

Sustainability Report

HEP Group 2016



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### Overview 2016



## 3<sup>rd</sup>

Sustainability Report of HEP Group, compliant to EU Directive on non-financial reporting

Besides creating our sustainability, we wish to share some basic data with our stakeholders by this report. The report was prepared in compliance with GRI Standard and comprises data and the most representative corporate stories on governance, workplace, human rights, market relations, environment and community investment. We invite you to read it and share it with others. Chapter Overview 1 2016

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### Overview 2016

#### Generation facilities, transmission and distribution network

26 HE – installed capacity 2,094 MW1

8 TE and TE-TO + 50% NE Krško – installed capacity 2,270 MW

25,614 TS mid and low voltage (35-20-10 kV)

141.355 km lines of mid and low voltage (overhead and cable)

<sup>1</sup> without HE Dubrovnik B plant, which operates for B-H

HE- hydropower plants, TE – thermal plants, TE-TO –thermal and heat plants, NE – nuclear power plant, TS – substations

#### Distribution line lengths according to voltage levels and line types (km)

DV 35 kV, 20 kV, 10 kV	KB 35 kV, 20 kV, 10 kV	MRNN - 0,4 kV	KBNN - 0,4 kV
23,692	17,571	69,305	30,787

On December 31, 2016 (data according to the report for HERA)  ${\sf DV-power line, KB-cable, MRNN-low voltage network, KBNN-low voltage cables}$ 

#### Financial result

Consolidated statement* (short version) mil. HRK	2015	2016	16/15	%16/15
Operating income	14,569.5	14,400.4	-169.1	-1.2
Operating expenses	11,573.7	11,677.2	+103.5	+0.9
Operating profit	2,995.8	2,723.2	-272.6	-9.1
Net profit of the Group	1,940.1	2,045.0	+104.9	+5.4
Net profit attributable to equity holders of the parent	1,939.1	2,045.0	+105.9	+5.5

\*Note: consolidated data include HOPS

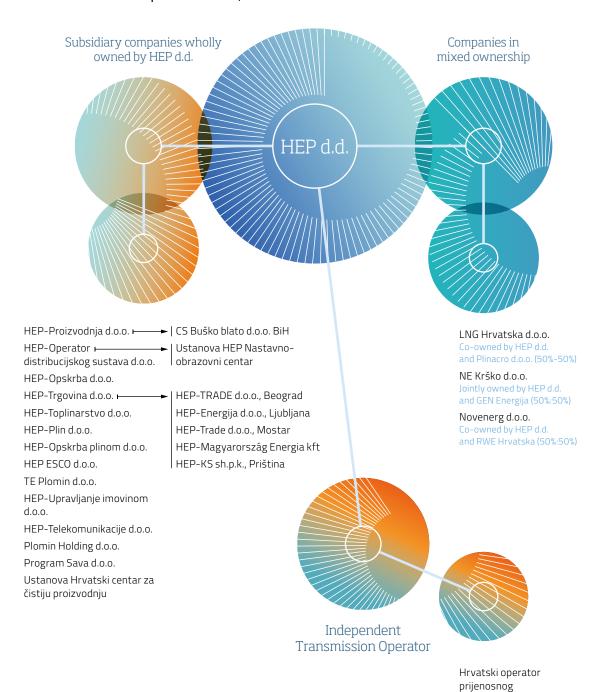
	Basic indicators	unit	2015	2016	% 2015
Electricity sales <sup>1</sup>		TWh	14.9	16.8	+13.0
Electricity generation		TWh	11.5	12.5	+8.5
Heat sales		TWh	1.9	1.9	+0.6
Gas retail		TWh	1.2	1.3	+9.5
Gas wholesale		TWh	6.1	6.3	+4.2
Operating income		mil. HRK	14,569.5	14,400.4	-1.2
EBITDA		mil. HRK	4,508.1	4,617.5	+2.4
Net profit of HEP Group		mil. HRK	1,940.1	2,045.0	+5.4
Total assets		mil. HRK	38,211.4	39,232.9	+2.7
Investments		mil. HRK	2,528.1	2,589.1	+2.4
Employees <sup>2</sup>			11,935	11,832	-0.9

<sup>&</sup>lt;sup>1</sup> domestic and foreign market <sup>2</sup> includes HOPS employees

#### About HEP Group

HEP d.d. (Hrvatska elektroprivreda d.d., with the seat in Zagreb) is a fully state-owned parent company of HEP Group and is the owner of assets which are contractually transferred to subsidiaries or daughter companies for management.

#### HEP Group on December 31, 2016



sustava d.o.o. (HOPS)

Subsidiary companies	Country	Proportion in owner- ship (%)	Core business
HEP-Proizvodnja d.o.o.	Croatia	100	Electricity generation and heat production
Hrvatski operator prijenosnog sustava d.o.o.¹	Croatia	100	Electricity transmission
HEP - Operator distribucijskog sustava d.o.o.	Croatia	100	Electricity distribution
HEP ELEKTRA d.o.o. <sup>2</sup>	Croatia	100	Electricity supply of customers as public service
HEP-Opskrba d.o.o.	Croatia	100	Electricity supply
HEP-TOPLINARSTVO d.o.o.	Croatia	100	Production and distribution of heat
HEP-Trgovina d.o.o.	Croatia	100	Electricity trade and optimization of power plants' operations
HEP-PLIN d.o.o.	Croatia	100	Gas distribution and supply
TE Plomin d.o.o.	Croatia	100	Electricity generation
HEP-ESCO d.o.o.	Croatia	100	Implementation and funding of energy efficiency projects
Plomin Holding d.o.o.	Croatia	100	Development of local infrastructure in the vicinity of Plomin TPP
CS Buško Blato d.o.o.	Bosnia and Herzego- vina	100	Hydro equipment maintenance
HEP - Upravljanje imovinom d.o.o.	Croatia	100	Management of non-operating assets and tourism
HEP NOC	Croatia	100	Education, training and accommodation services
Program Sava d.o.o.	Croatia	100	Preparation of multipurpose real estate projects
HEP Trade d.o.o., Beograd	Serbia	100	Electricity trading
HEP Energija d.o.o., Ljubljana	Slovenia	100	Electricity trading
HEP Trade d.o.o., Mostar	Bosnia and Herzego- vina	100	Electricity trading

Subsidiary companies	Country	Proportion in owner- ship (%)	Core business
HEP Magyarorszag Energia kft	Hungary	100	Electricity trading
HEP KS sh.p.k., Priština	Kosovo	100	Electricity trading
HEP Telekomunikacije d.o.o.	Croatia	100	Telecommunication services
HEP-Opskrba plinom d.o.o.	Croatia	100	Wholesale gas market supply
Hrvatski centar za čistiju proizvodnju	Hrvatska	100	Institution for the promotion of cleaner industrial practices
Nuklearna elektrana Krško d.o.o.³	Slovenia	50	Electricity production
LNG Hrvatska d.o.o. <sup>4</sup>	Hrvatska	50	Gas pipeline construction and operation
Novenerg d.o.o. <sup>5</sup>	Hrvatska	50	Analysis of investment in RES capacities; consulting services

<sup>&</sup>lt;sup>1</sup> As of 1 July 2013, it operates under the Independent Transmission Operator model (ITO)
<sup>2</sup> Pursuant to the provisions of the Electricity Market Acton unbundling the network and supply, HEP Elektra was founded

on 2 November 2016 by unbundling supply from HEP-Operator distribucijskog sustava d.o.o.

In consolidated financial statements, the share in NE Krško d.o.o. is shown by a the method of joint asset and liabilities management, the HEP Group's share is shown for each asset and liability across income and expenditure

The joint venture with Plinacro d.o.o. (50%:50%) on the construction and the operation of gas pipelines for evacuating

liquified natural gas from the island of Krk to mainland and on towards its final destinations.

<sup>&</sup>lt;sup>5</sup> Joint venture with RWE Hrvatska d.o.o. (50%:50%)



Introduction by
President of the
Management Board

## In 2016,

the continued focus was on developing the renewable sources of energy portfolio, mainly by reconstruction and revitalization of hydropower plants and the final phase of development of two cogeneration biomass plants.

The central position of our business belongs to our stakeholders. They are the reason we do business, we cooperate with them, co-create new values. Energy companies have significant impacts on society, economy and environment and meet expanding challenges. They motivate us to accept changes faster, adapt to new circumstances and consciously manage our impacts.

## Introduction by President of the Management Board

#### Perica Jukić

President of the Management Board

Dear readers,

Welcome to the pages of the sustainability report of HEP Group. This is our third sustainability report and we are proud to publish it at the time when provisions on non-financial reporting were adopted from EU Directive into Croatian legal framework. The report shows our dedication to the concepts of sustainable development and corporate social responsibility. This report presents the vision of HEP Group about its development related to sustainable development goals and how we envisage our business and material topics within the SDG framework.

Year 2016 was a very good business year for us, marked by several development directions in our group. Sustainability is fully grounded in economic responsibility and company's capacity to realize good business results. Since HEP is a company of strategic importance on the state level, our priority is to ensure stability and security of the company. Very important progress was made in developing our services and advanced solutions for our customers and buyers. These factors influenced keeping our market share in Croatia and enabled development of business on regional markets.

In the reporting period, the continued focus was on developing the renewable sources of energy portfolio, mainly by reconstruction and revitalization of hydropower plants and the final phase of development of two co-generation biomass plants. In 2016 HEP recorded large progress in constructing network of chargers for electric vehicles,

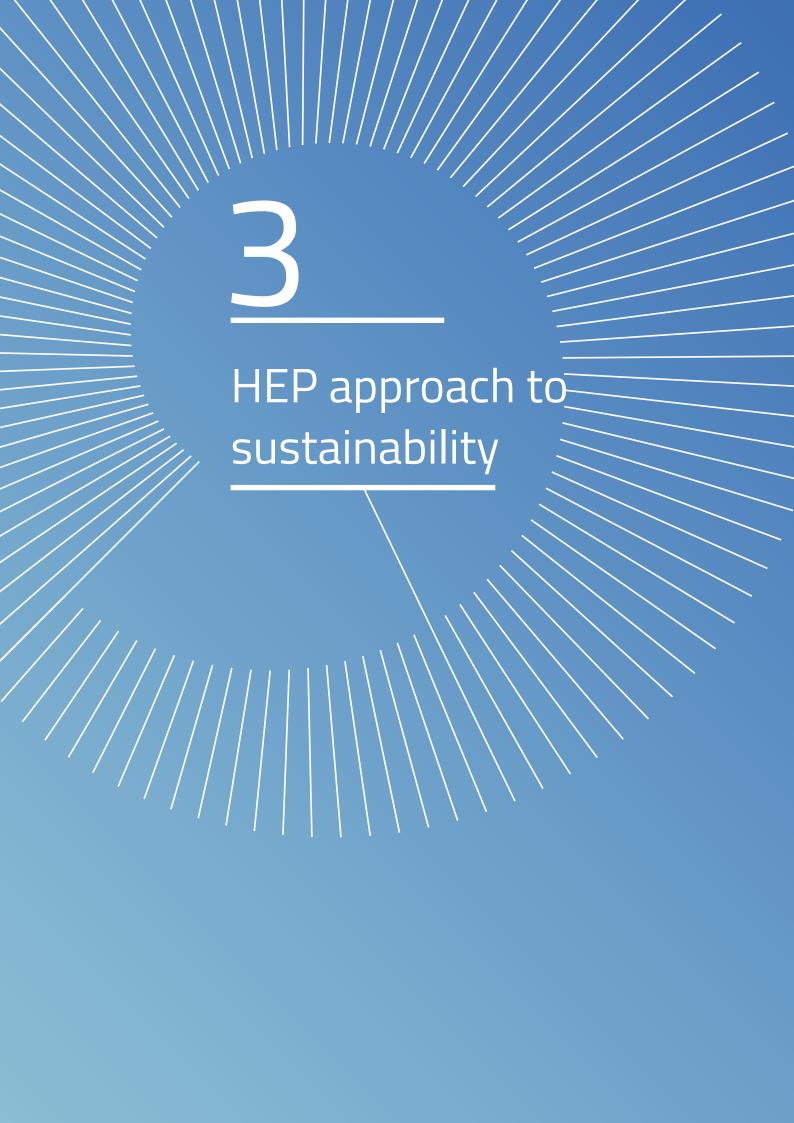
which is now spread throughout the country. We supported the sustainable development by our energy efficiency projects and significant investment in raising environmental protection standard of our operating units.

The central position of our business belongs to our stakeholders. They are the reason we do business, we cooperate with them, co-create new values and face various challenges. The world is becoming increasingly complex. Energy companies, like many other large or strategic organizations have significant impacts on society, economy and environment and meet expanding challenges. Such challenges motivate us to accept changes faster, adapt to new circumstances and consciously manage our impacts. Similar or alike companies are decreasing in numbers. A growing understanding of sustainability and CSR makes clear that each company is sustainable in a unique way. Besides creating our sustainability, we wish to share some basic data with our stakeholders by this report.

This report was prepared in compliance with GRI Standard and comprises data and the most representative corporate stories on governance, workplace, human rights, market relations, environment and community investment. I invite you to read it and share it with others. I express my gratitude to our HEP team who brought this report to life and to all of you who shared your compliments and comments with us.

HEP Group will continue to be ambitious about sustainable development and corporate social responsibility, as initiator of good practice in energy sector.







representatives of HEP d.d. sectors and subsidiaries contributed to material topics

HEP Group can directly, by its operations in local communities influence the implementation of six global goals: industry, innovation, infrastructure; decent work and economic growth; climate action; life below water; responsible consumption and production.

# HEP approach to sustainability

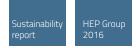
Following the previous two sustainability reports, HEP Group developed a quality integration of material issues in its planning and business operations. However, we are aware that, considering the size of our group, diversity of operations and activities and many external factors which influence our planning and governance, we are not always fully ready to adequately respond to all challenges connected with our material topics. We trust that materiality integration and advancement of planning will develop to always consider the recognized material topics.

Requirements of GRI Standard which were respected in shaping of this report are very clear and strict related to material topics determination, recognizing and analyzing stakeholders as well as developing stakeholder dialogue and including them in the discussion on sustainability. Therefore, in preparing this report we went a step further and tried to list material topics according to four segments in which they are realized and in which HEP Group has significant impact: market, society, employment and environment. In the process of material topics selection, we considered the mutuality of impact, that is HEP impact on economy, society and environment according to topics and the influence of external factors on sustainability of HEP areas.

#### Materiality in the context of UN sustainable development goals

Working group of about thirty representatives from relevant sectors of HEP d.d. and subsidiary companies discussed material topics in a special workshop. The entire process was initiated from the context of UN sustainable development goals (global goals or SDG's). Working group members assessed on which global goals HEP can have influence and the development of which goals can influence the business and operations of HEP Group in the next few years. Following an interactive discussion, working group members individually evaluated the potential contribution of the group to the development and implementation of goals as well as their influence on HEP Group. A collective assessment was that HEP Group can directly, by its operations in local communities influence the implementation of six global goals: industry, innovation, infrastructure; decent work and economic growth; climate action; life below water; responsible consumption and production.

These global goals finely match those which HEP recognized as goals whose development will have influence on group business operations in the next few years: industry, innovation, infrastructure; affordable and clean energy; partnerships for the goals; quality education; responsible consumption and production and climate action.



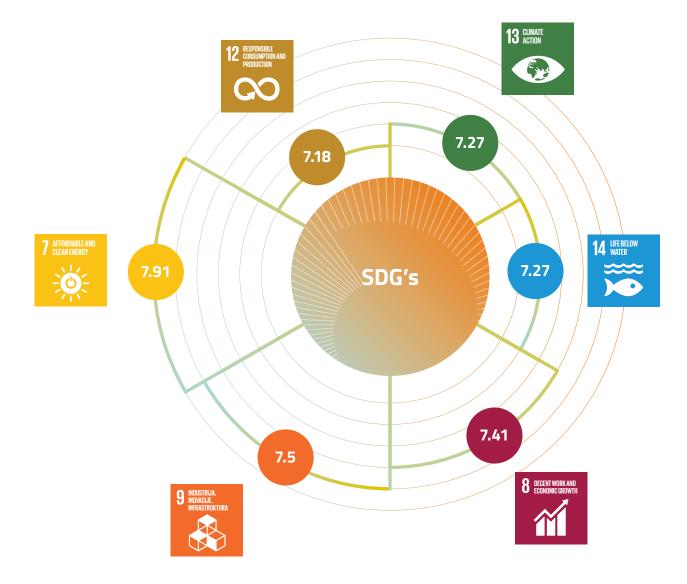
### Important for HEP





IMPORTANT FOR HEP				
SUSTA	NINABLE DEVELOPMENT GOALS			
9.	industry, innovation, infrastructure	9.00		
7.	affordable and clean energy	8.77		
17.	partherships for the goals	8.14		
4.	quality education	8.09		
12.	responsible consumption and production	8.09		
13.	climate action	8.09		

## HEP has an impact



HEP F	HEP HAS AN IMPACT				
SUSTA	AINABLE DEVELOPMENT GOALS				
7.	affordable and clean energy	7.91			
9.	industry, innovation, infrastructure	7.5			
8.	decent work and economic growth	7.41			
13.	climate action	7.27			
14.	life below water	7.27			
12.	responsible consumption and production	7.18			

## Industry, innovation, infrastructure

is the global goal with the largest influence on HEP Group development

### Stakeholders singled out the following SDG's:

- >Ensure access to affordable, reliable, sustainable and modern energy for all
- >Ensure sustainable consumption and production patterns
- >Build resilient infrastructure, promote sustainable industrialization and foster innovation
- >Promote inclusive and sustainable economic growth, employment and decent work for all
- > Make cities inclusive, safe, resilient and sustainable
- > Take urgent action to combat climate change and its impacts

We involved our stakeholders in a special survey to share with us their opinion on the influence of HEP business operations on the development of global goals. Their opinion greatly matched the opinion of the working group. Stakeholders singled out the following SDG's:

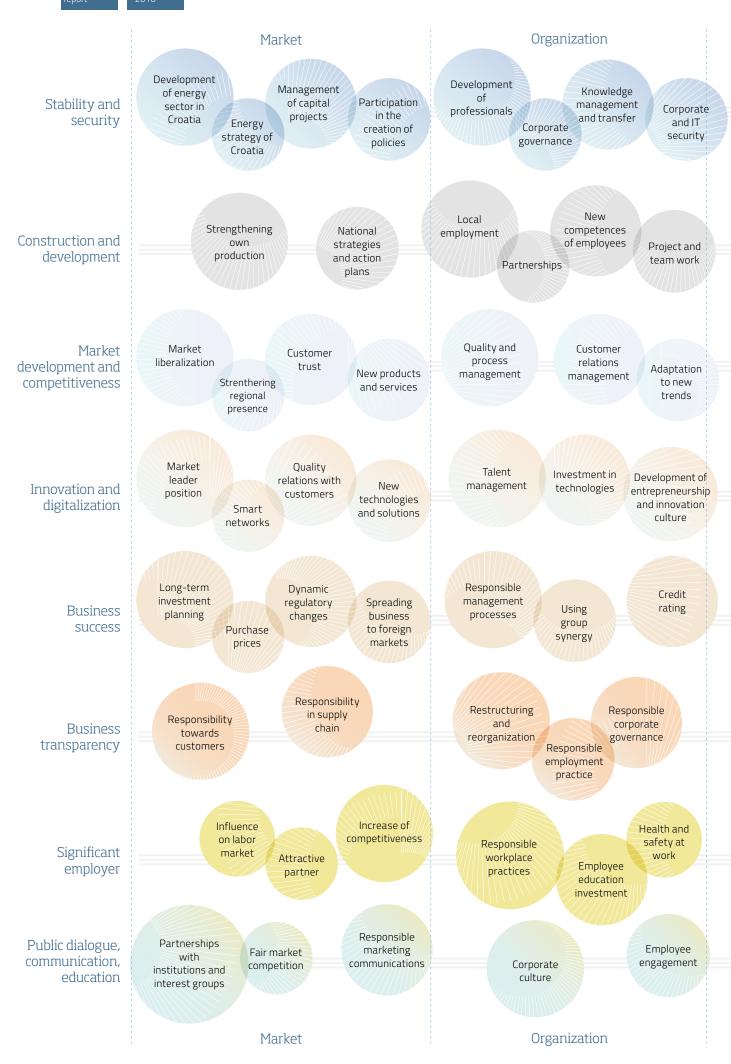
- > Ensure access to affordable, reliable, sustainable and modern energy for all
- > Ensure sustainable consumption and production patterns
- > Build resilient infrastructure, promote sustainable industrialization and foster innovation
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### Material topics of HEP Group

In its workshops, the working group discussed the impact of HEP Group on the following stakeholder groups: representatives of owners, employees, customers (residential), customers (commercial), suppliers, local communities, state bodies, regulators, civil sector and academic community. Impacts were evaluated on three levels: high, medium and low impact. High impacts were predominant in numbers. It was concluded that HEP Group has significant impact on its stakeholders, while some impacts overlap across several stakeholder groups. Therefore, we approached the final definition of material topics with matrix thinking and tried to present material topics in multi-dimensional way. According to the working group, HEP Group can manage some impacts more actively, while others depend equally on stakeholders, their decisions and behavior or are predominantly within the influence of stakeholders.

