



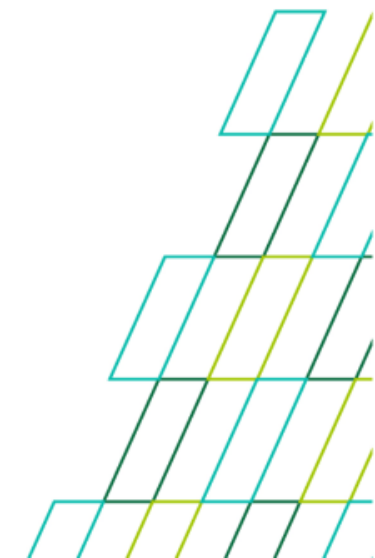
TRINITI ENGINEERING Smart Grid Solutions

Company profile



TRINITI ENGINEERING is a part of **ANTRAKS group**. ANTRAKS independently develops, designs, manufactures, installs and commissions the solutions for electric power industry

- In the energy market since 1991
- The only manufacturer of fault indicators in Russia
- Proprietary algorithms and technologies (10 patents)
- Winner of the national award "The best innovative company from the energy sector"
- Recommended supplier for "Smart Grids" program
- Devices are installed in 26 countries around the world



Application area

- Smart Grid
- Smart City
- Energy Management - Automation and Controls

Our purpose is to make electricity transmission and distribution safer, more reliable and more efficient

Our clients

Confidence of leading companies: Gazprom, Aramco, Rosseti, Lukoil, Tatneft, Surgutneftegaz etc



Distribution lines



Resource companies



Substations and energy generation



Transmission lines

Solutions portfolio

Fault monitoring and control

- Fault indicators for overhead lines
 - Conductor mounted fault indicators
 - Pole mounted fault indicators
 - Auxiliary communication equipment
- Feeder monitors for cable lines
- Intelligent disconnecter for line sectioning
- Monitoring and control system KOMOROSAN



Substation monitoring control equipment

- OLTC Position Monitors
- OLTC Controllers
- Transformer tap sensors



Possibilities



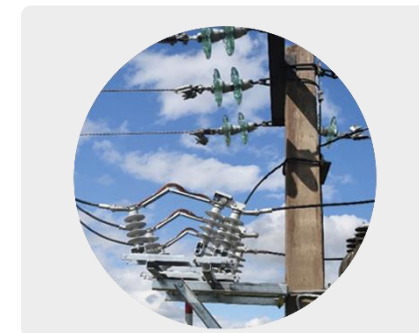
Smart fault passage indicators:

- Control of power line's parameters
- Precise detection of any fault process
- Multichannel information transmission



Fault management GIS:

- Localization of damaged area
- Operational management, dispatching, control and analytics
- Notifications



Disconnectors:

- Embedded analytical mechanisms
- Cut-off of faulty area in automatic mode
- Ability to implement topological and mode switching, control from SCADA

Operating mechanism

Grid control center



Local dispatching point



Control equipment measures multiple grid parameters on different level, while intelligent system KOMORSAN stores and systemizes all data.

IEC 60870-5-104 (IEC 61850)

Automated process control system



Intelligent disconnectors



Fault indicators



Icing sensors



Digital relays



Feeder monitor



Substation telemetry unit



OLTC controller



OLTC position monitor

Overhead lines

Substations

Distribution centers

Results

Solving of typical distribution networks problems



Low level of automation



Bad observability



Difficult to control



Problems with energy accounting

Results of implementation of ATRAKS solutions



Fast and controllable troubleshooting

✓ Decrease of OPEX



System reliability

✓ Improvement of SAIDI and SAFI



Infrastructure control

✓ Risk-oriented asset management



On line energy management

✓ Decrease of energy losses and steal

Back to application area

- Smart Grid
- Smart City
- Energy Management - Automation and Controls

Our purpose is to make electricity transmission and distribution safer, more reliable and more efficient

Our clients

Confidence of leading companies: Gazprom, Aramco, Rosseti, Lukoil, Tatneft, Surgutneftegaz etc



Distribution lines



Resource companies



Substations and energy generation



Transmission lines

Supply Geography

- **Europe:** Russia, Germany, Switzerland, UK, Moldova, Lithuania, Bulgaria.
- **Asia:** Kazakhstan, Kirgizia, Uzbekistan, India.
- **Middle East:** UAE, Saudi Arabia, Turkey, Iran, Iraq, Israel.
- **South-East Asia:** Malaysia, Myanmar, Cambodia, Vietnam, Thailand, Philippines, Indonesia.
- **Oceania:** Australia, New Zealand,
- **South America:** Argentina, Peru, Colombia, Ecuador.



