



sustainable energy for everyone

# Energy Efficiency Obligations for Russian industry

**An ex ante evaluation of options**

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# Russian industry can save 43% on primary energy

- > Total final energy consumption in Russia increased by factor 4 from 2000-2010
- > Saving potential on primary energy in industry ~ 3340 PJ
- > Fuel processing and end-use
- > Close to primary energy Netherlands, Turkey, or Poland
- > EE improvements may lead to
  - Environmental and public health benefits
  - Larger oil and natural gas exports
    - Now 65% of export revenue, 45% of federal budget revenue, 24% of GDP



# Structural solutions and strong policies are required

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## **Effective policies are lacking**

- > EE policies before 2008 very limited and still starting
- > National objectives are to reduce energy intensity
  - by 40% in 2020 (over 2007)
  - by 56% in 2030 (over 2005)
- > Federal law No.261 comprises a range of regulations on EE
- > Policies for industry are limited (mandatory audits, tax benefits)

## **Energy efficiency obligation schemes may be a good instrument**

- > International lessons may of direct use for Russia, where energy markets have been restructured and liberalized in recent years

# What is an energy efficiency obligation scheme?

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Three central features:

1. A **binding (voluntary) obligation to save energy** is placed on energy distributors or suppliers (complemented with buyout option and/or penalty)
2. Savings realized through **eligible EE measures** in targeted end-use sectors (by obligated parties or accredited third parties)
3. An **accreditation of savings** and declaration on (white) certificates by independent authority, possibly followed by trading

# Many EEOs schemes are in place to date, notably:

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## **European Union**

- > EEO schemes exist in 10 of EU Member States
- > 7 Member States plan to introduce them to comply with EU Energy Efficiency Directive (2012)
- > Longest running schemes in Denmark, France, Flanders, Italy, UK, most savings in residential sector
  - Denmark: focus on end-use savings in industry, combination with mandatory energy audits (until end 2013)
  - Italy: good experience in trading, but problems creating a fluid market

## **United States**

- > 25 States with an EEO, different designs and degrees of success
- > Greater share of investment in commercial and industrial sectors
- > Success in driving industrial savings: California, Colorado, Massachusetts, Minnesota, New York, Wisconsin

# Design of an EEO: **obligated parties**

<b>Options</b>		
<b>Suppliers</b>	+	Close connection to end-user
<b>Distributors</b>	-	Revenues not yet decoupled from volume distributed
<b>Industrial end-users</b>	-	Interest among end-users limited

*→ Obligate heat, electricity, and gas suppliers, and allow them to save all fuels*

# Design of an EEO: **nature of target**

<b>Options</b>		
<b>Lifetime</b>	+	Values savings over longer lifetime
<b>Annual</b>	-	Incentivizes measures with quick payback
<b>Final energy</b>	-	Reflection of EE improvements in end-use
<b>Primary energy</b>	+	Savings in the whole supply chain
<b>Distribution / transmission?</b>	+ -	Wider potential, but difficult to exploit

*→ Adopt a target based on lifetime savings and exclude distribution and transmission. The choice of final or primary energy savings depends on policy objectives of Russian Government*

# Design of an EEO: **targeted end-users** (in industry)

<b>Options</b>		
<b>Large enterprises</b>	+	Limited group, easier to connect to
<b>SMEs</b>	+	Stimulate innovation across society
<b>All enterprises</b>	+	Largest potential

→ *A wide coverage of a scheme is recommended*

# Design of an EEO: **eligible measures**

<b>Options</b>		
<b>List default measures</b>	+	Spread benefits among many endusers
<b>Process technologies</b>	-	Capital-intensive, difficult to finance

→ *Adopt a list of standardized eligible measures*

# Design: **the role of auditing**

<b>Options</b>		
<b>No audits</b>	-	No reduction of 'search cost'
<b>Mandatory</b>	+	Mandatory audits already in Russian law
<b>Subsidized</b>	+	Greater compliance

*→ Consider providing a subsidy for mandatory audits to enhance compliance*

# Design: monitoring and verification

Options		
<b>Ex post verification</b>	-	Too costly
<b>Deemed savings</b>	+	Cheap
<b>Scaled engineering estimates</b>	+	Relatively cheap verification for deviating equipment

→ *Combine deemed savings and scaled engineering estimates*

# Design of an EEO: **funding of saving measures**

<b>Options</b>		
<b>Raise energy tariffs</b>	+ -	Stable funding stream Potential limitations in Russian legal framework
<b>Fiscal measure</b>	-	Success uncertain, as investment tax rebates exist already

→ *No recommendation*

# Design of an EEO: **role of trade**

<b>Options</b>		
<b>Open trade</b>	+ -	Exploit largest possible energy saving potential Difficult to create fluid market
<b>Bilateral</b>	+	Enlarge saving potential w/o need to create a fluid market
<b>Banking</b>	+	Increases flexibility to comply
<b>Borrowing</b>	-	Advances speculation

→ *Initially allow for bilateral trade only (incl banking, not borrowing)*

# Design of an EEO: **role of ESCOs**

<b>Options</b>		
<b>Energy performance contracts</b>	-	Difficult to a business from the start, in absence of fluid WC market
<b>Identify potentials</b>	+	Easier to establish a viable business

→ *Ensure ESCOs may identify cost-effective saving potentials*

# Design of an EEO: **buyout fees and penalties**

<b>Options</b>		
<b>Buyout</b>	+	Allow small parties to avoid relatively high transaction costs
<b>Penalty</b>	+	Encourage obligated parties to comply with targets

*→ Establish a buyout at a low price (e.g. 20% above cost of energy), and include a penalty of several times the cost of savings*

# Design of an EEO for Russian industry

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- > Obligate heat, electricity, and gas suppliers, and allow them to save all fuels
- > Target based on lifetime savings (excl. distribution / transmission), with final or primary energy depending on Russian policy objectives
- > Wide coverage of targeted end-users
- > List of standardized eligible measures
- > Subsidy for mandatory audits to enhance compliance
- > Deemed savings and scaled engineering estimates
- > Initially bilateral trade only (incl banking, not borrowing)
- > ESCOs to identify cost-effective saving potentials
- > Buyout at a low price (e.g. 20% above cost of energy), and a penalty of several times the cost of savings

# Conclusions

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- > Energy efficiency obligations schemes can be effective to save energy in Russian industry
- > International lessons may of direct use for Russia, where energy markets have been restructured and liberalized in recent years. Our recommendations just listed are based on this experience.
- > No recommendation on funding of the scheme. This can be done by raising energy tariffs (if Russian law allows) or by introducing a fiscal measure
- > Our recommendations will need to be considered by relevant stakeholders in Russia

Thank you!



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