Having analyzed the collected content, we grouped general material topics in several important areas: organizational stability and security; construction and development; market development and competitiveness; innovation and digitalization; successful business; transparency of business; significant employer; public dialogue, communication and education. Following the material topics selection, they were assessed according to four vital areas: market, organization, society and environment, so that we could later determine the boundaries of the impacts. Full presentation of material issues, according to areas of impact and material topics can be found on the materiality image presented here.

As the company of strategic importance for the Republic of Croatia, the influence of HEP Group on energy stability and security is proportionally large. HEP has had and will continue to play an exceptional role in developing and implementing energy and low carbon strategies. Ensuring stable production, distribution and supply of energy in a market context poses many old and new challenges and includes trends in market liberalization, strengthening own generation, necessity to empower new partnerships, ensurance of stable and quality supply chain, construction of modern and resilient organization which will be ready to cope with numerous market and economic challenges. The necessity to invest in innovation and digital transition as a trend which can advance customer relations were particularly underlined among material topics. Group sustainability is crucial for its business success. It is expected that the focus will be kept on expansion to new markets, long-term planning and realization of investments, responses to dynamic regulations changes. Connected to that, responsible corporate governance, restructuring and reorganization, improving credit rating and forming strategic partnership remain important in realizing successful business results. Adaptation to new regulatory demands, continued investment in modernization, using best available techniques, development of renewable sources of energy and conscious, active participation in creating positive solutions related to climate change – these topics will dominate in company's business related to environmental protection in the next few years. For many years, HEP has enjoyed the reputation of a desirable employer. The company is aware of its responsibility to contribute to workplace development, raising knowledge and skills capacities, strengthening partnerships with science and educational institutions and other efforts to embed responsible processes in its organization. In this reporting period many material areas have marked quality progress, but there is still space for improvement.





## materiality areas:

organizational stability and security; construction and development; market development and competitiveness; innovation and digitalization; successful business; transparency of business; significant employer; public dialogue, communication and education

Stakeholders who read entire sustainability report shared mostly positive feedback on the structure and content of the report. In future reporting periods we should invest more effort in stakeholder communication and that sustainability report should be promoted as a source in which stakeholders can find useful information.

Risks and opportunities for HEP Group are created in the environment and within the corporation itself. Stakeholder dialogue confirmed that quality economic framework, economic development and growth, stable political environment, trends in environmental protection and market liberalization are the areas which both HEP Group and our stakeholders recognize as both sources of risk and potential for growth of the group.

Material topics differ minimally compared to the previous reporting period. In this report, we enriched the process of determining materiality by putting them in the context of global goals and checked them by stakeholder inclusion in a special survey. However, the stability of material topics was kept from the previous period. This was expected, because a large organization like HEP Group does not change its business paradigm frequently and business vision and goals were kept.

#### Stakeholder engagement

HEP Group, due to its size and wide spectrum of activities, builds and maintains relations with many stakeholders - groups and individuals, on which it has impact. Various parts of HEP d.d. and subsidiaries include and engage stakeholders in dialogue or collaboration in different ways. Detailed descriptions can be found under specific chapters of this report. As in past few years, HEP group conducted various forms of information sharing, communication, inclusion and education, depending on activities and type of stakeholder. These formats comprised thematic meetings and gatherings, organization and participation in various dialogue platforms and debates, information-education campaigns, various joint projects and initiatives shared with stakeholders.

HEP Group stakeholders had a chance to share their opinion on material topics

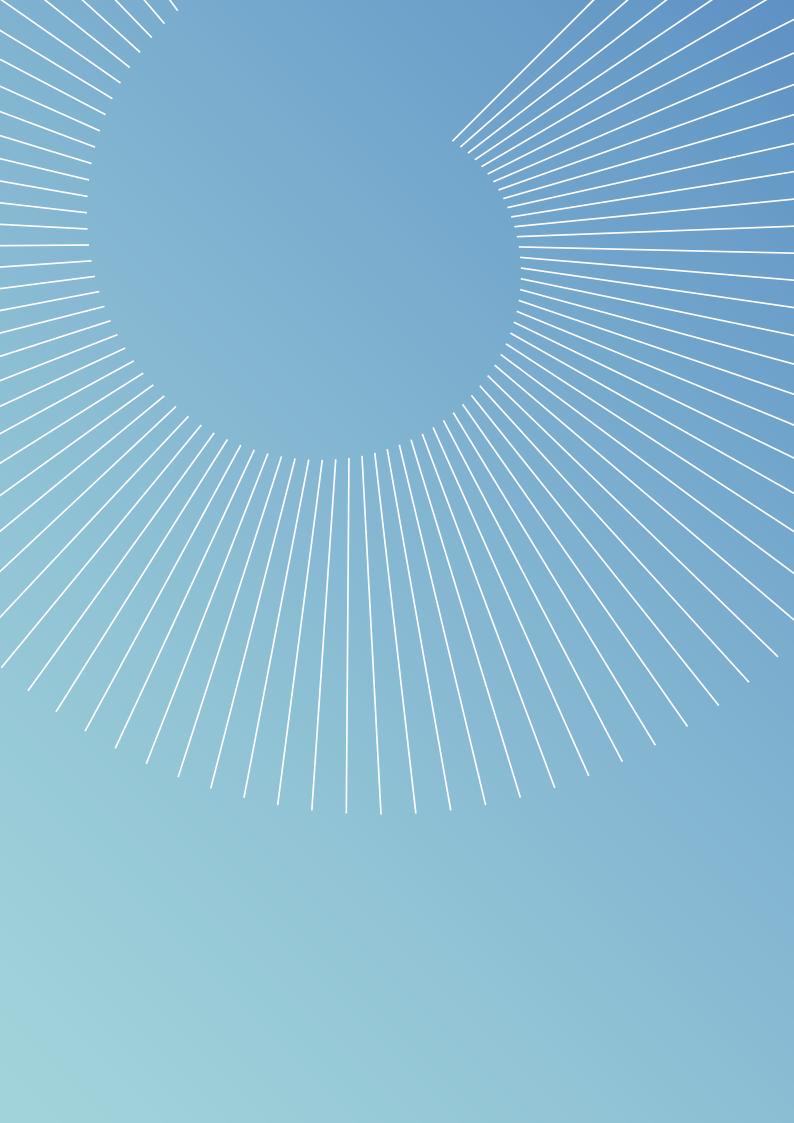
and other issues in a specially conducted research with the participation of representatives of ten stakeholder groups:

- > state administration or organizations;
- > local and regional self-administration and administration;
- > customers and buyers;
- > suppliers;
- > credit institutions;
- > media;
- > non-governmental associations;
- > interest or similar associations;
- > science or educational institution and
- > authorized practitioners in environmental protection.

Asked to assess the impact of HEP Group on the long-term sustainability of their organization, stakeholders singled out that HEP Group has the largest impact in energy stability and safety; construction and development; public dialogue, communication and education as well as significant employer. Stakeholders assigned rather high marks assessing HEP Group impact in three segments: economic, social and environmental. Marks assigned ranged from 6.23 to 8.74 (on 0 to 10 scale). The assessment of HEP's impact on society and economy is fully matching. Stakeholders agree that the impacts are the most significant in the areas of energy stability and security, significant employer, business success and public dialogue, communication and education. Stakeholders evaluated that the impact of HEP Group is dominant in environmental protection segments, with the addition of construction and development and innovation and digitalization.

In relation with the sustainability of the group itself, stakeholders think that the precondition for the realization of the long-term sustainability economic growth and development in the Republic of Croatia, stable political environment, trends in environmental protection, market liberalization and regulatory framework. 15 percent of participants stated that they had read parts of HEP Group sustainability report. The equal number browsed through the report, while five percent stated that they had read the entire report. 48 percent of stakeholders are aware of HEP sustainability reports but had not read them. Even 15 percent of stakeholder had never heard about the reports. These results point that in future reporting periods we should invest more effort in stakeholder communication and that sustainability report should be promoted as a source in which stakeholders can find useful information. Stakeholders who read entire sustainability report shared mostly positive feedback on the structure and content of the report. Comments on desired improvements mostly express expectations of bigger transparency, descriptions of business challenges of HEP Group and stronger stakeholder inclusion in discussing materiality topics.





# Transparency and diversity

#### Mission

Secure and quality supply of energy to customers, with a high level of social responsibility.

#### Vision

HEP Group as a strong regional, modern and socially responsible company, recognized as an example of efficient energy generation and supply to customers.

### Fundamental values

### Competence and innovation:

Our employees are the most valuable resource and support in achieving the company's mission and vision and in creating values. With openness to new ideas and creativity, we develop skills and competencies.

### Quality and business excellence:

Following requirements and expectations of all stakeholders, we improve the quality of our products and services. Our goal is the company's business excellence.

#### Integrity:

We act professionally and conscientiously in our relations towards customers, business partners, employees and assets. We affirm zero-tolerance for corruption. Our Code of Ethics defines the principles of business behavior.

### Environmental responsibility:

We produce, transmit and distribute energy in an environmentally-friendly manner. We promote efficient use of energy among our customers as well as the development and use of renewable energy sources.

# Transparency and diversity

# Management structure and corporate governance

HEP Group conducts its business in compliance with the law and ethical norms, based on the principles of sustainable development and social responsibility. In 2002. the company adopted the Code of Ethics – The Principles of Responsible Behavior in HEP.

The Code was amended in 2010, ensuring its compliance with the requirements by the Anti-corruption program for state-owned companies. All HEP companies are signatories of the statement by which they accept the Code of Ethics which provides ethical guidelines of business subjects in the Croatian economy, passed by the Croatian Chamber of Economy in 2005.

As the corporate bond issuer, the company also applies provisions of Corporate Governance Code by Zagreb Stock Exchange and Croatian Financial Services Supervisory Agency.

#### Management structure of HEP d.d. in 2016

#### Management Board

Perica Jukić, president of the Management Board since September 13, 2014

Saša Dujmić, member of the Management Board since December 4, 2014

Zvonko Ercegovac, member of the Management Board since February 23, 2012

Tomislav Rosandić, member of the Management Board since January 2, 2015

#### **Supervisory Board**

Nikola Bruketa, president of the Supervisory Board since February 23, 2012

Dubravka Kolundžić, member of the Supervisory Board, employee representative, since June 1, 2015

Juraj Bukša, member of the Supervisory Board since July 5, 2014

Igor Džajić, member of the Supervisory Board since September 19, 2012

Žarko Primorac, member of the Supervisory Board since February 23, 2012

Ivo Uglešić, member of the Supervisory Board since February 23, 2012.

Mirko Žužić, member of the Supervisory Board since September 19, 2012.

#### Assembly

Ivan Vrdoljak (from November 21, 2012. until March 3, 2016)

Tomislav Panenić (from March 4, 2016 until January 26, 2017)

Code of Ethics harmonized with the requirements of Anticorruption Program for majority stake owned companies

Principles of business conduct of HEP Group are based on consistent application and respect of legal and other regulations, implementation of professional and business norms and standards and respect of ethical principles with an aim to ensure business reputation and market position of HEP Group. Code of Ethics also defines conflict of interest in the business relations. invokes the protection of human rights, prescribes the principles of safety at work, employment practices, principles of environmental protection and condemns any kind of discrimination.

Based on the Decision on determining the list of companies and other legal entities of strategic and special interest for the Republic of Croatia and companies in which the Republic of Croatia owns majority of shares or majority stake of 2015, the Government of the Republic of Croatia passed a conclusion on January 13, 2016, to extend the office term for members of management and supervisory boards until the appointment of new ones.

### Professionalism and work ethics

Principles of business conduct of HEP Group are based on consistent application and respect of legal and other regulations, implementation of professional and business norms and standards and respect of ethical principles with an aim to ensure business reputation and market position of HEP Group. Code of Ethics also defines conflict of interest in the business relations, invokes the protection of human rights, prescribes the principles of safety at work, employment practices, principles of environmental protection and condemns any kind of discrimination.

All subsidiaries have their representatives in the HEP Group Ethical Committee. Ethical commissioners receive complaints about unethical and potential corruptive conduct by employees, examine the correctness of the complaints, hold the records on the received complaints, monitor the implementation of the Code of Ethics in their company, promote ethical behavior among employees and in the relations with customers and advise employees on ethical conduct.

In the process of complaint validation, ethics commissioners obtain evidence and written statements and undertake other activities necessary to determine the facts. Commissioners file a written report to the President of the Management Board or subsidiary director on the conducted process of complaint validation. The commissioners are obliged to undertake the procedure of validity examination also in the case of anonymous complaints. Ethics commissioners and Ethical Committee always require the accused party to provide their statement accompanied by relevant documentation. If possible, they talk with the both parties to obtain a deeper insight into the subject and form a more informed opinion. Cooperation with all organizational units and employees is evaluated as exceptional. Feedback is collected from participants in ethical complaint procedures on their opinion on the procedure, once the case is closed.

In the reporting period two cases of the unethical conduct resulted in resignation or

labor contract termination. In the first case, the subsidiary and a special ad-hoc commission appointed by HEP Management Board established the proof of conflict of interest, but without caused direct damage. The commission established that provisions of Code of Ethics and Labor Act were breached, so the labor contract was terminated.

The second case was connected to the breach of procedure in employment tender in a subsidiary, before the final decision on the candidate selection was passed. Following public complaints, HEP Management Board initiated internal investigation on the selection procedure to determine the circumstances. The case resulted in the resignation by the manager, while the selection process was completed in compliance with the law and internal regulations.

#### Structure of ethical complaints in 2016

	TOTAL	LEGITIMATE	ILLEGITIMATE
Number of received complaints	200	97	103
Number of solved complaints	200	97	103
> number of anonymous complaints	14	5	9
> number of non-anonymous complaints	186	92	94
Number of non-anonymous complaints filed by HEP employees	7	3	4
Number of non-anonymous complaints filed by other interested legal and private subjects	179	89	90
Number of complaints by type			
labor relations	9	3	6
corruption and bribe	3	1	2
public procurement	0	0	0
customer relations	23	17	6
calculation and bills	76	34	42
connection to LV network	30	17	13
unauthorized consumption	17	6	11
other	42	19	23

HEP experts are members of

# more than 30

national and international associations, organizations and institutions

Among major topics discussed in 2016 in the Coordination of **Electricity Suppliers** were Methodology for determining the price for the calculation of balancing energy, calculation methodology for supplier realization, legal and operational issues related to request, acceptance and reliability of measure data, renewable energy sources, unified billing, experiences and exchange of information from meetings with regulatory and legislative bodies.

### Right to access to information

In the domain of the right to access to information, HEP Information Officer receives, evaluates and responds to requests. In 2016 we recorded 58 such requests, out of which 46 were proceeded within legal term, while 12 were responded to in a somewhat longer period. 39 requests were accepted. 18 requests were refused, mostly because the information requested related to information HEP was not allowed to reveal, under the provisions of the Protection of Personal Information Act or the revelation of such information may have prevented the work of supervisory bodies.

### HEP Group memberships

HEP d.d. and HEP Group members are collective members, while numerous experts are individual members of many international organizations, institutions and associations:

- > EURELECTRIC (Union of the Electricity Industry)
- > CIGRE (International Council on Large Electric Systems and CIGRE National Committee of Croatia
- > ICOLD (International Commission of Large Dams)
- > CIRED (Congress International des Réseaux Electriques de Distribution)
- > LWA (Live Working Association)
- > EFET (European Federation of Energy Traders),
- > IAEA (International Atomic Energy Agency),
- > ENS (European Nuclear Society)

Chapter

- > UNICHAL (International Union of Heat Distributors),
- > EUROHEAT & POWER (International organization focused on co-generations, long-distance heating and cooling)
- IIA GLOBAL (Institute of Internal Auditors, Florida, USA), through HIIR – Institute of Internal Auditors of Croatia)
- > ISACA (Information Systems Audit and Control Association); via Croatian subsidiary ISACA Chapter Croatia
- > ECLA (European Company Lawyers Association)
- > CEEP (Central European Energy Partners)
- > Croatian Academy of Engineering
- > CROMA Croatian Managers' and Entrepreneurs' Association
- > Electrotechnical Society
- > Croatian-Austrian Chamber of Commerce
- > Croatian Chamber of Economy
- > Croatian Nuclear Society
- > Croatian Water Pollution Control Society
- > Croatian Business Council for Sustainable Development
- > Croatia Green Building Council
- > Croatian Gas Association
- > MIPRO Croatian Society
- > Croatian Public Relations Association
- > Croatian Air Pollution Prevention Association
- > Croatian Standards Institute
- > Croatian Employers' Association
- > German-Croatian Chamber of Industry and Trade
- > Croatian Energy Alliance
- > Croatian Association of Experts in Environmental and Nature Protection

#### Participation in Coordination of Electricity Suppliers

HEP-Opskrba is a member of the Coordination of Electricity Suppliers, whose purpose is to coordinate interests of all suppliers on the electrical energy market. Voluntary meetings are held once a month and host discussions on legal and regulatory topics related to electricity market.

Among major topics discussed in 2016 were Methodology for determining the price for the calculation of balancing energy, calculation methodology for supplier realization, legal and operational issues related to request, acceptance and reliability of measure data, renewable energy sources, unified billing, experiences and exchange of information from meetings with regulatory and legislative bodies.

HEP-Opskrba represented the interests of HEP Group and in a collaborative dialogue and joint actions co-created quality cooperation in legal consultation processes, with an aim to ensure quality and transparent electrical energy market.

#### **HEP Team:**

### Long-term strategy of human resources development in HEP Group

In 2016, HEP passed a long-term strategy of human resources development for the period of 2017-2030. The document defines key strategic goals, priorities and measures to foster human resources development and employment in HEP Group.

HR development strategy devises processes of HR management by optimal definition of new employment requirements, faster candidate selection to ensure hiring the best candidates and the necessi-

HEP Group passed the long-term Strategy of HR development

### 2017--2030

The Strategy comprises goals related to enhancement of employee satisfaction and the development and implementation of measuring labor success. It also contains the establishment of the Education Center to ensure knowledge transfer, maintenance and sharing of specialist knowledge as well as gaining new know-how and skills necessary to conduct adaptation in a competitive environment.

ty of life-long education of employees with the aim of developing specialist knowledge and skills. The strategy also comprises goals related to enhancement of employee satisfaction and the development and implementation of measuring labor success. It also contains the establishment of the Education Center to ensure knowledge transfer, maintenance and sharing of specialist knowledge as well as gaining new know-how and skills necessary to conduct adaptation in a competitive environment.

#### **Collective Agreement and labor rights**

Collective Agreement of HEP is in power since July 1, 2016 until December 31, 2017, while the previous one was valid from October 1, 2014 until June 30, 2016 Collective Agreement was signed by two representative unions (Croatian Electro-economic Union – HES and Independent Union of HEP Workers – NSRHEP) and the Employer Association of HEP Group – comprised of fifteen HEP subsidiaries. The agreement applies to all employees of HEP Group, regardless of the type of labor contract.

During 2016 HEP Group subsidiaries passed the decision on redundancy incentives. Employees who reached the age of 63.5 were enabled to use retirement incentives and to initiate labor contract termination. Besides the prescribed legal terms obligatory to inform the unions on significant organizational changes, the Collective Agreement stipulates that the employer must timely and minimally each two months inform the unions on the progress on restructuring and privatization plans as well as their effect on economic and social position of employees.

