan of building 8 biomass boiler-houses with total power about 150,000 Gcal/year.  
Cost is about \$10 mln.  
Payback period is about 1.2 year.
2. Plan of building 10 gas boiler-houses with total power about 500,000 Gcal/year.  
Cost – \$ 24 mln.  
Payback period is about 1 year.
3. Plan of building 13 clean coal boiler-houses with total power about 650,000 Gcal/year.  
Cost – \$30 mln.  
Payback period is about 1.3 year.
4. Plan of reconstruction 8 boiler-houses from oil to gas with total power about 300,000 Gcal/year.  
Cost – \$5 mln.  
Payback period is about 9 month.



## The dynamics and structure of the predictable tourist flow



### The estimated profitability of the project

Year	The profit of the proect, \$ mln.
2007	-145
2008	-190
2009	-120
2010	100
2011	395
2012	690
2013	985
2014	1 280
2015	1 575