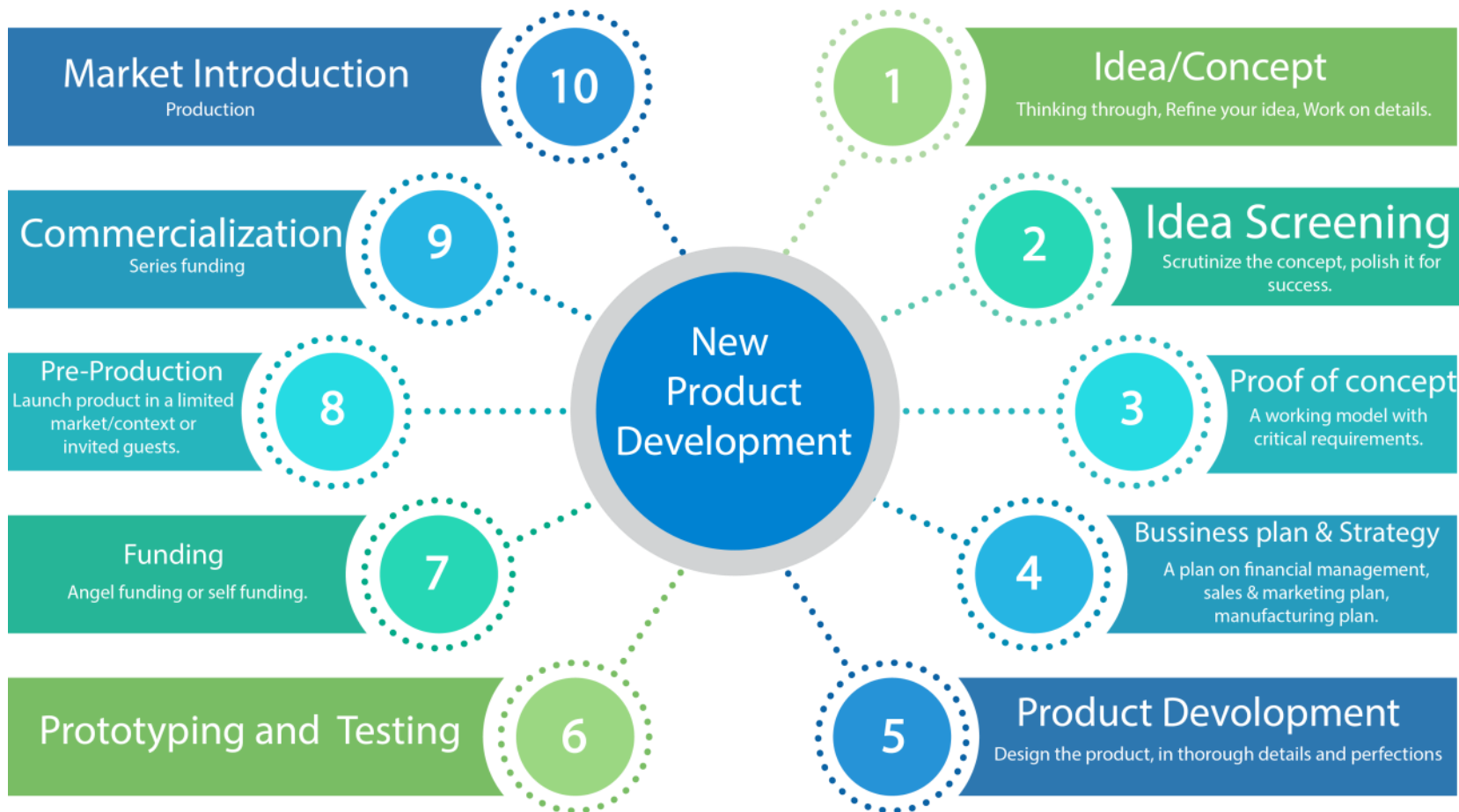
Tested in accordance with: IEEE Guide for Testing Faulted Circuit Indicators in Switzerland

R&D ability

We are continually developing the product range.

Flexible for adapting products to specific market or customer needs

Grow your business together with ANTRAKS!



Thank you for your attention!

Tel: +7(964) 530-24-41, +7 (964) 56 86 537
E-mail: a.chinchenko@antraks.ru, Anna Chinchenko
www.a3.energy