Not a single case of discrimination was recorded. In the domain of human rights, all HEP Group subsidiaries have Rules and Regulations on the Proceeding and Measures of

#### Benefiti za radnike i menadžere

	EMPLOYEES	MANAGERS
Success bonus	NO (except HEP-Opskrba employees)	NO
Life or additional pension insurance	Voluntary closed pension fund for HEP Group employees	
Additional health insurance	YES YES	
Personal aid in extraordinary situations (e.g. parental leave, birth, death in the family)	YES (one-off aid for birth of a child, extraordinary aid in the case of the death of employee and family members (partial), aid during parental leave, aid during long-term sick leave)	
Additional personal costs (e.g. ICT, vehicle)	Some employees according to the special decision by the authorized person	YES (mobile phone and car use, depending on the rank)
Housing benefits (flats, loans)	Special credit packages contracted w HEP Group	vith the banks for the employees of

the Protection of Employee Dignity, on which all employees were informed during the reporting period. Therefore, neither a special training on the policies and procedures related to human rights protection nor an assessment of activities impact on human rights were necessary.

more than 15 000 participants. Crucial factors of success, according to research participants were security of employment, corporate atmosphere and chances of promotion. The least popular factors were opportunities for hierarchical advancement, company image and sector leadership.

### MojPosao - HEP the seventh most desirable employer in Croatia

HEP Group continues to be highly positioned on the list of the most desirable employers, published annually by MojPosao portal, leaving behind attractive employers from IT, telecommunication and banking sector. The stability of HEP Group, career development potential in a supportive environment, employment security and other benefits influence the high-ranking position.

The 12th annual research conducted by MojPosao portal, HEP ranked on the seventh place. The research encompassed

#### HEP Elektra Slavonski Brod employer of the year for disabled persons

Annual awards were rewarded for the employer of the year for disabled people in December 2016 in Slavonski Brod. The Commission for Disabled Persons of Slavonski Brod elected HEP Elektra Slavonski Brod (HEP ODS) as the best practice example and openness champion of collaboration and support to disable persons.

President of the Association of the Blind Persons of Brod-Posavina County Zvonko Morosavljević is the employee of Elektra Slavonski Brod. The Association numbers 170 members, out of whom only

# 7<sup>th</sup>

most favorable employer voted to HEP Group, according to Moj.Posao research

The Commission for Disabled Persons of Slavonski Brod elected HEP ODS, Elektra Slavonski Brod as the best practice example and openness champion of collaboration and support to disabled persons and awarded the company the annual award Employer of the Year. Elektra Slavonski Brod employs 15 disabled persons.

two are permanently employed, one of them being Zvonko Morosavljević who lost his eye sight in an accident when he was 25. Following five surgeries, he partially regained his eye sight and can move independently in a known environment, but he cannot read black print. Morosavljević refused invalid pension and got his education for the switchboard assistant at the Center for Education of Blind and Visually Impaired Persons Vinko Bek in Osijek. Since 1988 he works at Elektra Slavonski Brod switchboard. Elektra in Slavonski Brod employs 15 disabled persons.

#### Education and professional development

Having in mind business challenges of the demanding electricity market and continuous need to acquire specialist knowledge and skills in areas crucial for HEP, investment in professional training of high potential employees was continued in 2016

An internal tender for postgraduate specialist studies was published in April 2016, at which 18 employees were selected. In the past twenty years, about 160 employees graduated from various and postgraduate programs with HEP scholarship, while a smaller number graduated in their own arrangement. HEP Group employs over 200 employees with the highest degrees. Additionally, taking into consideration specific activities of HEP Group subsidiaries, 27 employees were supported in their specialist education in 2016, with the aim to gain qualifications and raise professional competences.

Employees also attended very specific specialist education and courses which provide national or international certificates in trading of electricity, gas and carbon gas units (Exchange Trader Examination – EEX), environmental protection, energy efficiency, internal audit, EU funds, IPMA Level Certif-

icate and foreign language courses. Human Resources Sector conducted obligatory internal education for 18 new employees in communication skills and business etiquette and business communication. HEP organizes mentored internship for students and pupils in compliance with internal regulations and legal provisions. 350 pupils from electrical engineering, energy-industrial, economic and administrative schools completed their internship in HEP Group in 2016 Additionally, internship was provided for 96 students primarily from technical faculties, some from economic and legal. Specialist internship is a valuable experience to pupils and students and prepares them for their integration on labor market.

A total of 11 160 603 HRK was invested in employee education, out of which 7 586 844 HRK was allocated to education, while 2 650 656 was invested in professional development. Average amount invested per employee was 943 HRK, while 20.46 percent of employees was included in some form of education. HEP Group does not organize special programs for knowledge management and life-long learning which would support continuous employment or successful retirement transition, although all education programs provided contributes to such goals.

#### Work productivity management in HEP-Opskrba

A unified system of professional development plans has not been introduced yet on the level of HEP Group. However, HEP-Opskrba developed own system of productivity management. All employees below the management level are allocated business plans containing business and development objectives. Development objectives are developed by heads, according to the assessment of employee's profes-

sional development priority. These comprise attaining professional knowledge and skills or upgrading present professional qualities. Employees who reach satisfactory total grade of productivity are assigned to variable part of the salary. In 2016, 59 out of 80 employees of HEP-Opskrba (73.5 percent) fulfilled formal conditions to participate in the system of productivity management.

Productivity management system was introduced in April 2016 This year was a pilot period to remove potential system deficiencies and ensure adaptation time, both for employees and system functionality. The system is defined by the Rules and Regulations on Managing Work Productivity and Compensations and is accompanied by a special application Work Productivity. Education on system functionality was implemented and user manuals for application were produced to inform the employees on system functionality. Respective business plans for the company, organizational units and employees were adopted.

In order to assess company and employees' success in the first evaluation period, the application was upgraded, final grades on productivity were entered and in February 2017 a decision was passed by which the grades and the total financial value were confirmed. Development meetings were held with all employees of HEP-Opskrba, during which they received feedback on their productivity in the last year and those who deserved the right for compensation received variable part of salary. Those who did not realize the right to variable salary part were additionally consulted.

### 11,160,603 HRK

was invested in 2016 in educating HEP Group employees

Long-distance learning system should increase information flow related to safety at work, information security, business continuity and protection of critical infrastructure property and business processes vital for functioning of the state economy. Using new multimedia technologies, e-learning enables visualization of the education content. interactivity, training of large numbers of employees and working hours savings.

#### Long distance learning

Significant size of HEP Group and its territorial spread throughout the country and lately beyond its Boarders, incited the introduction of long distance learning system. Corporate Security Office, in cooperation with HEP d.d. sectors presented distance learning system in HEP Group (LMS) in April 2016 This system should increase information flow related to safety at work, information security, business continuity and protection of critical infrastructure - property and business processes vital for functioning of the state economy. Using new multimedia technologies, e-learning enables visualization of the education content, interactivity, training of large numbers of employees and working hours savings. Among the offered courses, the Office for Corporate Security presented safety at work and information security.

### HEPlive application - service for internal and stakeholder communication

HEPlive application was developed in 2015 for the use of Open Door Days in TE Plomin. The program encompassed materials primarily concerning TE Plomin (data, presentations, photographs) and presentation of the accurate results of generation in all HEP-Proizvodnja plants. Since then, this program has been updated and presented continually in the entrance hall of TE Plomin. HEP live is a dynamic web application developed exclusively by HEP employees and is used as a service to present multimedia content. It is based on real television program principle, has a broadcast schedule, categories, specific

content (broadcast). It can present multimedia of all kinds: text, photos, video, sound, presentations, anything selected by the editor. All accessible HEP databases and other types of information e.g. exchange rate list, weather forecast, stock exchange reports and similar public services can be broadcast. Items can be included in the program in the way that the service communicates with the bases (applications) and takes live dana from them. Program can be viewed in a publicly exposed screen and on the personal computers in HEP network. Besides TE Plomin, there are four HEPlive stations in the group.

#### Safety at work

During 2016, HEP Group registered a total of 147 injuries at work, 20 of them among women and 127 among men. 26 heavy and 121 light injuries were recorded. Due to injuries, 7,789 working days, i.e. 62,308 working hours were recorded.

In the category of heavy injuries, 16 occurred in the workplace, one on a business trip and eight in commuting to or from work. One accident was fatal. A total of 106 injuries occurred as the result of performing work contrary to the rules of safety at work or lack of adequate safety at work measures.

No professional disease was registered in the reporting period. Compared to 2015, the number of injuries was decreased in 2016 However, we consider the yearly outcome negative, due to the fatal accident. Joint committees for health and safety issues were not formed, while Collective Agreement comprises issues of health and safety at work in the part which regulates rights to health insurance, safe working conditions and regulates obligations of employees related to safe conduct of activities.

#### We are especially proud of... ... our blood donors

HEP Group companies promote value and social importance of blood donation. In cooperation with the respective institutions we regularly organize voluntary blood donor actions, which usually attracts a large number of employees. HEP Group employees donated blood more than 1,150 times in 2016 As a responsible employer, HEP supports employees to participate in blood donating actions and those who do are entitled to two paid free days by Collective Agreement, which is above legal standard.

#### ... our runners

Numerous HEP employees mark distinguished results as recreative sports persons in various categories. Among them, especially prominent are HEP runners. Following an internal initiative, a team of HEP ODS was organized to participate in B2B runs, celebrating the fifth place in Split, the third in Rijeka and the first in Osijek. In the final run in Zagreb, which hosted 3,100 runners from 208 Croatian companies, HEP ODS participated with 17 representatives and won the second place. Our runners scored high places in individual categories in all runs. All team members accentuate that such events create positive emotions, help create closer relations and make new acquaintances. An idea was initiated to establish a permanent team of HEP runners.

#### HEP people in numbers

YEAR		31.12.2015	% of the total num- ber of employees	31.12.2016	% of the total num- ber of employees
	<30	500	4.61	527	4.91
AGE GROUP	30 - 50	5,087	46.85	4,971	46.33
	50>	5,270	48.54	5,231	48.76
TOTAL		10,857	100	10,729	100
YEAR		31.12.2015	% of the total num- ber of employees	31.12.2016	% of the total num- ber of employees
GENDER	Male	8,501	78.30	8,393	78.23
GENDER	Female	2,356	21.70	2,336	21.77
TOTAL		10,857	100	10,729	100

#### Management

YEAR		31.12.2015	% of the total num- ber of employees	31.12.2016	% of the total num- ber of employees
	<30	0	0	0	0
AGE GROUP	30 - 50	75	66.9	68	60.18
	50>	37	33.0	45	39.82
UKUPNO		112	100	113	100
YEAR		31.12.2015	% of the total num- ber of employees	31.12.2016	% of the total num- ber of employees
GENDER	Male	88	78.5	89	78.76
GENDER	Female	24	21.4	24	21.24
TOTAL		112	100	113	100

#### Age and gender structure

AGE GROUP	М	F	
18-25	103	11	
25-30	323	90	
30-35	575	176	
35-40	821	252	
40-45	1,267	314	
45-50	1,225	341	
50-55	1,423	432	
55-60	1,658	545	
60-65	998	175	
TOTAL	8,393	2,336	10,729

#### Education

EDUCATION LEVEL - managers	no
Doctoral degree	4
Master's degree	37
Bachelor's degree	71
Associate degree	1
TOTAL	113

EDUCATION LEVEL – employees	FEMALE	MALE
Doctoral degree	4	17
Master's degree	50	133
Bachelor's degree	649	1,324
Associate degree	271	587
Secondary school	1,190	3,687
Elementary school	65	57
Highly skilled	4	1,264
Skilled	48	1,098
Semi-skilled	11	66
No skills	44	160
Total		10,729

#### Type of contract

GENDER	Type of contract	No. of employees
Female	Tomporary	38
Male	Temporary	65
Female	Permanent	2,298
Male	Permanent	8,328
TOTAL		10,729

#### Newly employed and employee turnover

Age group	Arrived 2015	Arrived 2016	Age group	Left 2015	Left 2016
	MALE			MA	LE
< 18	1	0	25-30	1	5
18-25	43	34	30-35	3	4
25-30	71	62	35-40	12	12
30-35	41	56	40-45	12	4
35-40	18	34	45-50	10	12
40-45	14	21	50-55	9	6
45-50	10	12	55-60	37	20
50-55	1	12	60-65	330	111
55-60	5	1	65-70	76	43
TOTAL	204	232	TOTAL	490	217
	FEM	IALE		FEM	ALE
18-25	6	6	25-30	4	2
25-30	27	26	30-35	5	2
30-35	21	28	40-45	5	2
35-40	9	16	45-50	4	1
40-45	11	13	50-55	4	3
45-50	4	4	55-60	43	9
50-55	2	4	60-65	97	19
55-60	1	1	65-70	16	5
TOTAL	81	98	TOTAL	178	43

#### Education and training

Average education and training hours	2015	2016
Gender		
Male	34.52	48.23
Female	17.81	53.67
Labor category		
Employees	30.31	46.77
Management	83.50	279.93

#### Diversity

Disabled persons			
AGE GROUP	М	F	
25-30	1	2	
30-35	8	1	
35-40	18	5	
40-45	57	11	
45-50	105	17	
50-55	158	25	
55-60	215	31	
60-65	154	16	
TOTAL	716	108	824

#### Number of employees who used parental leave in 2016

Gender	Number
Male	6
Female	85
TOTAL	91

#### Number of employees eligible for retirement in the next five years

Year	Number
2017	90
2018	174
2019	263
2020	319
2021	337
Total	1,183

#### Compensations

Gross average salaries in 2016 (HRK)						
ANNUAL AMOUNT				MONTHLY AMOUNT		
EDUCATION LEVEL	FEMALE	MALE	M/F RATIO	FEMALE	MALE	M/F RATIO
Doctoral degree	246,275.22	229,442.44	0.93	20,522.94	19,120.20	0.93
Master's degree	224,496.59	230,368.11	1.03	18,708.05	19,197.34	1.03
Bachelor's degree	169,861.80	177,943.81	1.05	14,155.15	14,828.65	1.05
Associate degree	130,144.47	143,907.09	1.11	1,845.37	11,992.26	1.11
Secondary school	108,989.09	116,154.57	1.07	9,082.42	9,679.55	1.07
Elementary school	87,077.25	88,854.88	1.02	7,256.44	7,404.57	1.02
Highly skilled	115,840.06	129,257.48	1.12	9,653.34	10,771.46	1.12
Skilled	95,662.68	108,532.33	1.13	7,971.89	9,044.36	1.13
Semi-skilled	73,341.48	91,127.63	1.24	6,111.79	7,593.97	1.24
No skills	74,944.47	87,655.20	1.17	6,245.37	7,304.60	1.17
		Total ratio	1.06		Total ratio	1.06

#### Average minimum and entry level salary ratio in 2016 according to sex

GENDER	AVERAGE MINIMAL SALARY (HRK, gross)	AVERAGE ENTRY LEVEL SALARY (HRK, gross)	RATIO
M	6,768.04	6,947.51	3%
F	6,023.62	6,896.07	14%

<sup>\*</sup> average entry level salary can be higher than the average minimum salary considering the difference in work positions, i.e. different types of jobs and education levels.

#### Injuries in the workplace according to companies

Company	2015	2016
HEP d.d.	2	1
HEP-Proizvodnja	13	17
HEP ODS	127	124
HEP-Toplinarstvo	4	5
HEP-Plin	1	0
HEP-Opskrba	2	0
HEP-Upravljanje imovinom	1	0
TOTAL	150	147





Our way of doing business: market approach

# 75.2%

of result was realized from electricity segment in 2016

In November 2016,
HEP established a
new company – HEP
Elektra d.o.o., company
for electricity supply.
HEP Elektra became a
legal successor of HEP
ODS, which until then
operated in two roles
– as operator of the
distribution system and
the supplier. HEP Elektra
is a public service
obligation supplier of
electricity.

#### 5

# Our way of doing business: market approach

#### Strateški ciljevi

### Sustainable and flexible energy portfolio

by investing in hydropower plants and other renewable energy sources, focusing on the construction of highly-efficient co-generation projects; ownership of diverse electricity sources which become operational depending on the market availability and the prices of energy fuels thus providing sustainability and flexibility.

### Optimization and improvement of business processes

by continuously upgrading employee competencies and innovativeness, efficiently managing knowledge at corporate level and optimizing business processes.

#### Market flexibility

by defining and creating new products and services across wholesale and retail market segments focusing on retaining the current share of the Croatian market and increasing the share in the regional markets as well as implementing smart networks with an emphasis on network development, automation, smart network control and operation.

### Cooperation with stakeholders

by timely and active participation in the development and the adoption of EU and national legal instruments, and in the process of creating new energy market.

#### Generation capacities on December 31, 2016

HYDROPOWER PLANTS	AVAILABLE CAPACITY SNAGA (MW) / (-MW pumping regime)	HYDROPOWER PLANTS	AVAILABLE CAPACITY (MW)
Storage HPP		Run-of-river HPP	
GHE Zakučac	539.15*	HE Varaždin	92.65
RHE Velebit	270 (-240)	HE Dubrava	79.78
HE Orlovac	237.0	HE Čakovec	77.44
HE Senj	216.0	HE Gojak	55.5
HE Dubrovnik	126/115	HE Rijeka	36.8
HE Vinodol	90.0	HE Miljacka	20.0
HE Peruća	60.0	HE Jaruga	7.2
HE Kraljevac	46.4	HE Golubić	6.54
HE Đale	40.8	HE Ozalj	5.5
HE Sklope	22.5	HE Krčić	0.34
CS Buško blato	7.5/4.2/(-10.2/-4.8)	HE Lešće	41.2
CHE Fužine	4.6/(-5.7)	HE Lešće ABM	1.09
HE Zavrelje	2.0		
RHE Lepenica	0.8 (-1.2)		
HE Zeleni vir	1.7		

CS: pumping storage; CHE: pumped storage; HE: hydropower plant; RHE: reversible HPP \* Included MHE Prančevići maximum capacity 1.15 MWh

THERMAL POWER PLANTS	NET AVAILABLE CAPACITY (MW,MWt,t/h)	FUEL
TE-TO Sisak	623 / 0 / 161	oil / natural gas
TE-TO Zagreb	422 / 743 / 360	oil / natural gas
TE Rijeka	303	oil
TE Plomin (A)	105	hard coal
EL-TO Zagreb	88.8 / 384 / 416	oil / natural gas
TE-TO Osijek	89 / 184 / 150	oil / natural gas / fuel oil
KTE Jertovec	74	natural gas / fuel oil
TE PLOMIN (B)*	192	hard coal

<sup>\*</sup>HEP-Proizvodnja d.o.o. has O&M contract

NUCLEAR POWER PLANT	NET AVAILABLE CAPACITY (MW, MWt, t/h)	FUEL
NE Krško*	348	nuclear

<sup>\*</sup>HEP owns 50% of the total capacity of NE Krško

PHOTOVOLTAIC PLANTS	NET AVAILABLE CAPACITY (MW)	FUEL
	0.2	solar energy

#### **Availability of powerplants**

The availability factor of all generating facilities, i.e. powerplants owned by HEP, measured by the ratio of availability hours (availability hours = operating hours + reserve according to the total number of hours minus planned reconstruction) is 89.2 percent, which is a decrease of 5.4 less compared to availability factor in 2015 The major reason of decreased availability during 2016 were lack or realization or postponement of planned reconstruction and material deliveries due to cancelled or repeated public procurement processes.

#### **Business results by segments**

Business result (million HRK)		electricity			heat			gas	
	2015	2016	%2015	2015	2016	%2015	2015	2016	%2015
Operating income	12,125.8	12,181.5	+0.5	737.8	751.5	+1.9	1,705.9	1,467.4	-14.0
Operating costs	8,976.8	9,313.8	+3.8	1,028.5	914.1	-11.1	1,568.5	1,449.3	-7.6
Operating result	3,149.0	2,867.7	-8.9	-290.7	-162.6	-44.1	137.4	18.0	-86.9

The largest part of operating income (72.5 percent) and profit from HEP Group operations was realized in the segment of electricity. Compared to 2015, operating profit was decreased due to the increased electricity purchase and reservations for redundancy program in HEP ODS, which was planned for 2017. Heat generation made 4.9 percent of the group operating profit and realized a loss, which was reduced in comparison to the previous year due to lower cost of heat production i.e. lower fuel costs. Gas wholesale and retail comprise 10 percent in operating income amounting to 18 million kuna. Profit decreased compared to the previous year, because of the ratio of sales and purchase prices of gas provided to suppliers in the public service in residential category.

#### HEP Elektra, new member of HEP Group

In November 2016, HEP established a new company – HEP Elektra d.o.o., company for electricity supply. HEP Elektra became a legal successor of HEP ODS, which until then operated in two roles – as operator of the distribution system and the supplier. HEP Elektra as a supplier under the public service obligation, provides electricity only in the residential category to those customers who select or already use such supply as a public service within the universal service. The company continues to supply those non-residential customers who are left without a supplier under certain circumstances.

Which is the difference between HEP ODS, HEP Elektra and HEP-Opskrba?

HEP ODS performs
the operations in the
distribution of electricity:
consumption measuring,
consumption calculation,
maintenance of meter
units and other field
activities.

