

No. 20/2016/TT-BCT

Hanoi, September 20, 2016

CIRCULAR

ON THE QUOTA ON ENERGY CONSUMPTION OF THE STEEL INDUSTRY

Pursuant to the Government's Decree No. 95/2012/ND-CP dated November 12, 2012 on the functions, missions, authority and organizational structure of the Ministry of Industry and Trade;

Pursuant to the Law on economical and efficient use of energy dated June 28, 2010;

Pursuant to the Government's Decree No. 21/2011/ND-CP dated March 29, 2011 on details and measures for the implementation of the Law on economical and efficient use of energy;

At the request of the Head of the General Directorate of Energy,

Ministry of Industry and Trade promulgated the following Circular on the quota on energy consumption of the steel industry:

Chapter I

GENERAL PROVISIONS

Article 1. Scope

1. This Circular regulates the quota on energy consumption of the following processes of production in the steel industry for the period that extends to the year of 2020 inclusive and the period that extends from 2021 to 2025 inclusive: Sintering of iron ore; iron making by blast furnace, steelmaking by (top-blown) converter, steelmaking by electric arc furnace, steelmaking by induction furnace; steel rolling.

2. The Circular does not govern the production of cast iron or steel for molding of mechanical parts; production of alloy steel as a material for machine building; production of hot-rolled flat steel sheets.

Article 2. Regulated entities

1. Entities operating in the steel industry.
2. Other organizations concerned.

Article 3. Terminology

In this Circular, the following phrases are construed as follows:

1. *Specific energy consumption (SEC)* is the total energy consumed in a process of production (referred to as a process) as expressed in MJ (equal to 1,000,000 J) for the manufacture of one tonne of a product.

2. *Quota on energy consumption* is the progressive specific energy consumption corresponding to each period specified by the Ministry of Industry and Trade in this Circular.

Chapter II

QUOTA ON ENERGY CONSUMPTION AND SOLUTIONS FOR ENHANCING THE ENERGY CONSUMPTION EFFICIENCY OF THE STEEL INDUSTRY

Article 4. Defining of specific energy consumption

Specific energy consumption (SEC) is specified as follows:

1. The method for determining specific energy consumption is prescribed in Appendix I to this Circular.
2. The coefficient for conversion of types of energy to primary energy is prescribed in Appendix II to this Circular.

Article 5. Quota on energy consumption of the steel industry for the period that extends to 2025 inclusive

1. The quota on energy consumption of the steel industry for the period that extends to 2020 inclusive.

No.	Production process	Unit	Quota
1	Sintering of iron ore	MJ/tonne	2,350
2	Production of cast iron by blast furnace	MJ/tonne	14,000
3	Production of steel billet by (top-blown) converter	MJ/tonne	150
4	Production of steel billet by electric arc furnace	MJ/tonne	2,600
5	Production of steel billet by induction furnace	MJ/tonne	2,600
6	Hot rolling of long steel products	MJ/tonne	1,650
7	Cold rolling of steel plates	MJ/tonne	1,600

2. The quota on energy consumption of the steel industry for the period that extends from 2021 to 2025 inclusive.

No.	Production process	Unit	Quota
1	Sintering of iron ore	MJ/tonne	1,960
2	Iron making by blast furnace	MJ/tonne	12,400
3	Production of steel billet by (top-blown) converter	MJ/tonne	100
4	Production of steel billet by electric arc furnace	MJ/tonne	2,500
5	Production of steel billet by induction furnace	MJ/tonne	2,500
6	Hot rolling of long steel products	MJ/tonne	1,600
7	Cold rolling of steel plates	MJ/tonne	1,500

Article 6. Requirements for compliance with the quota on energy consumption for the period extending to 2025

1. The specific energy consumption of a producer in the steel industry at present to 2025 inclusive shall not exceed the quota on energy consumption specified in Section 1 and Section 2, Article 5 of this Circular.
2. If the specific energy consumption of a producer in the steel industry exceeds the quota on energy consumption in a corresponding period, such producer must formulate and adopt solutions that heighten the efficiency in the use of energy so as to conforming to Section 1 and Section 2, Article 5 of this Circular.
3. The specific energy consumption (SEC) of a new investment project or an expansion project shall not exceed the values specified in Section 2, Article 5 of this Circular.

Article 7. Certain solutions for enhancing the energy consumption efficiency of the steel industry

1. The solutions for augmenting the energy consumption efficiency consist of:
 - The establishment of the IS 50001 energy management system and elevation of the energy consumption efficiency of the energy management;
 - Solutions for heightening the low-investment energy efficiency (by replacing with separate apparatus with a higher energy consumption performance);

- Solutions for heightening the high-investment energy efficiency (by replacing with the equipment or clusters of equipment with a higher energy consumption performance or with other technologies that improve the energy productivity).

2. Entities are encouraged to adopt the energy productivity enhancement solutions specified in Section 1, Article 7 and Appendix V to this Circular.