HEP Elektra supplies electricity to residential customers within a public service according to the regulated conditions.

HEP-Opskrba does not have an obligation of public service and supplies electricity to customers according to the contracted conditions.

#### **Credit rating**

In late October 2016, Standard & Poor's (S&P) upgraded the stand-alone assessment of Hrvatska elektroprivreda from b+ to bb, as well as the overall assessment of HEP's credit rating from BB- to BB. It was stated in the report that the underlying reasons for upgrading the company's rating was strengthened liquidity as well as very strong credit parameters of the company due to which the liquidity assessment was upgraded from less than adequate to adequate, as per terms used by S&P. In December 2016, S&P confirmed the long-term credit rating of HEP (BB) as well as upgraded the outlook from negative to stable following the sovereign rating upgrade for the Republic of Croatia.

In March 2016, Moody's changed the outlook of then current rating of HEP from stable to negative as a result of the sovereign downgraded outlook. In mid-March 2017, Moody's confirmed the long-standing credit rating on HEP (Ba2) as well as upgraded the outlook on HEP from negative to stable.

## Generation, purchase and sales of electricity

The total electricity consumption reached 15,511 GWh in Croatia in 2016 The share of residential segment in the total consumption amounted to 39 percent (6,085 GWh) and the share of commercial reached 31 percent (9,426 GWh).

The total sales of suppliers in HEP Group in Croatia increased by 114 GWh (0.9 %) compared to 2015 and with 13,162 GWh reached 84.9 percent of the market. HEP-Opskrba increased its sales by 267 GWh and its market share from 44.3 to 45.8 percent, while the sales of HEP Elektra decreased by 153 GWh which resulted in market share drop from 40.3 to 39.1 percent.

The growth of sales was realized on foreign markets reaching 3,673 GWh, out of which sales of electricity from HEP Group owner power plants and resales amounted to 2,821 GWh, supply of regional customers reached 852 GWh (Slovenia including

SODO, Bosnia and Herzegovina, Serbia). The previous year recorded the sales of 57 GWh (Slovenia).

HEP powerplants in the incentives system produced 244 GWh, which was an increase of 226 GWh due to the entry of L bloc from TE-TO Zagreb to the incentives system in the second part of 2016 Totally realized production and purchase of electricity of HEP Group amounted to 19.2 TWh, out of which 65 percent was produced in the powerplants wholly or partially owned by the group.

Due to favorable hydrological circumstances in 2016, HEP hydropower plants produced 6,138 GWh electricity, which was 465 more than produced in 2105 and made 32 percent of the total energy demand. Compared to 2015, electricity generation in thermal power plants and combined heat plants was increased by 485 GWh (15.4%) and made 19 percent of total energy demand (3,642 GWh).

Due to sales increase in Croatia and the region, a total of 6,519 GWh of energy was purchased from subjects outside of the system, which is 1,273 GWh (24.4 percent) more compared to 2015 Out of the total

#### Generation and purchase in 2016



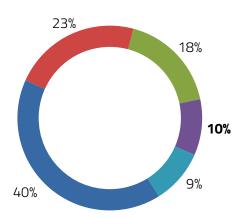


# 15,511 GWh

was the total consumption of electricity in Croatia in 2016. Stake of residential customers in the total consumption reached 39% (6,085 GWh), while commercial customers made 61% (9,426 GWh).

The growth of sales was realized on foreign markets reaching 3,673 GWh, out of which sales of electricity from HEP Group owner power plants and resales amounted to 2,821 GWh, supply of regional customers reached 852 GWh (Slovenia including SODO, Bosnia and Herzegovina, Serbia). The previous year recorded the sales of 57 GWh (Slovenia).

#### Structure of electricity generation by source



\*stake in meeting HEP customer demands in Croatia

HYDROPOWER PLANTS
THERMAL PLANTS
NUCLEAR POWER PLANT KRŠKO
RES PURCHASE
IMPORT

amount of 4,982 GWh relates to the import of electricity for customers in Croatia and the region. Furthermore, 1,464 GWh was dedicated to the mandatory repurchase of electricity produced by eligible producers in the system of incentives (RES and highly-efficient cogeneration) from HROTE. 20 GWh related to the purchase from companies outside of HEP Group and traders in Croatia, while 53 GWh related to covering HOPS losses.

As preferential producers of electricity from renewable energy sources and highly efficient co-generation, HEP d.d. and HEP-Proizvodnja, based on the agreement of the electricity purchase with HROTE, realized income of 157.7 million HRK in 2016, out of which the claims amounted to 80.1 million HRK. There were nine integrated photovoltaic power plants in the incentive system during 2016, two small hydropower plants and one co-generation.

### Generation and sales of heat energy

Combined generation of electricity and heat plants in HEP-Proizvodnja generated 2,124 GWh of heat energy in 2016, which was 0.4 percent more than planned for that year. Compared to the previous year in which 2,115.1 GWh was generated, the generation of heat energy was larger by 0.5 percent. Process steam generation amounted to 709 700 tons, which was 1.3 percent less than planned in 2016 (719 206 t), while the generation in the previous years was 734 568 tons.

Heat energy generation amounted to 1,569.1 GWh, i.e. 0.9 percent more than the planned generation in 2016 (1,554.9 GWh), while the generation in the previous year was 1,541.1 GWh).

General indicators (TWh)	2015	2016	% 2015 / 2016
Heat energy generation (total HEP-Toplinarstvo and HEP- Proizvodnja)	2.32	2.31	-0.59
Heat energy sales	1.93	1.94	0.57

Jointly with the generation in boiler rooms owned by HEP-Toplinarstvo, a total of 2.3 TWh heat energy and process steam was generated in 2016 Sales of heat energy amounted to 1.9 TWh or 0.6 percent more than 2015 Annual residential consumption was decreased by 1.1 percent, while the commercial consumption grew by 2.9 percent. The decrease was the effect of heat cost allocators installations. The HCA's were mostly installed in joint heat meters where residential customers take a larger stake

compared to business. Therefore, residential customers realized larger savings of energy. In the total heat consumption Zagreb (including Samobor, Velika Gorica and Zaprešić) took 85.3 percent, Osijek 11.1 percent and Sisak 3.6 percent.

#### Revitalization of hydropower plants continues

HEP plans to invest 3.3 billion HRK in the project of reconstruction and revitalization of hydropower plants in Croatia, which will ensure about 150 MW of new generation capacity. The first hydropower plant in this extensive program is HE Dubrovnik, whose 50 years of operation was celebrated in March 2016 HEP continues its centennial tradition of generating energy from water by improvements of the majority of its hydropower plants. System for long-distance supervision and management of PP HE Sjever was modernized in 2016 Electric and engineering equipment was replaced, and revitalization of the power unit C completed in HE Varaždin, power units A, B and C were revitalized in HE Čakovec, while the project of Generation Center construction was initiated in PP HE Zapad. A list of works on hydropower plants Fužine, Zeleni vir, Senj, Gojak, Ozalj and Velebit were initiated, while a seven-year long reconstruction and revitalization project is close to completion in HE Zakučac. Besides the implementation of the revitalization of large hydropower plants, HEP invests in the construction of new small hydropower plants, reconstruction of power units of the biological minimum on HE Varaždin dam and plans the reconstruction of several existing small hydropower plants.

### 35 mil. EUR

 the value of investment in two cogeneration biomass power plants in Osijek and Sisak.

Electricity generated in cogeneration biomass plants will be delivered into electric energy system. The construction of these new plants HEP will secure stable and reliable sources of process steam for industries in Osijek and heat for centralized heating system in Osijek and Sisak. The plants will contribute to the decrease of losses in Sisak heating system and better utilization of the existing infrastructure in both locations.

### Major equipment installed in power plants BE-To Sisak and BE-To Osijek

In August 2016, major equipment installation was completed in the first two combined biomass plants (BE-TO) in HEP generation portfolio – in Osijek and Sisak.

The completion of the construction and the pilot phase of operations are expected during 2017. These two plants are worth more than 35 million EUR and are the first plants of this type in HEP Group. Biomass co-generation plants are in the RES generation and co-generation incentive system.

BE-TO Sisak with 3MW electricity and 10 MW heat capacity will produce 19,300 MWh electricity and about 63,900 MWh heat annually. The investment comprises heat station and heat pipeline to the villages of Brzaj and Caprag. The investment is 18.95 million EUR worth. New BE-TO Osijek with 3 MW electricity and 10MW heat capacity will produce 18,300 MWh electricity and about 65,800 MWh heat energy for the centralized heat system. The value of investment in BE-To Osijek amounted to 16.25 million EUR. Both plants will use wood biomass, whose purchase HEP secured by signing long-term contracts. The produced electricity will be delivered into electric energy system. The construction of these new plants HEP will secure stable and reliable sources of process steam for industries in Osijek and heat for centralized heating system in Osijek and Sisak. At the same time, the plants will contribute to the decrease of losses in Sisak heating system and better utilization of the existing infrastructure in both locations.

Construction of the first biomass plants in Osijek and Sisak is a part of HEP long-term strategy of diversification and increase of RES share in the existing generation portfolio.

### CKTL - accreditation confirm according to HRN EN ISO/IEC 17025:2007

The Central Chemical and Technological Laboratory (CKTL) operates within HEP-Proizvodnja company. It has been accredited for examination of fuel oil and coal according to the norm HRN EN ISO/IEC 17025:2007 since 2011. CKTL expanded the accreditation to the examination of solid biofuels in 2013 and to coke in 2015 The Croatian Accreditation Agency conducted a thorough evaluation of the laboratory with the purpose of re-accreditation. Based on the inspection results, the accreditation was issued again for the examination of fuel oil, coal, coke and hard biofuels, with the total of 23 accreditation methods. CKTL continues to perform examinations for internal and external customers.

CKTL co-operates with various faculties in performing joint examinations, providing internship and on research connected with graduation theses. In 2016, visits were organized for students of Mining and Geological Engineering Faculty as well as the Faculty of Chemistry Engineering and Technology from Zagreb. Experiments for the graduation thesis for Faculty of Mechanical Engineering and Shipbuilding were conducted on the topics of the use of biomass in small and medium boilers. The laboratory participated in two inter-lab experiments: one on fuel oil, organized by the Institute for Inter-lab Experiments from the Netherlands, while the other was organized by the Forestry Faculty in Zagreb for experiments on hard biofuels. All experiment results were within permitted values, which confirmed the validity of methodology.

#### HEP ODS: long-term investments continue

The high level of realization of the Investment Plan for 2016 was reached (920 of the planned 960 million HRK), including the funds for the creation of electrical energy conditions and connection of customers on network. The investments are part of the long-term capital projects and HEP ODS investing in construction and revitalization of medium and low voltage facilities. 16 capital investment projects were completed in 2016, with the total value of 224.5 million HRK (out of which over 58.7 were invested in 2016). Further plans of HEP ODS encompass reconstruction of metering points and replacement of meters in the business area of metering appliances. Long-distance management in medium voltage network and building in distribution transformers with reduced losses were planned in technical solutions in smart networks. Despite numerous business risks which endanger the dynamics of the realization of the Investment Plan, the high percentage of realization in 2016 indicate that HEP ODS successfully responded to all challenges.

Major risks in realization of capital investments were durable and complex public procurement procedures and the relations among operators following the demerger of activities in HEP Group as well as frequent changes of legal and regulatory provisions.

Investments in electricity distribution network facilities are conducted within capital investment programs, which are realized through several business years and frequently more contracts which require the harmonization of timing. Capital investments are, as a rule, connected with significant potentials of performers,

16

capital investments, total value of 224.5 million HRK were finalized by HEP ODS in 2016

HEP-Opskrba managed to keep its market share and the position of the leading electricity supplier. The result realized in Slovenia - 12.5 percent of annual consumption of commercial customers, in synergic cooperation with HEP Trgovina, additionally strengthened its position of the growing regional supplier.

industry and investors, which requires harmonized and continuous activities.

Construction of new substations TS 110/10(20)kV was initiated, following a long period of investment preparation. A prolonged preparation of capital investment in joint electrical energy objects is an outcome of demerger of activities in the group. Extended procedure of harmonization of system operators, HEP ODS and HOPS was initiated by composing long-term development plans and is being conducted during entire period of preparation and realization of investment.

#### **HEP-Opskrba**

HEP-Opskrba managed to keep its market share and the position of the leading electricity supplier. The result realized in Slovenia – 12.5 percent of annual consumption of commercial customers, in synergic co-operation with HEP Trgovina, additionally strengthened its position of the growing regional supplier. Sales focus was maintained on commercial segment, with 60 percent of the total sales to end customers, with the consumption of 9.4 TWh, out of which HEP-Opskrba supplies to 74 percent.

The company realized the planned contracted consumption in Croatia amounting to 7,119.7 GWh, which surpassed the plan by 7 percent. The company realized the sales comparable to 2009, the year before economic recession and market liberalization.

Innovation and entrepreneurial spirit resulted in positive effects in the sales of ZelEn i.e. energy from renewable energy sources. It was successfully responded to very complex needs of large industrial buyers, by ensuring competitive supply conditions, products adapted to their

needs and energy services in co-operation with HEP ESCO. HEP-Opskrba finalized its engagement on ELEN project in 2016 by opening ELEN LEAF charging station for electric vehicles in Zagreb.

### HEP-Toplinarstvo: reconstruction of heating network

The most significant projects of HEP-Toplinars two initiated in the past years were continued in 2016 - the revitalization of heating network in Zagreb, Velika Gorica, Sisak and Osijek as well as the introduction of long-distance management system in Osijek.

In the period out of the heating season, HEP-Toplinarstvo conducts regular reconstruction of heating facilities and works on the revitalization of the heating systems in order to ensure safe and quality supply of heat to about 126,000 end customers. Network age and frequent failures are taken into account in decision-making on which heat and steam lines would be included in annual revitalization plan. Networks are old - the one in Zagreb operates since 1954, while the one in Osijek operates since 1963. So, during 2016, HEP-Toplinarstvo reconstructed close to 11 kilometers of heat lines and initiated the construction of 7 kilometers of new lines. The continuation of construction and revitalization of infrastructure is planned, along with the optimization of facilities, introduction of long-distance management of boiler rooms and the implementation of long-distance heat consumption measuring system.

#### **HEP companies in EU projects**

Applications to EU-funded projects usually take several months and comprise several activities and sometimes can take even several years. In 2016, HEP participated in several project applications, closely connected with various HEP companies.

EU and Regulatory Affairs sector in co-operation with HEP-Proizvodnja and partners from Slovenia, Austria and Hungary participated during 2016 in the preparation of project DAMWARM (Drava and Mura Water and Risk Management), whose results are expected in 2017. DAMWARM project is a kind of upgrade on E-FLOOD project, in which HEP joined efforts with Slovenian and Hungarian partners to improve communication of the entire flow of the Mura and the Drava rivers. The goal of E-FLOOD project is to prepare documentation for the tender in flood protection, while the project was conducted between January and July of 2016

The goal of DAMWARM is to forecast the probability and frequency of floods of the rivers Drava and Mura, by the development of a new transnational platform for flood predictions. The platform will provide quality data and hydrodynamic model which will enable higher quality of forecast, even 72 hours in advance. The second goal is to advance and co-ordinate an early warning system and activities in order to timely react and mitigate potential floods. The ultimate goal is to create a ten-year action plan for key stakeholders.

Within Interreg - Danube Transnational Program, HEP team successfully applied the project 3S SMART BUILDING - SMART GRID - SMART CITY, which gathers partners from Croatia, Slovenia, Austria, Hungary, Serbia and Bosnia and Herzegovina. The leading partner is the Faculty of Electrical Engineering and Computing

from Zagreb, while HEP d.d., HEP ODS and HEP ESCO are group members participating in the project. The goal of the project is to ensure technological and legal base for parallel energy management in buildings, energy networks and city infrastructure in the Danube region. This would be achieved by producing a modular software to manage energy in building and distribution network and will be installed in five pilot areas (building and distribution networks) in various countries of the Danube region. The project will be implemented from January 2017 until June 2019 and 85 of cost will be co-financed from EU funds.

HEP and Končar-Inženjering za energetiku i transport participate in the international project Smart Grid uGRIP (microGRId Positioning). Project coordinator is the Faculty of Electrical Engineering and Computing of Zagreb University, while the partners are DTU from Denmark and OFFIS from Germany. The goals of the project are to establish the role of flexible users of distribution network, evaluation of the potential of micro networks in Croatian, Danish and German distribution systems based on local laws and regulations, adaptation of standardized communications protocols within micro network and according to the local aggregator and operator of the distribution system as well as design and demonstration of local market on the level of distribution network in SmartGrid laboratory of FER. 40 percent of project financing was allocated by the Fund of Environmental Protection and Energy Efficiency within ERA Net Smart Grids Plus, and is implemented from April 2016 until March 2019.

HEP-Toplinarstvo in co-operation with the City of Zagreb applied the project of heating network revitalization, with the goal of energy loss reduction, efficiency increase of the heat distribution network in Zagreb. The project was applied through ITU mechanism, which is integrated territorial funding, the EU mechanism from 2014 until 2020, introduced to strengthen the role of cities as economic growth generators. The program comprises a number of activities which can be financed from three funds: European Regional Development Fund, Cohesion Fund and European Social Fund. In co-operation with the City of Osijek, HEP-Toplinarstvo applied the project of increase of the heating line of TE-TO Osijek.

### Participation in Competitiveness and Cohesion 2014-2020

In connection with the priority axis 1 of the Operative Program Competitiveness and Cohesion 2014-2020, HEPO Group participated as a partner in three applications supporting competence centers with the aim of improvement of innovation environment and increase of research, development and innovation in business sector. The centers are: Competence Center for Advanced Energy and Cleaner Transport (CEKONET), led by Končar Institut; Competence Center for Advanced Energy Management in Buildings and Infrastructure CEKOM-GEZI, led by the Innovation Center Nikola Tesla and the cooperation with the Energy Institute Hrvoje Požar, the leader of the Competence Center for Smart Planning and Management of Energy in Urban Areas.

Within the priority axis 4 of the Operative Program, Promotion of Energy Efficiency and RES, two Hep companies were identified: HEP ODS within the investment priority of development and implementation of smart distribution systems which operate in low and medium voltage. In other words, it is vital to realize the

goal of introducing smart networks in the Croatian distribution network. During 2016, feasibility study was completed, containing cost and benefit analysis for investment in advanced network as the base for applying to EU funding.

HEP-Toplinarstvo was recognized as one of the stakeholders in the investment priority of supporting energy efficiency and use of RES in public infrastructure, including public buildings, in residential buildings and in increase of production efficiency and heat distribution. The projects will be led by the new EU mechanism, through integrated territorial funding, in which cities are central as the generators of the economic development. During 2016 seven cities and city agglomerations were selected and HEP was chosen as a partner in the regions of Zagreb and Osijek for distribution network reconstruction.

supply security. Transmission operators will be in charge of implementing new technologies in their networks, while distribution network operators will improve the supervision of distribution network to use advanced forecasting tools. Managing centers of distribution operators will be connected through ICT infrastructure and system integration.

### Co-operation of Croatian and Slovenian partners on smart networks

Under the joint co-ordination of Croatian and Slovenian partners, operators of transmission systems HOPS and ELES and the operators of distribution systems HEP ODS and SODO, an agreement was signed in late 2016 stipulating partnership. This agreement formed the base for the application of Sincro. Grid project (advanced networks project) to European funding program Connecting Europe Facilities.

The goal of Sincro.Grid project is to manage power streams by using advanced technical systems and algorithms. The outcome should be the increased quality of voltage in electricity system and increased transmission power of existing lines, which will ensure better integration of RES into the system and increase the

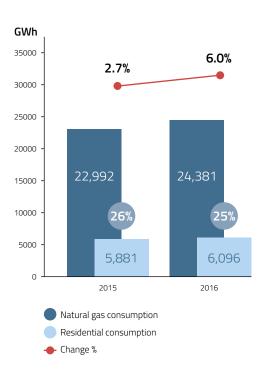
HEP Group 2016

Croatian and Slovenian operators of transmission systems HOPS and ELES signed an agreement establishing the base for the application of Sincro. Grid project (advanced networks project) to European funding program Connecting Europe Facilities. Project goal is to manage power streams by using advanced technical systems and algorithms to increase the quality of voltage in electricity system, transmission power of existing lines, and ensure better integration of RES into the system and increase the supply security.

### Gas distribution and supply

The total gas consumption in Croatia increased by six percent in 2016, while the consumption of customers in public service rose by 3.7 percent or 214,845 MWh, compared to the previous year. According to the data provided by the operator of the transmission system, the total supplied gas amounted to 24,381 GWh. The market share of HEP as supplier on the wholesale market reached 25 percent, i.e. 6,096 GWh for the gas supplied in 2016 The increased residential consumption was mainly influenced by increased consumption in December. In that month consumption rose by 26 percent in public service, 24 percent in commercial segment and 21 percent with end customers.

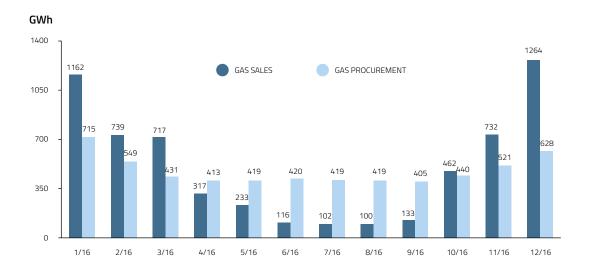
Gas consumption in the Republic of Croatia 2015 – 2016 (source: Plinacro, HEP)



#### Gas procurement and sales

Since April 1, 2016, new prices of gas entered into force, compliant to the decisions passed by the Croatian Government, which stipulate that HEP d.d. as the supplier on the wholesale market is obliged to sell gas to the suppliers in public service. The price was set at 0.1734 HRK/kWh, which is 24 percent less than the previous price. During 2016, a total of 5,776.9 GWh gas was purchased for wholesale supply. In the same period, a total of 6,095.8 GWh of gas was supplied to the suppliers in public service. Gas reserves in the underground storage decreased by 201.1 GWh compared to the beginning of the year and at the end of the year the reserves reached 2,523.6 GWh.

#### Gas procurement and sales for the supply on the wholesale market in 2016



6%

was the increase of total gas consumption in Croatia in 2016, while the number of customers using public service infreased by 3.7% or 214,845 MWh compared to 2015.

According to the data provided by the transmission operator, the total amount of gas supplied to the customers reached 24,381 GWh, while the stake of HEP as the wholesale supplier reached 25 percent, i.e. 6,096 GWh.

### Application for the management of the gas portfolio developed

The experts of HEP-Opskrba plinom and the Sector for ICT of HEP d.d. developed a software for operative and commercial support to gas portfolio management - Information Gas Supply System (ISPO system). The software enables reliable and quality support in monitoring the present and future company activities, increased efficiency and optimized costs of supervision and management of operations in gas trade, optimization and decrease of connected procurement price connected to the HEP Group needs, improvement of processes of information exchange with market stakeholders and the support for a larger number of customers and more balance groups.

The first six modules of ISPO system were implemented in 2016: to suppliers within public service, as the external users of the system were enabled the access to the system by username and password. The system enables a simple access to all entered data, monitoring realization and reporting. The implementation of other modules and upgrades will enable the consumption forecast, planning of procurement and sales of gas in accordance to the portfolio needs, offer management, automatization of billing and controlling. The end of 2016 saw the preparations for the implementation of additional two modules and upgrades of the existing ones, whose completion was planned in 2017. This will wholly encompass business processes of managing HEP gas portfolio.

Since the introduction of the ISPO system, increase in precision of consumption forecast was noticed, i.e. the pre-nomination of suppliers in the public service, which helps increase quality in

portfolio management of the balance group organized and led by HEP-Opskrba plinom. Since HEP balance group takes 25 percent of the total gas consumption in Croatia, and even up to 40 percent on a daily basis in winter period, faster and more precise consumption forecast in residential segment contribute to the security of gas market and the decrease of operational costs in balance group harmonization. Precise and centralized base of historical data on consumption, procurement and storage of gas and simpler billing data and annual reports are important elements of the system.

### HEP-Trgovina: intensified activities on European markets

HEP has a direct access to the Western European markets of electricity, gas, coal and emission units and performs all electricity trading transactions on EU the wholesale market. In Serbia, HEP obtained a license for electricity trading and for establishing own balance group and direct access to the wholesale electricity market, which includes electricity trading within Serbia and in neighboring countries. In other non-EU countries (Bosnia and Herzegovina and Kosovo), the market access is realized through HEP-Trgovina subsidiaries. Electricity supply of customers outside Croatia is possible exclusively through local companies, so HEP-Trgovina intensified the activities in cooperation with HEP-Opskrba.

During 2016, the buyers in Slovenia were sold 211,788 MWh of electricity. Since January 2016, electricity has been supplied to customers in Serbia and Bosnia and Herzegovina and HEP became the first supplier on B-H market who took over a customer connected to the domestic distribution network.

HEP-Trgovina buys gas to supply thermal power plants and heat plants of HEP-Proizvodnja and for the supply to commercial customers of HEP-Plin. HEP d.d. and HEP-Trgovina are registered leaders of balance groups on the Croatian gas market, which enables the reservation of gas transport capacity and gas trade on a virtual trade point in Croatia. HEP-Trgovina established a balance group for HEP.d.d. on Slovenian and Austrian gas markets, which enabled the reservation of the transport capacity from Austria to Croatia. As a member of CEGH, HEP has a direct access to the liquid Western European gas market and the possibility to buy gas on the supply spot (virtual trading point in Austria), which presents a significant diversification of supply directions and gas offers. In 2016 a total of 5,493 GWh of gas was purchased, which is 29.1 percent more than planned.

Besides bilateral procurement of emission units, HEP-Trgovina represents HEP in primary auctions to buy emission units, organized by EEX exchange and in the EEX exchange market. During 2016 1,475,000 emission units were bought in 2016, which sufficed for the needs of HEP Group's generation of electricity and heat for 2016 and 75 percent of planned needs in 2017. Emission units are being traded throughout the year, considering market conditions, i.e. individual prices of emission units.

#### Nuclear power plant Krško

Nuclear power plant Krško team invests continuous efforts in being the best practice of security and excellence. During 2016, the planned generation was exceeded, reliable work was ensured without unplanned disruptions, high security and safety standards were applied, extensive regular maintenance was conducted as well

# 1,475,000 emission units

were purchased in 2016, which covered total needs of HEP Group in 2016 and 75 percent of planned needs in 2017.

Nuclear power plant Krško exceeded the electicity generation plans; reliable work was ensured without unplanned disruptions, high security and safety standards were applied, extensive regular maintenance was conducted as well as the preparations and implementation of technological modernization projects. These projects support the extended life cycle of the power plant and will, by security standards, ensure that the nuclear plant is comparable to new plants

as the preparations and implementation of technological modernization projects.

These projects support the extended life cycle of the power plant and will, by security standards, ensure that the nuclear plant is comparable to new plants after 500 work days and somewhat more than 8 billion kWh of generated electricity.

Maintenance works in 2016 were marked by excellent results of ten-years long examination of the protective building impermeability, maintenance of the major electric generation, inspection of regulation turbine vents and exchange of changer for power supply of regulation and protective circuits.

All planned technological modernization supporting the prolongation of plant's life cycle were successfully completed: adaptation of system and structures which will ensure security and reliability of the nuclear plant, with the simultaneous work of hydropower plant Brežice, modernization aimed at increasing the reliability of operations of the plant and the modernization according to the security upgrade program.

#### Service reliability

#### **HEP ODS and HEP-Elektra**

As of November 2, 2016, residential customers in universal service and buyers of guaranteed supply, became the customers of HEP-Elektra. Customers connected to medium voltage remained the buyers of HEP ODS.

All suppliers have to provide a unified electricity bill and network use in compliance with tariff systems, proscribed fees and free market prices, to all their residential and other low-voltage customers for each metering point. All customers who selected their market supplier receive a unified bill from January 1, 2017. Related to that, in late 2016, HEP ODS initiated activities to establish unified invoices timely. All suppliers were obliged to enter contracts with HEP ODS, which would ensure the exchange of

data as well as calculation and fees for end customers. These contracts provision the calculation and billing the fees of network usage for all customers connected to low voltage network.

As in the previous years, the trend of total increase of the total number of metering points of distribution network buyers and at the end of 2016 the total number of metering points were increased by 0.8 percent i.e. 18,893 points.

In 2016 the trend was continued to increase the number of customers in residential category who changed suppliers. The number of customers supplied by the suppliers on the market remained the same. There were 11 active suppliers on electricity market. A total of 86,915 customers changed their suppliers, out of whom 52,098 residential customers and 33,817 commercial. HEP ODS is in charge to implement these changes on the market.

#### The number of metering points according to voltage levels

Customer category	2015	2016	%16/15
High voltage	4	4	0
Medium voltage	2,167	2,250	3.8
Low voltage - commercial	192,927	195,906	1.5
Low voltage – public lighting	21,454	21,399	-0.3
Low voltage - residential	2,171,110	2,186,996	0.7
Total low voltage	2,385,491	2,404,301	8.0
Total	2,387,662	2,406,555	0.8

#### Number of metering points in 2016

Customer category	2015	2016	%16/15
Residential	2,171,110	2,186,996	0.7
Commercial	216,552	219,559	1.4
Total	2,387,662	2,406,555	0.8

The total number of metering points in distribution network of HEP ODS was increased by

0.8%

There were 11 active suppliers on electricity market. A total of 86,915 customers changed their suppliers, out of whom 52,098 residential customers and 33,817 commercial. HEP ODS is in charge to implement these changes on the market.

#### Losses in the distribution network

Electricity losses are an indicator of operational efficiency and quality of electricity distribution in HEP ODS. Minimizing losses is one of the major business goals. HEP ODS dedicates a number of investment and operational measures to realize this goal.

Electricity losses are divided in two categories: technical losses, which are the consequence of operational condition of the distribution network and technical characteristics of network elements (due to magnetization of the transformer core, heat losses due to lines and transformer overload and others) and non-technical losses, which are consequence of unmeasured and uncalculated electricity consumed by customers.

HEP ODS has, until now, predicted the ratio of losses on the level of the distribution network to 70:30. However, a study "Expert and scientific support to the development of methodology for planning of electricity losses and electricity taken in unauthorized manner", ordered by HEP ODS, proved that the right ratio between technical and non-technical losses in the distribution network reaches 51:49.

#### Distribution network losses, 2016

Descrip- tion	2015	2016	Difference 2016- 2015	% 16/15
Losses in GWh	1,295	1,235	-60	-1.8%
% losses	8.1%	7.6%	-0.4%	

Losses amounting to 1,235 GWh were recorded in 2016, representing a decrease of 1.8 compared to 2015 According to the methodology electricity losses in distribution network are calculated as a difference between electricity introduced into the distribution network (from transmission network, other distribution networks and power plants connected to the distribution network) and the energy calculated to the end-users. Energy that entered distribution network is calculated monthly on the basis of measuring, while a large part of energy which is calculated for customers is based on prepaid fees, which brings about mistakes in presentation of losses. The mistake is reflected in sudden changes in losses throughout years, which could be ameliorated by applying a special methodology in reverse.

In 2016 the implementation of operational measures was continued. These measures did not demand significant investment and were aimed at minimization

of losses, such as the control of metering points and illegal energy consumption, implementation of technical validations of metering data in the system of long-distance monitoring, examination of measuring correctness, optimizing the switching state of network, shutting off network during inactivity. Besides these operational measures, some investment was implemented, which helped decrease losses, especially significant replacement and reconstruction of old as well as construction of new facilities.

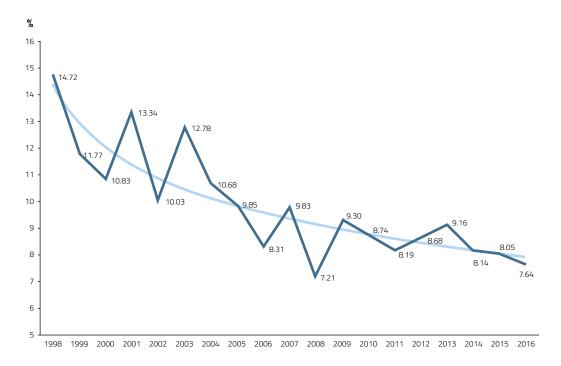
#### Replaced and renovated:

- > low voltage network: 527.8 km
- > medium voltage lines 10(20) kV: 254.8 km
- > TS 10(20)/0.4 kV: 53 units

#### Constructed:

- > low voltage network: 862.4 km
- > medium voltage lines 10(20) kV: 965.2 km
- > TS 10(20)/0.4 kV: 313 units

#### Distribution network losses



## Q1/2016

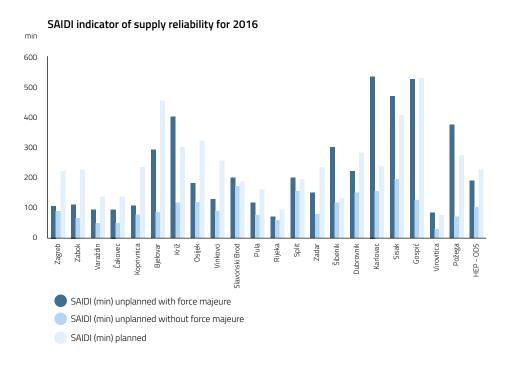
Fierce winter weather caused increased scope of unplanned interruptions of electricity supply in the distribution areas: Elektra Zagreb, Elektra Bjelovar, Elektra Sisak and Elektrolika Gospić.

#### Reliability of electricity supply

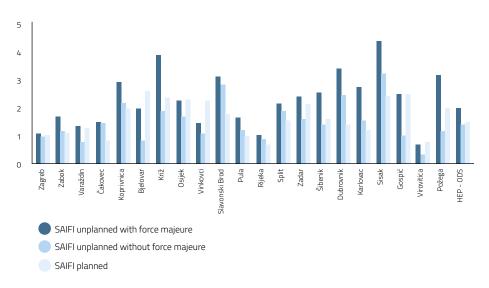
The table presents the indicators of electricity supply in distribution (SAIFI i SAIDI) for planned and unplanned interruptions.

#### Indicators of reliability of electricity supply, according to distribution areas for 2016

	P	lanned	Un	planned	Unplanned – caused	by force majeure
Distribution area	SAIFI	SAIDI (min)	SAIFI	SAIDI (min)	SAIFI	SAIDI (min)
Zagreb	1.02	222.41	1.09	105.22	1.00	86.59
Zabok	1.14	222.96	1.73	111.08	1.16	67.11
Varaždin	1.30	135.01	1.37	90.90	0.80	48.63
Čakovec	0.87	81.96	1.53	31.38	1.48	28.61
Koprivnica	1.97	235.68	2.94	106.62	2.20	74.11
Bjelovar	2.61	455.70	1.98	290.33	0.86	85.50
Križ	2.35	298.52	3.91	402.14	1.89	116.82
Osijek	2.31	323.63	2.26	181.77	1.73	119.22
Vinkovci	2.27	256.96	1.46	128.07	1.08	86.52
Slavonski Brod	1.81	183.50	3.13	196.79	2.85	170.41
Pula	0.97	159.21	1.64	114.02	1.21	74.53
Rijeka	0.73	92.10	1.06	72.17	0.92	58.10
Split	1.57	195.72	2.19	198.67	1.88	154.94
Zadar	2.14	231.89	2.44	150.77	1.60	78.46
Šibenik	1.59	133.47	2.57	297.71	1.41	116.06
Dubrovnik	1.40	280.48	3.42	222.01	2.46	149.90
Karlovac	1.22	238.35	2.74	534.19	1.55	155.33
Sisak	2.41	405.07	4.42	466.89	3.21	195.80
Gospić	2.52	527.51	2.51	524.35	1.02	122.90
Virovitica	0.78	75.29	0.69	82.88	0.31	24.58
Požega	1.97	274.26	3.19	372.85	1.19	72.82
HEP ODS	1.51	222.85	2.00	189.39	1.44	102.40



#### SAIFI indicators of reliability for 2016



In the first quarter 2016, the areas of Elektra Zagreb, Elektra Bjelovar, Elektra Križ, Elektra Karlovac, Elektra Sisak and Elektrolika Gospić were hit by the wave of winter bad weather which caused increased scope of unplanned interruptions of electricity. In the second quarter of 2016, a standard level of electricity supply was realized, while in the

third quarter there were more preventive disconnections of power lines due to forest fires. Heavy storms caused long-term interruptions in the areas of Slunj, Našice, Ozalj, Lipik, Obrovac, Požega, Zadar and Poreč. In the fourth quarter of 2016, stormy weather caused significant interruption of supply in the area of Lovran and the wider Požega area.

## 2,406,555 network users

were registered at the end of 2016, out of which 2,254 high and medium voltage users and 2,404,301 low voltage users.

There are assessments of security and quality of distribution network in compliance with investment planning, reconstruction of old distribution network and the construction of new. Also, web page of HEP ODS provides advice with the purpose of health and security insurance.

#### Our customers

#### **HEP ODS**

The number of customers according to tariff models (groups)

Description	TOTAL
· · · ·	TOTAL
HV-110 kV	4
MV- 35 kV	69
MV- 10 kV	2,181
Total MV	2,250
TOTAL HIGH AND MEDIUM VOLTAGE	2,254
NN-commercial (blue)	44,530
NN-commercial (white)	128,172
NN-commercial (red)	23,204
Total NN-commercial	195,906
NN-public lighting	21,399
NN-residential (blue)	737,174
NN-residential (white)	1,446,320
NN-residential (black)	3,022
NN-residential (red)	480
Total NN-residential	2,186,996
TOTAL LOW VOLTAGE	2,404,301
TOTAL	2,406,555

Criteria of technical correctness of the distribution network and electrical energy objects, continued following, procurement and construction of high quality materials, equipment and appliances. All these activities are directed to preservation of health and safety of our customers. There are assessments of security and quality of distribution network in compliance with investment planning, reconstruction of old distribution network and the construction of new. Also, web page of HEP ODS provides advice with the purpose of health and security insurance. Speaking of potential breaches of regulations and advertising

code, it is important to accentuate that HEP ODS conducts marketing activities to interested public, but not those marketing activities which accentuate particular product or service.

In 2016, HEP ODS recorded one case of justified complaint about breach of privacy, in which case customer data were proceeded to the third person. Therefore, HEP ODS initiated additional procedures and guidelines to prevent breach of customer privacy, especially having in mind 2.4 network users to which it provides electricity distribution.

#### Complaints about voltage quality in distribution network

The evaluation of voltage in distribution network relies on the number of justified complaints by network users; based on the written complaints about voltage quality on the metering point, additional measurements of voltage quality are done, and justifiability of complaint is evaluated.

#### Complaints about voltage quality in the distribution network in 2016

Distribution area	Number of network users	Number of complaints	Number of legitimate complaints	Percentage of justified complaints (%)
Zagreb	552,010	71	14	19.72
Zabok	66,960	6	4	66.67
Varaždin	71,132	6	4	66.67
Čakovec	47,032	12	2	16.67
Koprivnica	53,128	2	2	100.00
Bjelovar	51,024	3	1	33.33
Križ	77,870	8	0	0.00
Osijek	154,179	5	1	20.00
Vinkovci	82,525	29	15	51.72
Slavonski Brod	65,321	9	5	55.56
Pula	157,983	18	3	16.67
Rijeka	215,097	31	11	35.48
Split	292,983	12	5	41.67
Zadar	125,468	5	1	20.00
Šibenik	86,675	5	3	60.00
Dubrovnik	54,342	6	5	83.33
Karlovac	86,928	9	6	66.67
Sisak	59,864	3	3	100.00
Gospić	48,500	0	0	0.00
Virovitica	30,266	2	0	0.00
Požega	27,268	2	1	50.00
HEP ODS	2,406,555	244	86	35.25

### Among 27,000 customers,

there was only one legitimate complaint about the voltage quality in 2016.

Due to many complaints on misleading sales communication, an education campaign was implemented in 2016 in order to inform customers on their rights and obligations related to their rights and change of supplier and measures of customer protection from misleading behavior by suppliers, including false representation.

The quality of voltage is measured by indicators which have to be harmonized with the Croatian norm HRN:50160, while the complaints on the quality of voltage according to distribution areas use relative indicator of voltage quality which comprises the number of justified complaints and the total number of customers in some specific distribution areas. In 2016 only one legitimate complaint was recorded on 27 thousand of customers. The decrease of this indicator is the result of coordinated work of HEP ODS experts who undertake corrective actions in distribution network following customer complaints.

#### Customer complaints related to connections

The table shows complaints by customers in 2016 which were filed to the Complaints Commission of HEP ODS. The company is obliged inform HERA on these complaints and file written explanation on each case. During 2016, upon the invitation from HERA a total of 166 explanations were delivered to complaints, inquiries, requests, applications and other.