Chapter III

IMPLEMENTATION

Article 8. Responsibilities of the General Directorate of Energy

1. Lead and cooperate with relevant agencies in guiding, supervising and inspecting the implementation of this Circular.
2. General Directorate of Energy cooperates with local Departments of Industry and Trades across the nation in inspecting the compliance with the energy quota and the feasibility of plans for adhering to the energy quota according to the regulated schedule (when deemed necessary).
3. General Directorate of Energy, on the basis of such inspections, reports to the Minister of Industry and Trade about entities failing Article 5 of this Circular and proposes remedial actions as per current laws.

Article 9. Responsibilities of Departments of Industry and Trade

1. Cooperate with the General Directorate of Energy in guiding, expediting and inspecting the economical and efficient use of energy according to this Circular.
2. Supervise, on annual basis, the inspection of the adherence to the energy quota and the feasibility of the local steel producers' plans for abiding by the energy quota according to the regulated schedule (in case of the producers that have failed the quota).
3. Summarize and report the local producers' abidance by the energy quota on the steel industry to the General Directorate of Energy and the Ministry of Industry and Trade by the 31st of January every year according to Appendix IV to this Circular.

Article 10. Responsibilities of producers and entities

1. Entities operating in the steel industry shall formulate plans for complying with Article 5 of this Circular.
2. By the 15th of January every year, producers in the steel industry shall be responsible for reporting to local Departments of Industry and Trade about their abidance by the energy consumption quota specified in Appendix III to this Circular.
3. Penalties shall be imposed, as per current laws, on the producers failing the energy quota at a defined time but providing no feasible plan to abide by the quota according to the schedule specified in Article 5 of the Circular.

Article 11. Effect

1. This Circular comes into force as of November 08, 2016.
2. The projects whose preliminary proposal is approved by competent authorities after the date of effect of this Circular must abide by Section 2, Article 5 of the Circular.
3. Difficulties ensuing during the process of implementation shall be reported promptly to the Ministry of Industry and Trade for review and revision of the Circular./.

MINISTER

Tran Tuan Anh

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APPENDIX I

METHOD FOR DETERMINING THE SPECIFIC ENERGY CONSUMPTION (Enclosed to the Circular No. 20/2016/TT-BCT dated September 20, 2016 by the Minister of Industry and Trade)

The specific energy consumption (SEC) of a production process in the steel industry is determined by:

1. The scope of the production process under assessment, including clusters of feeders of materials (or of products from a prior production process in case of combined producers), cluster of production and collection equipment, and other instruments ancillary to the production process.
2. The length of time for which the specific energy consumption of a producer under assessment is calculated shall be:
 - a. The length of time consumed by a cycle of the production process;
 - b. If the production process goes uninterrupted, the length of time shall adopt one of the following units according to actual production situations: hour, shift, day, week, month, year.
3. SEC is determined by the following formula:

$$\text{SEC}_{\text{process}} \text{ (MJ/T)} = \frac{\text{Energy consumed}}{\text{Production yield}} = \frac{\text{Input energy} - \text{Output energy}}{\text{Production yield}}$$

Where:

- + Input energy: The total energy fed to the operation and production of the producer for the duration of assessment (e.g. factory, workshop, etc.) as converted to the primary energy expressed in MJ.
- + Output energy: The total energy recovered from sources of energy discharged by the producer for the duration of assessment (e.g. factory, workshop, etc.) and used for a purpose (other than the said production process) as converted to primary energy expressed in MJ.
- + Production yield: The product output of the producer for the duration of assessment as expressed in tonne.

APPENDIX II

COEFFICIENT FOR ENERGY UNIT CONVERSION

(Enclosed to the Circular No. 20/2016/TT-BCT dated September 20, 2016 by the Minister of Industry and Trade)

No.	Fuel	Unit	Coefficient for energy unit conversion (MJ)
I	Electricity	kWh	3.6
II	Coal and gas		
2.1	Coke	kg	31.402
2.2	Fine anthracite coal grade 1 or 2	kg	29.309
	Fine anthracite coal grade 3 or 4	kg	25.122
	Fine anthracite coal grade 5 or 6	kg	20.935
2.3	Coke-oven gas	Nm ³	38.7
2.4	Blast furnace gas	Nm ³	2.47
2.5	Converter gas	Nm ³	7.06
2.6	Natural gas	Nm ³	37.683
2.7	LPG	kg	45.638
III	Oil		
3.1	Diesel oil	kg	42.707
		l	36.845
3.2	Fuel oil	kg	41.451
		l	39.358
VI	Biomass fuel		
4.1	Wood/ Husk	kg	0.0156

4.2	Other types of biomass	kg	0.0116
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APPENDIX III

REPORT ON THE ADHERENCE TO ENERGY CONSUMPTION QUOTA ON THE STEEL INDUSTRY

(Applicable to the manufacturers in the steel industry)

*(Enclosed to the Circular No. 20/2016/TT-BCT dated September 20, 2016 by the Minister of
Industry and Trade)*

REPORT ON ADHERENCE TO ENERGY CONSUMPTION QUOTA FOR THE YEAR OF ...