#### Overview of complaints related to connections in 2016

Reason for complaint	Accepted	Refused	Request unfounded	Customer withdrew complaint	Total
<b>Refused request for PEES issuance</b> (GC and Rules and Regulations – limited technical conditions, articles 8 and 11)	12	0	3	1	16
Refusal of conditions from PEES and / or connection fees (GC and Rules and Regulations, article 11)	11	0	25	0	36
<b>Refusal of the conditions for issued PEES</b> (solving property rights, separation of metering, connection legalization, etc.)	0	0	0	0	0
Other	0	4	0	0	4
TOTAL	23	4	28	1	56

#### Customer complaints on misleading sales communication

HEP ODS accepted during 2016 totally 131 customer complaints related to the misleading sales method by some market suppliers. The majority of complaints relate to false identification of sales representatives of some market suppliers, i.e. false statements by these persons on the alleged business connections with HEP or joint market presence. Even four forged signatures on contracts were established. 77 percent of these complaints relate to only two suppliers.

Due to many complaints on misleading sales communication, an education campaign was implemented in 2016 in order to inform customers on their rights and obligations related to their rights and change of supplier and measures of customer protection from misleading behavior by suppliers, including false representation. Although measures were introduced for stronger customer protection in the new General Conditions for Network use and Electricity Supply, misleading behavior of some suppliers was continued, while in some areas even intensified. Having in mind the current state and to provide additional

customer protection, HEP ODS suggested stricter provisions for electricity suppliers.

Related to competition protection, during 2016 there were no legal procedures initiated against HEP or subsidiaries on conduct contrary to market competitiveness, anti-trust and monopolist practices.

#### Overview of complaints commissions

Complaints commissions were established in distribution areas of HEP ODS. Commission members are representatives from the distribution areas and representatives from customer protection associations. Compared to 2015, a small decrease of complaints was recorded. The number of complaints related to consumption calculation was mildly increased, but the ratio of founded and unfounded requests remained the same. The number of complaints on irregular meter remained the same, while the number of complaints related to connections and disconnections or voltage remained the same. The ratio of founded and unfounded complaints did not significantly change compared to 2015 The stake of founded complaints makes about 20 percent of total complaints.

#### Customer complaints commissions in 2016

HEP OE	HEP ODS Complaints Commission in 2016																		
Reason	Reason for complaint																		
		Billing		Fa	ulty me	ter		nnectic connec			Voltage umstar			Other			v		
	total	accepted	refused	total	accepted	refused	total	accepted	refused	total	accepted	refused	total	accepted	refused	Total sessions	Total complaints	Accepted	Refused
2016	277	48	228	6	3	3	6	0	6	1	0	1	63	15	48	129	320	53	279

On the day of its establishment, HEP Elektra provided public service of supply

## to 2,002,468

metering points of customers within the universal service and 75,576 metering points of customers within guaranteed supply.

Electricity consumption of customers within public service decreases yearly, which is expected. However, the total consumption decrease is lower than planned. From the total drop in consumption of 170 GWh, the largest part of 78 percent relates to the residential category. This is mostly caused by mass use of energy efficiency appliances.

#### HEP Elektra

HEP Elektra is the only energy subject authorized to provide public service of electricity supply in Croatia, meaning that it is obliged to provide public service of electricity supply as a universal service for residential customers and to provide public service of electricity supply which is conducted as guaranteed supply in commercial category, with the major goal of providing reliable supply of electricity.

The company was established on November 2, 2016, when it provided public service of supply to 2,002,468 metering points of customers within the universal service and 75,576 metering points of customers within guaranteed supply. HEP Elektra contact center comprises communication via e-mail (5,028 inquiries) and phone (4,669 inquiries). Besides, customers communicate by land mail, not only related to the issues of supply, but also related to the activities of system operator. HEP Elektra, as public service provider, is obliged to mediate between customers and system operator, which offers two communication points to the customers. Reasons for customer communication are various, but most frequently they focus on readings delivery, issues related to My Account application, inquiries on debts, options for debt payments in installments, complaints, extraordinary calculations, changes of customer data, confirmations of payments and other issues. Customers who address the Customer Center of HEP Elektra receive their replies shortly, before the legal term. Also, with an aim to provide assistance to the customers related to fulfilling contractual obligations related to the prevention of disconnection, HEP Elektra offers the option of installment payments of debts.

#### Sales of electricity according to consumption categories and voltage levels (in GWh)

	2015	2016	% 16/15
High voltage	15	2	-86.7%
Medium voltage	67	52	-22.4%
Low voltage – commercial	567	567	0.0%
Low voltage – public lighting	29	19	-34.5%
Low voltage – residential	5,593	5,460	-2.4%
Low voltage total	6,189	6,046	-2.3%
Sales total	6,271	6,100	-2.7%

	2015	2016	% 16/15
Customers residential	5,593	5,460	-2.4%
Customers commercial	677	640	-5.4%
Total customers	6,270	6,100	-2.7%

Electricity consumption of customers within public service decreases yearly, which is expected. However, the total consumption decrease is lower than planned. From the total drop in consumption of 170 GWh, the largest part of 78 percent relates to the residential category. This is mostly caused by mass use of energy efficiency appliances (LED lighting, high-level energy efficiency appliances, etc.) It is not possible to predict the reasons for decrease or increase of total consumption in commercial segment, who are supplied within guaranteed supply, because customers frequently use guaranteed supply because they remained without a supplier due to debts.

## 98%

customer inquiries were solved by HEP-Opskrba contact center at the first call without further complaints.

HEP supplies a number of large customers in Slovenia, A contract worth 12 million EUR covers the supply of electricity from renewable sources of energy to the City of Ljubljana. HEP also has contracts with many other companies and institutions, like Port of Koper, MOL Slovenia (supplying petrol stations), Cimos, NC Planica, theaters in Ljubljana and Maribor, NLB bank, aBanka, Hotel Bernardin and Forestry Institute.

#### HEP-Opskrba

At the end of 2016, HEP-Opskrba numbered 69,217 customers with 129,279 metering points. From the stated number, almost 45 percent are residential customers.

HEP-Opskrba pays great attention to customer communication as well as development of communication channels. Besides company's web page, there are brand pages and social networks (Facebook, LinkedIn and YouTube). The company has a very developed customer service: in 2016 the contact center of HEP-Opskrba had on average more than 500 calls a day. 98 percent of calls were answered immediately and there were no further complaints. Since HEP-Opskrba has almost 70,000 customers it is natural that it receives some complaints. However, they are settled in shortest time. HEP-Opskrba also has five certified mediators. The complaints were mostly received by customer relations departments and a small number was directed to the company management.

More than 17,000 e-mails were received and replied to. Besides, in order to provide information vital for their business, HEP-Opskrba continuously informs customers via newsletter. Within its web page, i.e. web page Hepi, the customers can access the applications My Account and My Hepi Account, where they can monitor billing, due invoices, unpaid invoices, interest rates, and similar. Residential customers have access to the free application m-hepi.

HEP-Opskrba and Hepi (residential tariff model) web pages, as well as on ZelEn (electricity from RES) web page, customers can find information on products and FAQ sections. There is also advice for electricity savings. Through social networks and with bills received by land mail, advice for energy efficiency and optimal use of electricity are distributed. HEP-Opskrba does not have its own advertising code, but adheres to the

Code of Advertising and Market Communications of the Croatian Association for Market Communications (HURA)

Inter alia, sales representatives and sales consultants mediate in open issues between customers and network operator, provide initial consulting of customers related to energy efficiency, provide replies related to electricity market and are available for all other questions.

#### Expanding on Slovenian market

A three-year contract on electricity supply was signed with Slovenian railway company, total worth of 26.5 million EUR. Thanks to contracts on electricity supply signed in 2016, HEP completed the year with 12.5 percent of Slovenian market share.

HEP supplies a number of large customers in Slovenia. A contract worth 12 million EUR covers the supply of electricity from renewable sources of energy to the City of Ljubljana. HEP also has contracts with many other companies and institutions, like Port of Koper, MOL Slovenia (supplying petrol stations), Cimos, NC Planica, theaters in Ljubljana and Maribor, NLB bank, aBanka, Hotel Bernardin and Forestry Institute.

At the second annual meeting with customers and business partners in Ljubljana, HEP management and the representatives of HEP Energija, daughter company which supplies electricity in Slovenia, presented novelties in business operations of HEP Energija and electricity market trends. The size, tradition, diversification of sources and references on the Croatian market as well as own electricity generation enable HEP Energija stabile and competitive supply of Slovenian customers, which is the key base for future increase of market share.

#### Engaging business and entrepreneurs

Traditionally, the fifth year in a row, HEP-Opskrba organized meetings with customers in four regions. This year's program was visited by more than 800 reputable business persons, largest electricity customers from Croatia. The entrepreneurs were shown a video presentation focusing on electricity market trends and HEP-Opskrba operations. Following the meetings, the participants filled a questionnaire evaluating the meetings very positively and announced their future participation in such events.

HEP- Opskrba uses any opportunity to engage small and medium enterprises and residential customers. The largest customers have key account managers at their disposal. Communication with other customers is organized through various business events and conferences. HEP-Opskrba started supporting the event "My entrepreneurial Croatia", a festival of crafts, SME's and small agricultural companies and realized direct communication with customers in events in six cities in 2016 Besides, information points were organized in some shopping centers.

Pursuant to the umbrella agreement with the Croatian Chamber of Crafts (HOK), HEP-Opskrba signed separate agreements with county chambers on April 15, 2016, by which lower price of electricity was provided to crafts. The action provided conditions that 62,000 crafts lower their operative costs and realize more successful results.

## 62,000 SME's and crafts

enjoy lower prices of electricity pursuant the agreement of HEP-Opskrba with the Croatian Chamber of Crafts and its county subsidiaries.

A jumbo advertisement "Shine in the dark" was awarded the Outward award in the category of mega boards, among 52 ads which were communicated from January 2014 until September 2016 in Croatia. This is the second prestigious marketing campaign award assigned to HEP in 2016. The campaign for m-hepi application received Effie award.

#### Success of HEP marketing campaigns

A jumbo advertisement "Shine in the dark" was awarded the Outward award in the category of mega boards, among 52 ads which were communicated from January 2014 until September 2016 in Croatia. This is the second prestigious marketing campaign award assigned to HEP in 2016 The campaign for m-hepi application received Effie award.

#### HEP-Toplinarstvo

End customers, heat energy	Number
Residential	119,880
Industry and business facilities	6,320
Total	126,200

End customers	Zagreb	Osijek	Sisak	Velika Gorica	Samobor	Zaprešić
residential	96,085	10,445	4,057	5,658	1,354	2,281
commercial	4,604	1,267	88	244	26	91
total	100,689	11,712	4,145	5,902	1,380	2,372

HEP-Toplinarstvo directed its business efforts to improve quality of service to its end customers and to realize secure and reliable heat supply.

The company managed all inquiries, requests and complaints by customers within the shortest time, by land mail, customer lines, on-duty lines, e-mails, fax and by personal contact. Communication with customers was also realized through web site, which was redesigned and modernized in 2016 and contains all relevant information on the company as well as information on heat prices, changes of customer status, options to build in HCA's, options to exit the heat system, consumption calculations, options of billing, advice on energy efficiency and other issues.

Related to the safety and health of customers, the systems of long-distance heating are among the best and safest ways to provide heat in residential and commercial units and contribute to comfortable living standard. Cases of endangering customer health were not recorded, so the assessments on health-related impacts were not necessary. Neither cases of breach of regulations or voluntary codes related to marketing communications were recorded,

nor cases of customer privacy violations.

HEP- Toplinarstvo informs customers on efficient and correct use of heat energy through its web site and business reports for heat customers which are provided with bills on the yearly basis. End customers are advised not to overheat their residential and commercial units and to install HCA's and thermostatic valves, by which they can manage heat consumption, to seal openings on doors and windows which may cause energy losses, to air premises regularly, but not longer than 10 minutes, not to cover radiators with curtains or furniture and to consider energy efficiency improvements in their buildings.

In 2016 the company did not conduct customer survey but plans to introduce one. The number of complaints rose in comparison with 2015, mostly because a large number of customers changed to new calculation of heat.

#### CHA's still in focus

Although HEP-Toplinarstvo invested significant efforts to provide accurate information on the role and functioning of

HCA's, in practice most customers failed to understand the purpose of such appliances and their operation. That is, many customers receive faulty information on the effects of CHA installation on their monthly bills and thus question the correctness of the heat consumption calculation system.

Legal provisions stipulated that the owners of individual units in buildings should install CHA's and thermostatic vents or meters for heat consumption, to realize more rational use of energy. After the end customers select the company which will install, maintain and read the meters, HEP-Toplinarstvo has to issue an approval of their installation, if the appliances are compliant with the special norm and the format of metering is compliant with HEP-Toplinarstvo data-base. Following each calculation, i.e. each month, HEP-Toplinarstvo reads entire heat quantity which was supplied to end customers connected to the joint meter. The company the customers contracted for installing, maintaining and reading the HCA provides the read number of impulses for each residential / commercial facility connected to the joint meter and supply data via web application to HEP-Toplinarstvo, which calculates the cost for the supplied heat energy according to the formula provided by the respective ministry and supplies heat consumption bills to customers.

It is important that HEP-Toplinarstvo bills only heat energy which was metered on the joint meter in the heat substation. The means of distribution of energy to each residential or commercial unit is the matter of agreement of customers. HEP-Toplinarst-vo does not have any financial gain from HCA's installation.

After the new act was promulgated, HEP-Toplinarstvo informed end customers on the obligations provided in the act, established special phone lines and e-mail addresses which the customers can use to ask questions related to HCA's. Also, the company published relevant information on HCA's on the web site, held several roundtables and meetings with owners' representatives and installed a special application to which the companies who read meters should report their metering. HEP-Toplinarstvo timely responds to all media inquiries related to this topic.

### HEP-Opskrba plinom and HEP-Plin

Data on total gas trade in 2016 (purchase and sales) indicate that about 50 percent of gas demand in Croatia is traded within HEP Group. Using financial, business and human resources of HEP Group, it is necessary to clearly define business processes as well as roles of some companies within group with a goal to spread gas business in Croatia and the region.

Having in mind a growing competition and increasingly complex business conditions on the gas market, we can expect that the gas suppliers vertically integrated with the distribution operator would opt for the strategy of decreasing market share in the segment of gas supply i.e. decide to operate only in regulated energy segment – gas

distribution. HEP-Opskrba plinom and the entire group have the opportunity to take over customers in this segment and to increase their market share.

Openness of the European energy market and the experiences of some neighboring markets accentuate the necessity to create new "energy products" in a very short time. These should increase competitiveness of group companies and help their strengthening and positioning on the energy markets of Croatia and neighboring countries. The sales of energy packages (electricity and gas) is one of the options by which the market position of HEP Group can be strengthened.

There were no registered cases of breaches of regulations or violations of voluntary codes related to products and services regarding labeling and marketing communications, violations of customer privacy and the loss of personal data.

#### Number of customers (metering points) - HEP Plin

Customer category	2015	2016	2016/2015(%)
Residential TM1-TM4	70,135	70,045	0
Commercial TM1-TM8 (until 1 mil. m³)	5,745	5,388	-6.2
Commercial TM9-TM12 (more than 1 mil.m³)	8	8	
Total	75,888	75,441	-0.6

TM = tariff model

Distribution area	No.of customers
Osijek – Baranja County	63,208
Požega – Slavonia County	8,224
Virovitica – Podravina County	3,814
Other counties	195
Total	75,441

## 859

public procurement processes and 38,563 small-value processes were conducted in HEP Group in 2016.

The primary business goal of procurement in HEP Group is to establish a reliable procurement system. Such a system is transparent, competitive, rational and efficient resource management, procurement according to the best value for offered price and unhindered process execution. HEP promotes and practices the principles of green procurement in two ways - as a buyer and as a supplier.

## Co-operation with suppliers

The primary business goal of procurement in HEP Group is to establish a reliable procurement system. Such a system is transparent, competitive, rational and efficient resource management, procurement according to the best value for offered price and unhindered process execution.

HEP promotes and practices the principles of green procurement in two ways – as a buyer and as a supplier. As early as 2013, HEP signed a letter of intent providing cooperation with UNDP Croatia on the project of green procurement as the support to EU 2020 goals. Although we conducted some processes according to the green procurement principles in earlier years, in 2016 we did not organize such tenders.

Information related to public procurement are published on the official pages of HEP. Besides basic information, procurement documentation is published as well as decisions on selection or cancellation. These decisions are published in the electronic tender platform of the Republic of Croatia. Compliant to the Public Procurement Act, HEP Group companies publish the data on contracts and agreements concluded following proper public procurement procedure, i.e. the register of contracts on the internet page of HEP. In the procurement procedures we also demand the bidders to state information on type and producer of commodities offered, so that the original producers are included in supply chain.

In internal and external reports, HEP provides data bases of the most important business partners according to the contracted values and financial payments. However, the project of qualification enabled by public procurement has not been introduced yet.

Documentation for procurement processes are handled in groups, which

are formed according to regional principles (where possible) or according to dispersion, especially small and medium companies. Pursuant to the Public Procurement Act, the bidders can submit the joint offer for certain procurement groups. The number of co-bidders and subcontractors is not limited.

The group has also additional criteria for the evaluation of suppliers, HEP is obliged to exclude the bidder who had not paid all taxes and pension and health insurance contributions. Additionally, impact on society is examined by demands to produce proof of impunity, i.e. proof that persons involved have not committed any criminal action related to their professional activities. However, once contracts are signed, the additional inspection of criteria is not applied and improvements are not discussed with suppliers.

Procurement Sector conducts all procurement processes for HEP d.d., including the low-value processes. Excluded are procurement procedures according to the Rules and Regulations on the Organization of HEP and internal contracts, which are conducted by ICT Sector and property management company HEP-Upravljanje imovinom. The decision on procurement categories as a key document in the division of procurement authority are determined categories of commodities, works and services for the use of HEP d.d. and connected companies.

During 2016, HEP Group conducted 859 public procurement bidding processes, out of which 789 open biddings, 39 negotiation processes without previous publication, 32 processes of contracting public services under Annex IIB, one limited public procurement process and two negotiation processes with previous publication. During 2016, 38,563 low-value processes were conducted in HEP Group.

We received 143 complaints in 2016, 102 of which related to procurement processes from procurement plans of 2016, while 39 complaints related to 2015 and two complaints related to 2014. From the total number of reviewed complaints, 61 were adopted, while 75 were refused and seven complaint processes were terminated.



# 6

Environment in focus

#### ISO 9001, ISO 14001, ISO 50001, OHSAS 18001, ISO/IEC 27001

During 2016, we began with the implementation of integrated management system according to these norms in HEP d.d. and HEP Upravljanje imovinom.

Integrated system will bring numerous advantages in quality and environmental management, like improved internal communication and system coordination on all levels, higher quality of internal audit, gap management and corrective activities, and integrated planning in the system. Environmental aspects have been assessed according to joint methodology for all locations, and this is to be applied every time changes on the locations occur.

#### 6

# Environment in focus

# Managing impacts on environment, through quality and energy

During 2016, we began with the implementation of integrated management system according to ISO 9001, ISO 14001, ISO 50001, OHSAS 18001 and ISO/IEC 27001 norms in HEP d.d. and HEP Upravljanje imovinom. The first step was to determine the existing state, i.e. compliance of the business system with provisions of all five norms by conducting a gap analysis. After the analysis, we began implementing educational workshops and adjusting business processes with norm stipulations.

HEP-Proizvodnja saw the introduction of integrated quality and environmental impact management system in 2016, according to new norms ISO 9001:2015 and ISO 14001:2015, which advanced previous versions ISO 9001:2008 and ISO 14001:2004. Quality management in HEP-Proizvodnja is process-oriented, which means that:

- > Processes, their flows and interactions have been determined,
- > Necessary human and material resources have been secured,
- > Documented information on process organization have been maintained

> Risks and criteria for process success and process supervision have been defined.

Management system policy is communicated within the organization and with stakeholders via company website. Integrated system will bring numerous advantages in quality and environmental management, like improved internal communication and system coordination on all levels, higher quality of internal audit, gap management and corrective activities, and integrated planning in the system. Environmental aspects have been assessed according to joint methodology for all locations and is to be applied every time changes on the locations occur (e.g. investments, changes in facilities). In addition, assessment is implemented via internal audits, which are directed at gap closing activities. Internal audits in facilities and production areas determined 95-percent compliance to set goals stated in programs with activity implementation plan.

Compliance assessment with compliance obligations (regulatory and other demands) is given through assessment of environmental aspects annually, within the system, according to norms ISO 14001 and 9001. Additionally, the assessment is conducted also through internal audits, which are directed to fulfilling compliance obligations as well.

In **HEP ODS**, eight general goals within the environmental management system

## 30-60%

of necessary electricity HEP produces in hydro power plants, i.e. using renewable energy source.

To secure uninterrupted supply, decrease environmental impact and modernize own production portfolio, HEP continued to revitalize its hydropower plants and construct small hydropower plants to utilize hydro potential of the biological minimum, use heat accumulator in TE-TO Zagreb, constructed two power plants fueled by non-treated wood pellets in Osijek and Sisak, procured electric vehicles for own needs and continued the e-mobility project.

have been brought, which are developed into concrete goals on distribution area levels (21 areas), in accordance to environmental protection programs:

- > Systematic approach to waste management in all organization units
- > Protection of birds and small animals from electrocution on mid-voltage over-ground network
- > Decrease of possibility for extraordinary situation occurrence and correct actions in case of their occurrence
- > Organization of transformer storage locations
- > Implementation of protection measures from electromagnetic fields and noise
- > Strengthening of environmental protection education, awareness and expertise of employees
- > Monitoring and optimizing use of resources.

In order to align all distribution areas and equally divide financial means intended for reaching program goals, the company secure HRK 3.5 million in 2016 to invest in four categories:

- > Transformer storage organization
- > Organization of temporary locations for collection and storage of hazardous and non-hazardous waste
- > Reconstruction of central heating system (boiler rooms): switching to more environmentally acceptable and energy efficient energy sources
- > Sanation of oil and septic tanks.

Within the introduction of integrated quality, environment and energy management system, **HEP-Toplinarstvo** bases its system on ISO norms. Basic guidelines of management goals are set in the Quality, environment and energy management system policy.

### Financial consequences and other risks and opportunities influenced by climate change

Depending on hydrological circumstances, HEP produces 30 to 60 percent of electricity in hydropower plants, i.e. using renewable energy source. During arid years, needs for electricity is covered by electricity production in thermal power plants that use fossil fuels or by purchasing energy on the market. Higher generation in thermal power plants signifies higher CO<sub>2</sub> emissions causing climate change, but also higher generation cost for electricity, since every ton of CO<sub>2</sub> emitted from sources using fossil fuels with nominal heat energy higher than 20 MWt requires one emission unit. With a goal to maintain secure supply, HEP's production portfolio is comprised from sources which use different types of energy sources for electricity generation. After EU accession, Croatia has the obligation to decarbonize its energy sector, while goals that need to be reached by 2020 (-20 percent compared to 1990), 2030 (-40 percent compared to 1990, with EU-ETS sector -43 percent compared to 2005) are very ambitious, while the goal for 2050 is to completely decarbonize the energy sector or minimize CO<sub>2</sub> emissions to five percent of earlier emissions at most. While electricity is available on the market for purchase, heat energy and steam for industrial use need to be generated from own sources, i.e. thermal power plants for heat energy production and boiler facilities for heat production.

In order to secure uninterrupted supply, decrease environmental impact and modernize own production portfolio, in 2016 HEP continued to revitalize its hydropower plants and plans to construct as well as construction itself of small hydropower plants in order to utilize hydro potential of the biological minimum, use of heat accumulator in TE-TO Zagreb, prepared for construction

of two power plants fueled by non-treated wood pellets in Osijek and Sisak, procured electric vehicles for own needs and implemented e-mobility project.

#### Energy

#### Managing own energy consumption

The year 2016 was the first year of implementation of energy consumption management program and introduction of ESCO Monitor system in HEP buildings (HEP SGE), aimed at decreasing impact of buildings owned by HEP on the environment, providing employees with healthier working environment, and decrease expenditures on energy sources and water.

Considering the energy spent on heating and cooling, in 2016 the Faculty of Engineering and Naval Architecture of Zagreb University and HEP ESCO conducted experimental measuring of energy consumption in the new administration building (HEP group HQ in Zagreb) within the project "Advanced Regulation of HVAC Building Systems". Although the potential of advanced HVAC regulation has been proven in numerous scientific papers, experimental measuring results and savings in real buildings are what is missing, socalled "living lab" approach. The project was implemented in five phases which included study development for the existing state of the building, development of methodology and experimental measuring, development of computer model of the building and computer modeling of HVAC system components. End result of the project shows that the use of optimization and weather forecasts can turn a building into a passive storage of cooling and heating energy.

### 1,329,302 kWh

of electricity and

982,100 kWh

of heat energy were used in the new HEP's administrative building. Data is collected in ESCO Monitor, by remote reading.

With the energy management system, HEP aims to decrease impact of its buildings and provide a healthier environment for the employees, decreasing also expenses for energy and water. Since HEP's new administrative building represents a typical office building in Croatia, project results could in time be implemented on other such buildings.

Since HEP's new administrative building represents typical office building in Croatia, project results could in time be implemented on other buildings. Additionally, the project could serve as the first step towards the development of advanced regulation for a wide variety of buildings and for dynamic optimization implementation ("Predictive Control Model") which offers a greater potential for savings.

#### Energy efficiency in own consumption and production

HEP takes special care of its own energy efficiency, continuing monitoring and decrease of own consumption during 2016 as well. For a part of the buildings in HEP group HQ complex data is collected in ESCO Monitor by remote reading. Total data on consumption of electricity and heating energy for 2016 are available for new and existing administrative building, while partial data are available for other buildings (only electricity or heat energy consumption). Therefore, 1,329,302 kWh of electricity and 982,100 kWh of heat energy were used in the new administrative building, while the existing one recorded 564,724 kWh of electricity and 881,967 kWh od heat energy.

Measuring of energy consumption is set to start in other building on HQ location in 2017 and 2018, in order to obtain an encompassing image on energy consumption. HEP-Toplinarstvo also commenced monitoring own consumption of electricity and heat energy.

#### Electricity and heat energy consumption on HEP-Toplinarstvo locations in 2016

Location	Electricity (kWh)	Heat energy (kWh)
Zagreb	236,083	744,794
Osijek	1,800,467	555,160
Sisak	207,360	109,200
Total	2,317,710	1,409,154

HEP-Proizvodnja brought a decision on introduction of energy management system at the end of 2016 based on ISO 50001:2011 norm. It will begin with the analysis of energy consumption within the organization, identification of current energy sources and objects, equipment, systems, processes and staff considerably affecting energy consumption. This will be followed by determination of energy efficiency of objects, equipment, systems, processes connected with significant consumers of energy as well as opportunities for energy efficiency improvement. Additionally, energy inspections will be implemented on all locations.

#### Systematic energy management in HEP ODS

ISO 14001:2009 environmental management certificate was renewed in 2016 for all 21 distribution areas and HEP ODS HQ. In accordance with current trends in environmental protection and their dedication for continuous system improvement, in 2016 HEP ODS have continued with employee awareness raising on the importance of environmental protection, responsible behavior and prioritizing efficient solutions wherever possible.

Complying to legal requirements, energy efficiency and overall efficient resource use, HEP ODS implemented energy man-

agement system according to international norm ISO 50001:2011. During 2016, the company worked intensively on setting up the system and creating preconditions for its successful certification. Energy inspections have been done on more than 200 locations, while educational workshops have been organized staff from 21 distribution areas and company HQ.

#### HEP ESCO: helping buyers manage energy use

One of the services from energy management scope that is offered to HEP buyers is setting up remote reading of electricity consumption and implementation of ESCO Monitor management system. Introduction of remote reading offers buyers constant monitoring over their energy consumption, as well as savings and decrease of environmental impacts.

HEP ESCO also helps HEP buyers recognize and realize savings by introducing measures of energy efficiency and energy management system upgrades. Modernization of interior and exterior illumination, and system of temporary illumination for ships in Viktor Lenac Shipyard, as well as temporary illumination in Uljanik Group shipyards Uljanik and 3. maj, HEP ESCO helped buyers realize savings in electricity consumption. Considering that electricity

Energy inspections have been done

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HEP-Proizvodnja brought a decision on introduction of energy management system at the end of 2016 based on ISO 50001:2011 norm. It will begin with the analysis of energy consumption within the organization, identification of current energy sources and objects, equipment, systems, processes and staff considerably affecting energy consumption.

costs take more than 60 percent compared to other energy sources in a shipyard which considerably affects their operation, existing mercury-based bulbs and halogen reflectors have been replaced by modern fixtures with fluorescent and LED sources. Modernization is conducted based on the principle of maintaining of increasing illumination along with replacement of installed power. Existing bulbs in the system of temporary illumination have been replaced by new highly efficient LED-based illumination, decreasing power from 100 to 17 W. Advantage of the new system is increased energy efficiency compared to incandescent light bulbs, with up to eight times higher light flow. LED illumination does not have glass components, so it is far more resilient to hits and breaks. Besides considerable savings in consumption, additional advantage lays in smaller maintenance costs and lower number of hours spent on assembly and disassembly of temporary illumination, as well as increased safety for users and workers installing the system. Apart from illumination modernization, shipyards will implement ESCO Monitor energy management system.

HEP ESCO also participates in EU project SUNSHINE (Smart Urban Services for Higher energy Efficiency), within which it supports energy management and energy efficiency in urban centers (smart city), based on dynamic and tailor-made approach to energy consumption. SUNSHINE web platform enables forecast of energy needs in buildings based on weather, consumption monitoring and control, as well as external illumination system optimization. Users will have exact insight in energy situation of buildings, areas or entire cities as well as public illumination systems.

#### **Materials**

In 2016 Sustainability Report, fuel consumption is given for HEP group members that use fuels for energy production – HEP-Proizvodnja and HEP-Toplinarstvo. This contributes to a more precise insight into fuel consumption according to operations.

In thermal power plants and thermal power plants for heat energy consumption managed by HEP-Proizvodnja, consumption of coal increased by 6.8 percent in 2016, natural gas by 21.4 percent and light fuel and gas oil by 18.6 percent compared to 2015 Heavy fuel oil was not used in 2016, its reserves having been used in 2015 according to law. Remaining 2,043 tons of this fuel was deemed waste and delivered to authorized company for further management. Tanks containing heavy fuel oil were cleaned and prepared for intake of low-sulphur gas oil. During 2016 energy production did not use liquid fuel classified as medium fuel oil.

Boiler facilities generating heat for buyers in Sisak, Osijek, Samobor and Zaprešić, managed by HEP-Toplinarstvo, in 2016 compared to 2015 recorded decrease of heavy fuel oil by 32 percent, light fuel oil and gas oil by 16 percent and natural gas by 12 percent.

#### Quantities and types of fuels used in TPPs and TPPs for heat energy production

Fuel	2015	2016
ALL OPERATIONS		
Coal / t	344,613	368,004
Fuel oil / t (heavy and medium)	48,769	0
Light fuel oil and gas oil /t	411	487
Natural gas / MWh	3,864,248	4,691,849

#### **Emissions**

Similar to account of fuel consumption according to group members, this will account for emissions of pollutants into air, providing a more precise account of pollutant sources according to operations. In the process of electricity and heat energy production in HEP Group, the use of fossil fuels influences emissions of nitrogen oxides (NOx), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and solid particles. Carbon dioxide is a greenhouse gas, and other non-metal oxides are so-called acid gases, causing acid rain.

Monitoring of NOx, SO<sub>2</sub>, CO and solid particle emission is conducted by first, periodical, continued and special measuring on the exhaust, while periodicity of measuring depends on the power of combustion facility (small, medium and large facilities). Emissions from HEP thermal power plants and thermal power plants for heat energy production, i.e. large combustion facilities, are measured continuously using automatic measuring systems (AMS), with data transferred to Croatian Agency for Environment and Nature information system. Emissions from boiler facilities for city heating categorized as small and medium sized combustion facilities undergo periodical measures, with data also showed in the Croatian Agency for Environment and Nature's system.

During 2016, decreasing trend continued for emissions of all pollutants into air from HEP's thermal power plants and thermal power plants for heat energy production managed by HEP-Proizvodnja due to increased use of natural gas (up by 21.4 percent compared to 2015) and the fact that they no longer use heavy and medium fuel oil as energy source.

#### Emissions of NOx, SO<sub>2</sub>, CO and solid particles into air from thermal power plants and thermal power plants for heat energy production

Year	NOx t/year	SO₂ t/ year	CO t/year	Solid particles t/year
2015	4,701	4,957	248	180
2016	4,615	3,172	252	140

#### Emissions of NOx, SO<sub>2</sub>, CO and solid particles into air from boiler facilities for city heating

Year	NOx t/year	SO2 t/ year	CO t/year	Solid particles t/year
2015	25	15	1.6	3
2016	35	16	2.8	4

Emissions of sulphur dioxides and solid particles from boiler facilities for city heating managed by HEP-Toplinarstvo remained on the 2015 level in 2016 Nitrogen oxides' emissions increased from 25 tons in 2015 to 35 tons in 2016 due to quality of delivered fuel and combustion conditions.

Data on kinds and quantities of emitted pollutants, characteristics of fuels used for electricity, heat energy and technology steam production from HEP's sources bigger than 100 kW in power are registered annually in Environmental Pollution Register held by Croatian Agency for Environment and Nature.

Agents damaging for the ozone layer, i.e. agents under control are found in cooling equipment, air-conditioning and fire extinguishers. In accordance with the law, HEP Group collects data on quantities and use of these agents, while maintenance is conducted by services licensed by the Ministry of Environmental Protection and Energy. During 2016, 351.4 kilos of agents (R 417A, R410A, R407C, R404A) were added to cooling devices of all HEP-Proizvodnja facilities, so this quantity is considered the quantity emitted into air.

#### Greenhouse gas (GHG) emissions

Greenhouse gas CO<sub>2</sub> emitted from HEP sources is calculated based on selected standard methodology of monitoring the weight of used fuel (for coal and liquid fuel) and flow (for natural gas) as stipulated in articles 21 and 24 of Commission Regulation (EU) No 601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council. During 2016, HEP sources emitted a total of 3,233,276 tons of CO<sub>2</sub>, which is 8 percent more than in 2015 This is a consequence of increase of coal and natural gas consumption compared to 2015 Out of the total quantity of emitted CO<sub>2</sub>, EU ETS covers 99 percent of emissions.

Complying to legal regulation, HEP GHG sources in the EU ETS report about their emission and verification to Croatian Agency for Environment and Nature by March 1 for the previous calendar year. EU ETS tributaries in HEP Group are HEP plants for fuel combustion with 50 MW or more in nominal heat energy owned by the following operators: HEP-Proizvodnja - TE Plomin 1,

#### Total emission of CO<sub>2</sub> from HEP sources

	2015	2016
HEP-Proizvodnja/ t CO <sub>2</sub>	2,956,766	3,190,090
HEP-Toplinarstvo/ t CO <sub>2</sub>	37,161	33,186

#### CO<sub>2</sub> emissions from HEP sources in EU ETS system (plants for fuel combustion with > 20 MWt in power)

	2015	2016
HEP-Proizvodnja/ t CO₂	2,956,766	3,190,090
HEP-Toplinarstvo/ t CO <sub>2</sub>	913	603

TE Plomin 2, TE Rijeka, TE-TO Sisak, TE-TO Zagreb, EL-TO Zagreb, KTE Jertovec i TE-TO Osijek and Pogon Osijek by HEP-Toplinarstvo. In order to deliver emission units on accounts opened in the EU Register and fulfill obligations within EU ETS system, HEP-Trgovina buys emission units for operators HEP-Proizvodnja and HEP-Toplinarstvo. For 2016, fourth year in a row since EU ETS started, HEP Group fulfilled its obligation.

We are currently in phase 3 of EU ETS (2013-2021) which applies single allocated quote for emissions of greenhouse gases for entire EU instead of previous 27 national quotes. Emission units are allocated via auction, while facilities which receive free emission units must comply to division regulations valid in the entire EU. Free emission units are allocated to HEP plants based on Report on Operations, and they are liable for changes depending on the production of heat energy for the previous year in compliance with reports operators deliver to Croatian Agency for Environment and Nature by January 15 for the previous calendar year.

GHG emission allowances free of charge are allowed by the European Commission to HEP's sources with nominal heat energy higher than 20 MWt for generation of heat energy, which have been transferred to central heating system and transfer of technology steam to so-called "carbon leakage" facilities, i.e. those facilities that could be dislocated to countries that are not EU ETS tributaries.

#### Free GHG emission allowances to HEP sources in EU ETS

	2015	2016
HEP-Proizvodnja	310,739	300,465
HEP-Toplinarstvo	338	296

During 2016, HEP thermal power plants and thermal power plants for heat energy production in the process of electricity production emitted 2,739,453 tons of CO<sub>2</sub>. Intensity of CO<sub>2</sub> emissions for produced electricity was 447 grams CO<sub>2</sub>/kWh. Intensity of CO<sub>2</sub> emissions for electricity produced from HEP source mix (thermal power plants, thermal power plants for heat energy production, hydro power plants, and 50% of

# 223 g CO<sub>2</sub>/kWh

intensity of  $CO_2$  emissions for electricity produced from HEP source mix (thermal power plants, thermal power plants for heat energy production, hydro power plants, and 50% of nuclear plant Krško) in 2016. nuclear plant Krško) amounted to 223 grams CO<sub>2</sub>/kWh in 2016

HEP ODS monitors the quantities of fluorine GHG  $SF_6$  (sulfur hexafluoride) and, as obligated by the law, reports annually to the Ministry of Environmental Protection and Energy. The authorized ministry receives report on the quantity of equipment containing this gas, quantity of gas used to fill switchgear, quantity of gas emitted into air and quantity of  $SF_6$  which were handled after the expiration of equipment's working life.

Consumption of sulfur hexafluo	ride SF <sub>6</sub> – HEP ODS	2015	2016
Facilities – high voltage switch gear and circuits	Quantities of switchgear (pieces)	9,700	10,413
	Filling switchgear, SF <sub>6</sub> (t)	26.69	28.42
	SF₅ leakage (t)	0.05	0.05
	Handling of used $SF_6$	**	**
	Handling of gas $SF_6$ and switchgear after the working life expiration (t)	0.05	0.10

#### IPPC permits for HEP plants

During 2016, four remaining HEP facilities received IPPC permits from the Ministry of Environmental Protection and Energy: TE-TO Zagreb, EL-TO Zagreb, TE Plomin 1 and TE Plomin 2. Procedure for obtaining these permits for HEP facilities started in 2012 by submission of demands as well as technical and technological solutions to the ministry authorized for environmental protection. These permits proscribe environmental protection measures and they are a precondition for operation of existing HEP plants with 50 MW or more in nominal heat energy. Tributaries of this permits are Pogon Osijek of HEP-Toplinarstvo and TE Plomin 1, Plomin 2, TE-TO Sisak, TE-TO Zagreb, EL-TO Zagreb, KTE Jertovec and TE-TO Osijek operated by HEP-Proizvodnja.

#### Green barometer - daily and yearly dial for CO₂ emissions

In December 2016, Jutarnji list's web portal issued the Green barometer in cooperation with HEP. This is a dial recording global annual and daily quantity of  $CO_2$  emitted in the atmosphere as a result of human activities.

Important contribution to the decrease of CO<sub>2</sub> emission pertains to renewable energy source use. Based on their key role in the electricity sector in Croatia, HEP bases their development strategy on the concept of transition to low-carbon economy. At the same time, by participation in this project, HEP also supports initiatives directed at education and awareness raising about climate change.

#### DeNOx facility installation project in TE Plomin initiated

TE Plomin is undergoing reconstruction of boiler facility in TE Plomin 2 by installation a system for the decrease of nitrogen oxides in smoke gases to comply to NOx emission limit value of 200 mg/Nm<sup>3</sup>. Building permit was obtained on June 28, 2016, while the works commenced in October. Reconstruction goal is to decrease NOx emissions for every boiler load and specific type of coal with up to 80 mg/Nm³, while maintaining all existing work parameters of the boiler facility. TE Plomin 2 works in basic load regime during the entire year, with an average of 8,000 hours for 1,500,000 MWh net production. The facility is equipped with devices for continuous monitoring of pollutant emissions into air, gases (CO, NOx and SO<sub>2</sub>) and dust.

#### **HEP's Green energy**

Electricity from HEP-Proizvodnja hydro power plants, through ZelEn product, uses potential of clean, environmentally safe and sustainable energy production. ZelEn, electricity produced exclusively from renewable energy sources, is a unique product on the market offered by HEP-Opskrba to their buyers. Advantage of this product was recognized by more than 100 leading companies in Croatia, which pay fees for green energy voluntarily. In 2016, 569,937 MWh of energy from renewable sources was delivered to buyers of ZelEn.