To: Department of Industry and Trade of ... [province]

Date of report: ...

1. General information

Name of the producer: ...

Address: ...

Telephone: ...

Fax: ...

Email: ...

Under (name of the parent enterprise): ...

Address: ...

Telephone: ...

Fax: ...

Email:

Owner: (Government/other economic entities): ...

Initial year of production:

Designed capacity: ...

Output in the year of ... (tonne): ...

2. Consumption of energy in the year of ...

No.	Fuel	Original unit ¹	MJ ²	Note
I. Input energy				
1.1	Anthracite coal, coke, ...			
1.3	Coke-oven gas, blast furnace gas, ...			
1.6	Natural gas, liquefied gas, ...			
1.8	Fuel oil			
1.9	Electricity			
1.9...	Other types of energy			
II. Output energy				
2.1	Coal gas			
2.2	Electricity			
2.3	Others			

Notes:

1. Original unit: Tonne, m³, l, kWh, ...
2. Converted unit: MJ (see the formula in Appendix II)

3. Specific energy consumption in the year of ...

SEC_{process} (the producer shall report all production processes that exist)

Notes: The energy productivity index for the year of ... is calculated by the formula specified in Appendix I in comparison with the energy quota specified in Article 5 of the Circular No. ... /2016/TT-BTC dated ... 2016 on the quota on energy consumption of the steel industry.

4. Report on the plan and solution (if requested) for enhancing the energy consumption efficiency in adherence to the energy consumption quota in the current period

- a) Proposal of the plan and solution for adherence to the energy consumption quota.
- b) Anticipation of SEC_{anticipated} for the subsequent year.

c) Determination of the time at which the adherence to the energy consumption quota succeeds according the Enterprise's solution for enhancement of energy consumption efficiency.

Date of report [.././.....]

Director of the producer

(sign with full name and seal)

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APPENDIX IV

REPORT ON THE ADHERENCE TO ENERGY CONSUMPTION QUOTA OF THE LOCAL STEEL INDUSTRY

(Applicable to Departments of Industry and Trade)

*(Enclosed to the Circular No. 20/2016/TT-BCT dated September 20, 2016 by the Minister of
Industry and Trade)*

REPORT ON THE ADHERENCE TO THE ENERGY CONSUMPTION QUOTA OF THE LOCAL STEEL INDUSTRY IN THE YEAR OF ...

To: - General Directorate of Energy, Ministry of Industry and Trade

Date of report: ...

Department of Industry and Trade of ... [province]

1. Address:

Telephone: Fax: Email: ...

2. Quantity of local steel producers:

- Quantity of producers having not reported:

No.	Name of the producer
1	
2	
3	
...	

- Quantity of producers having reported:

No.	Name of the producer	Specific energy consumption (MJ/tonne)	Energy consumption quota (MJ/tonne)
1		SEC _{process 1}	
		SEC _{process 2}	
		...	

		SEC process ...	
2			
3			
...			

3. Steel producers having not adhered to the energy consumption quota shall formulate a plan and propose solution(s) to enhance the energy consumption efficiency:

No.	Name of the facility	Specific energy consumption (MJ/tonne)	Energy consumption quota (MJ/tonne)	Solution and time for enhancement of energy consumption efficiency
1		SEC process 1		
		SEC process 2		
		...		
		SEC process ...		
2				
3				
...				

Date of report [.././...]

Head of the agency

(sign with full name and seal)

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APPENDIX V

CERTAIN SOLUTIONS FOR ENHANCEMENT OF THE ENERGY CONSUMPTION EFFICIENCY IN THE STEEL INDUSTRY

(Enclosed to the Circular No. 20/2016/TT-BCT dated September 20, 2016 by the Minister of Industry and Trade)

1. Sintering of iron ore

- + Recover heat from the sintering space and the cooling space;
- + Sinter the above layer.

2. Cast iron production

- + Recover energy from the blast furnace gas;
- + Recover energy from the gas pressure at the top of the furnace;
- + Save energy consumed by the hot air furnace.

3. Steelmaking by converter

- + Recover energy from the converter gas;
- + Sampling and on-line analysis of samples

4. Steelmaking by electric arc furnace

- + Optimize the steelmaking by electric arc furnace;
- + Heat heavy melting steel;
- + Operate the closed cooling water system.

5. Steelmaking by induction furnace

- + Improve the design of furnaces to reduce energy loss;
- + Combine with the ladle furnace.

6. Hot rolling

- + Feed heated billets into the furnace;
- + Roll heated billets directly by continuous casting;
- + Utilize the regenerative burner.

7. Cold rolling

- + Recover heat from the annealing line;
- + Apply the turbulence pickling technology;
- + Utilize the submerged burner;
- + Cover acid tanks with a suitable lid.

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