ZelEn is more that production and consumption of green energy. Fee for the use of green energy fills ZelEn fund, which is used for realization of energy efficiency projects and project of integration of renewable energy sources into buildings. These projects are aimed at socially sensitive categories of public sector services' beneficiaries like kindergartens, schools, homes etc. Committee controlling the purpose of use for these assets is comprised out of buyers of ZelEn, HEP-Opskrba, HEP d.d. and HEP ESCO. By the end of 2016, the fund collected HRK 1.5 million (HRK 730,000 in 2015), and it continues to grow with the increase of companies buying ZelEn. The first energy efficiency project that received funds in the amount of HRK 400,000 was realized at the end of 2016 in Lovran's Ivana Brlić Mažuranić's Children's Home. The project realization undertaken by HEP ESCO enabled better energy use management, recording significant savings and a more comfortable living to beneficiaries. Savings from the replacement of window panes are estimated at 38 percent of total use of natural gas on annual level. Installation of solar collectors and use of solar energy for water heating can lead up to 35 percent of additional savings in

# 1.5 million

has been collected by the end of 2016 in ZelEn fund, used for realization of energy efficiency and RES projects integrated into constructions.

Apart from setting e-vehicle chargers in city centers, HEP prepared project applications for cofinancing project from EU funds. Project application for CEF -Transport 2015 has already been realized, obtaining funds for a study which will show habits for vehicle users who will benefit from 57 multi-standard filling stations in Croatia. Slovakia and Czechia.

natural gas consumption. In November 2016, new tender for applications for funds was announced, awarding HRK 1 million.

#### E-mobility project drives forwards

E-mobility is HEP Group's development project based on Energy strategy, founded on synergy of new advanced technologies of electric vehicles, infrastructure for their filling and renewable energy sources. This project positions HEP as a leader in the field of e-mobility, expanding the network of public filling stations for electric vehicles. By the end of 2016, they opened around 30 public filling stations, following the logic of even expansion in all regions to increase visibility of accessible infrastructure in cities and motivate for vehicle purchase and create basis for future connection between the cities. Koprivnica is positioned as a city pioneer in the field of transport upgrading with its "Civitas Dyn@mo" project, while HEP placed five fast AC/DC filling stations to gain insight into customer habits. Other Croatian cities followed, from Osijek, Vukovar and Vinkovci in the East, to Dubrovnik, Opuzen, Metković and Pelješac in the South. A total of 16 new filling stations were open in 2016 alone.

Special attention is paid to the project of placing the prototype of ultra-fast 50kW filling station in Zagreb, equipped with solar panels which connects the use of renewable energy sources and e-mobility as two branches of energy of the present and the future.

Apart from filling infrastructure, HEP own 22 electric vehicles in its fleet, which allows them to get to know the other side of the market – consumer side. Vehicles are used for everyday internal activities, while administrative building in Zagreb, as

a location with the most such vehicles, now has a system for filling eight vehicles at a time.

Apart from city centers serving as demonstration sites for e-mobility, HEP prepared project application for co-financing project from EU funds. One project application for CEF - Transport 2015 has already been realized, obtaining funds for a study which will show habits for vehicle users who will benefit from 57 multi-standard filling stations in Croatia (27), Slovakia (15) and Czechia (15). Project proposal expands on and complements existing filling networks in Slovenia, Austria and Germany, as well as fragmented networks in Slovakia and Czech Republic. This would create integrated area of critical density which enables cross-Boarder travel over 11 countries, covering the area from the Atlantic and the Northern Sea to the Mediterranean and further east towards Poland, Ukraine, Hungary and Bosnia and Herzegovina.

Further project applications are underway to secure financing for the project from EU funds, which would enable covering all routes of priority, including TEN-T corridor roads.

#### Biodiversity

Within Natura 2000 preservation area significant for the birds there are over 5,000 kilometers of HEP ODS's over-ground MV lines, which is around 20 percent of total length of HEP ODS's over-ground MV lines. In accordance with the law, HEP is obligated to plan and construct energy infrastructure there which prevents and decreases the risk of electrocution of inhabiting birds. Measures include 17 bird species listed on the IUCN Red List of Threatened Species:

- > Golden eagle, Aquila chrysaetos
- > Eurasian eagle-owl, Bubo
- > White stork, *Ciconia*
- > Short-toed snake eagle, *Circaetus* gallicus
- > Western marsh harrier, *Circus* aeruginosus
- > Hen harrier, *Circus cyaneus*
- > Montagu's harrier, Circus pygargus
- > Merlin, Falco columbarius
- > Lesser kestrel, *Falco naumanni*
- > Peregrine falcon, Falco peregrinus
- > Red-footed falcon, Falco vespertinus
- > Common crane, Grus grus
- > Griffon vulture, Gyps fulvus
- > White-tailed eagle, Haliaeetus albicilla
- > Black kite, Milvus migrans
- > Osprey, *Haliaetus*
- > European honey buzzard, *Pernis* apivorus

Hydro power plants on Drava River - HE Varaždin, Čakovec and Dubrava, situated in the Regional Park Mura-Drava, one of the most important European protected river ecosystems, surroundings are regularly maintained, and protected flora and fauna taken care of. According to International Union for Conservation of Nature – IUCN, there are nine categories of endangerment, with several endangered, nearly endangered or critically endangered species in the

# 1,037 stork nests

are present on HEP ODS distribution network trunk polls

Within Natura 2000 preservation area significant for birds there are over 5,000 kilometers of overground MV lines, HEP is obligated to plan and construct energy infrastructure there which prevents and decreases the risk of electrocution of inhabiting birds.

surroundings of the power plants: German Tamarisk (*Myricaria germanica*), relict species maintained by hand mowing HE Dubrava bank, European beaver inhabiting Drava and Croatia minnow, protected fish species inhabiting accumulations and Obsenica River within RHE Velebit.

#### Special care of bird protection

In June 2016, HEP ODS, Ministry of Environmental Protection and Nature and 14 county public institutions for managing protected natural heritage signed a new agreement on cooperation in protection and monitoring of white stork population. Revision and renewal of the agreement took more than a year to secure favorable condition for stork nests on part of overground distribution network.

A total of 1,037 stork nests are present on HEP ODS distribution network trunk polls in 14 distribution areas. The number of nests grows annually (for example, in 2013, 903 nests were recorded). HEP ODS workers in distribution areas take care of their habitats, carriers for stork nests which are fixed or replaced, and in certain cases entire nests are relocated to a new poll. On average, between 50 and 100 interventions are made each year in relation to stork protection.

HEP ODS invests more than HRK 1 million a year for the purchase of isolation materials to protect the birds from electrocution. In order to decrease negative impact on biodiversity, and invest funds into the areas of most risk, agreement on cooperation to protect birds from electrocution was signed in 2016 The agreement includes expert support in data collection regarding electrocutions, development and implementation of technical solutions for efficient measures of protection, regular

communication aimed at mutual informing and public informing on implemented activities.

In October 2016, HEP ODS in cooperation with BIOM association launched development of a study which aims to determine which are the most critical parts of the network in terms of bird electrocutions within Natura 2000 areas, in order to implement protection measures in six distribution areas significant for bird protection: Elektroprimorje Rijeka, Elektrodalmacija Split, Elektra Zadar, Elektra Šibenik, Elektrojug Dubrovnik and Elektrolika Gospić.

Within an international workshop on the protection of swamp birds, organized by the Ministry of Environmental Protection and Energy, study tour was organized to Elektra Zagreb's Sveti Ivan Zelina plant, where HEP ODS presented methods of protection of birds against electrocution on concrete examples.

#### "100 green trees" grow on

On the occasion of Earth Day, HEP-Opskrba continued the "100 green trees" initiative aimed at planting trees and landscaping surroundings of 26 HEP's hydro power plants. HEP-Opskrba planted trees around HE Čakovec on Drava River.

#### Water and wastewater management

Table shows quantities of withdrawn water and water works of this kind, quantities, and emissions of waste waters from thermal power plants and thermal power plants for heat production in 2016 Total quantity of withdrawn water increased by two percent in 2016 compared to 2015, pursuant to higher quantity of energy produced in thermal power plants and thermal power plants for heat production in 2016 compared to 2015 There have been no sources significantly affected by water withdrawal, or natural habitats or species significantly affected by water emissions. Data on quantities of withdrawn and emitted water, as well as quality testing results, are delivered in accordance to regulations to Hrvatske vode twice a year. Dedicated to improving business processes, manage data and plan more efficiently, this data is also available in HEP's internal electronic base INFOZOK (Information system of environmental protection).

#### Withdrawn water and waste water discharge types and quantities from thermal power plants and thermal power plants for heat production in 2016

Plant	Source W	/ater quantity (m³)	Waste water	Treatment system	Discharge	Water quantity (m³)
			technological waters	treatment of waste waters, neutralization and depositing device		
	Bubić Burrow	676,860	rainfall from coal depot	lamellar settler		164,774
TE Plomin			oily waters	oil separation	Čepić canal - sea	
	Public water supply system 14,483		sanitary waters	BIO device		5,691
	Sea (cooling waters	) 433,617,300	cooling waters	no treatment		281,851,245
	Public water		technological waters	treatment of waste waters, neutralization and depositing device		24,932
TE Diiaka	supply system	25,300	oily waters	oil separation	Con	
TE Rijeka			sanitary waters	BIO device	Sea	708
	Sea (cooling waters	) 0	cooling waters	no treatment		0
	Sava	298,177	technological waters	treatment of waste waters, neutralization and depositing device		9,330
			oily waters	oil separation		
TE-TO Sisak	Public water supply system	4,560	sanitary waters	no treatment	Sava	4,560
	Sava (cooling waters	) 23,325,809	cooling waters	no treatment		23,325,809
	Wells		technological waters	treatment of waste waters, neutralization and depositing device	City	405,860
	(+ public water 89 supply system)	890,661	oily waters	oil separation	sewage system	
TE-TO Zagreb			sanitary waters	no treatment		
	Sava	, 63,208,500	cooling waters	no troatment	Sava River	50,566,800
	(cooling waters	) 03,208,300	cooling waters no treatment	no deadnent	Savica Lake	12,641,700
	Wells	ells 866,273	technological waters	treatment of waste waters, neutralization and depositing device	City sewage	
EL-TO Zagreb			oily waters	oil separation		170,534
	Public water supply system	8,991	sanitary waters	no treatment	system	
	Drava	306,370	technological waters	neutralization	City	
- TE-TO Osijek			oily waters		sewage system	141,411
			sanitary waters	no treatment	,	
	Public water supply system	3,544	clean rainfall wa- ters and rainfall waters from liquid fuel management system	oil separation	Palčić canal	14,046
	Krapina	12,067	technological waters	treatment of waste waters, neutralization and depositing device		
KTE Jertovec		· 	oily waters	oil separation	Jertovec stream	6,366
	Public water supply system	932	sanitary waters	BIO device		

Hydro power plants emit sanitary waste waters into septic tanks regularly emptied by authorized companies, while their water impermeability is teste din accordance with regulations.

#### Waste management

During 2016, HEP Group produced a total of 5,323 tons of hazardous and 121,426 tons of non-hazardous waste. For all waste produced in HEP Group data is filed electronically according to kinds, quantities and locations of waste production in HEP's internal electronic base INFOZOK (Information system of environmental protection). The application is a result of joint efforts and cooperation of HEP's Sector for Strategy and Development and Sector for Information and Communication Technologies. The system started as a form for collection of data on transformers and condensation batteries filled with polychlorinated biphenyls (PCB) and was updated with forms for collection of data on waste production and streams within the company, forms for water management, types and quantities of waste waters, obligations for HEP stemming out of environmental protection legal framework, forms for IPPC permit management, etc.

Waste produced on HEP's locations is handed over to authorized companies with waste management permits. Waste is beforehand stored in temporary storage facilities built in accordance with regulation. All HEP's temporary waste storages used for storage of more than 200 kilos of hazardous and 150 tons of non-hazardous waste are listed in the inquest register of entities storing waste from production run by the Ministry of Environmental Protection and Energy.

Increase in quantities of hazardous waste in 2016 compared with 2015 by 37 percent was the result elimination of equipment and materials in HEP companies as well as of cleaning the light distillate oil tanks. Increase by 7 percent in the quantity of non-hazardous waste compared to 2015 is also caused by material and equipment write-offs.

Location of Plomin thermal power plants holds the only HEP's waste depot site, internal non-hazardous waste depot. It is used only for disposal of own waste made on the process of production of electricity from coal. Waste is disposed based on the permit issued by the Istria County Department of Waste Management and is managed in accordance with waste management hierarchy.

HEP also takes over 50 percent of annually produced waste from nuclear power plant Krško. In 2016 Krško produced:

- > Low and intermediate level radioactive waste (in volume): 4.27 x 10<sup>-9</sup> m<sup>3</sup>/ kWh<sub>(e))</sub>
- > Low and intermediate level radioactive waste (in mass):  $2.914 \times 10^{-6} \text{ kg/kWh}_{\text{(eI)}}$  or  $2.914 \, \mu\text{g/kWh}_{\text{(eI)}}$
- > High-level radioactive waste spent fuel – replacement of 56 combustible element sin 2016 = 48.7 t U x 56/121 element in the core = 22,538.84 kg U
- > High-level radioactive waste:  $4.15 \times 10^{-6} \text{ kg U/kWh}_{\text{(el)}}$

#### Successfully recovered extraordinary events

Sinking of part of the engine room, i.e. turbine floor of the A and B aggregates in the GHE Zakučac was recorded as an extraordinary event in 2016 Floating absorbent dams and absorbents on wet base were set

## 70 tons

of waste oil was given for recovery, saving it as material to produce different chemical products instead of turning it into waste.

In cooperation with the Zagreb Faculty of Agronomy, HEP initiated a research on the possibilities of use of ash in agriculture. If results of the research prove that ash from non-treated wood from HEP's bioenergy plants is viable to use in soil acidity regulation and increase of crop, this ash will be deemed a byproduct which can be used in agricultural production.

fast, preventing sudden pollution of Cetina River. Leaked oil did not exit the plant site. Intervening team of a company in charge of recovery was also activated; in cooperation with GHE Zakučac staff, the team recovered oily space and handed the oily waste to the company in charge of waste management.

There were no cases of failing to abide by the law and regulations from environmental protection framework in 2016

#### Circular economy in HEP

In accordance with waste management hierarchy and principles of circular economy, i.e. responsibility of waste producer, fly ash and plaster by produced in the electricity production process from coal is used by Holcim's cement plant in Koromačno. They are used in Holcim as mineral additives in the production process, complying to the highest standards of environmental protection and securing quality of product. Plaster produced by flue-gas desulfurization from TE Plomin 2 has been used in Holcim's plant as a secondary material since 2001; certain amount of plaster is combined with clinker into the cement mill.

During 2016, HEP began with construction of bio-energy plants, which will use wood pellets as fuel in the production of electricity and heat energy – BE-TO Osijek and BE-TO Sisak. Production in BE-TO Sisak will leave ash which needs to be managed in accordance with the law and in accordance with waste management hierarchy. With that in mind, in cooperation with the Zagreb Faculty of Agronomy, HEP initiated a research on the possibilities of use of this ash in agriculture, as soil ameliorator which regulates soil acidity and increases agricultural crop. If results of the research prove these parameters, ash will

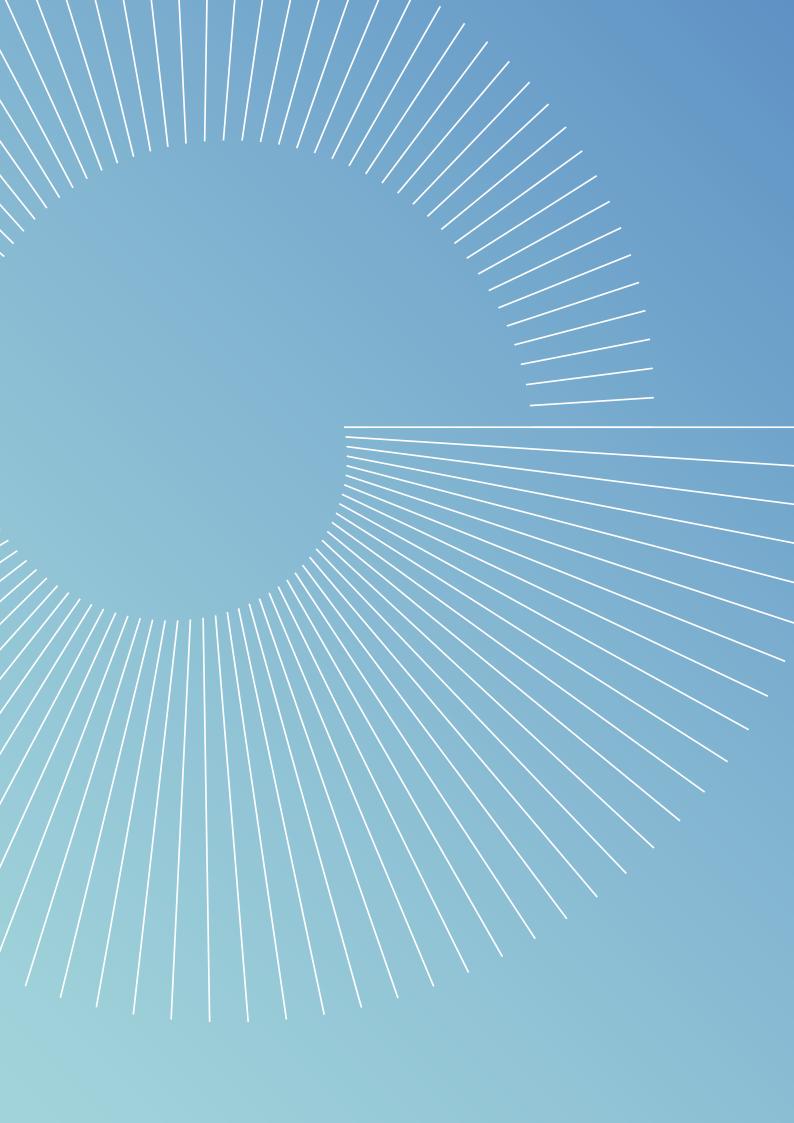
be deemed a byproduct which can be used in agricultural production.

Aiming to increase reuse as an element of waste management hierarchy, during 2016 HEP Group began handing over empty printer cartridges to companies registered for refilling this product and placing it back on the market. For this activity HEP received positive opinion of the authorized ministry. In the process of IT equipment write-off, functional equipment is donated to kindergartens, schools and associations. Used IT equipment is donated based on the quantity and demands that associations and institutions direct to the Sector for Information and Communication Technologies.

In May 2016, HEP ODS realized cooperation with the company authorized for the management of transformer oil. Almost 70 tons of waste oil was given for recovery, saving it as material for the production of different chemical products instead of turning it into waste.

## Environmental protection investments, 2016

Environmental protection area	Costs of reg- ular opera- tions (in HRK thousands)	Investments (in HRK thou- sands)
Air and climate	72.2	0.37
Waste waters	1.36	0
Waste	14.43	6.14
Protection of soil and underground waters	0.36	0.18
Protection from radiation	0.05	0.04
Protection of nature and land- scape	10.57	3.94
Other	78.44	2.66
Total, 2016	177.41	13.33



Life in the community

# 10,3 million

were donated by HEP in 2016 for different social causes. Announcements on tenders, donations, sponsorships and auspices are published on the company website.

HEP's Instruction on criteria for granting donations, sponsorships and auspices, proscribes ban of such activities towards political parties, associations or citizen lists which are organized around political goals, state institutions or bodies, or individuals or organizations that encourage any type of discrimination.

7

### Life in the community

## Transparent community investments

In 2016, HEP donated HRK 10.3 million for different social causes, while it publishes announcements on tenders, donations, sponsorships and auspices on its company website. HEP also published Instruction on criteria for granting donations, sponsorships and auspices, proscribing ban of such activities towards political parties, associations or citizen lists which are organized around political goals, to state institutions or bodies, or to individuals or organizations that encourage any type of discrimination. HEP obligated itself to help projects of organizations or individuals that would lead to breach of law regarding conflict of interest, to assist the work of organizations that have in any manner harmed HEP as well as to subject that fail to meet their obligation to the state and employees. This Instruction enables HEP group to implement transparent processes, while giving potential beneficiaries of funds precise information on allowed practice.

## Including the public into decision making

As a large and complex company, production industry that constantly develops and modernizes its operations, HEP invests significant funds into new projects. Integral

part of these investments are consultations with interested public. Inclusion of public is conducted on all project for it is proscribed through environmental impact or nature network impact assessment procedures, but HEP conducted other activities to include local communities, like open door days and presentations of planned projects.

In 2016, HEP-Proizvodnja conducted procedures to assess the necessity to conduct environmental impact assessment which include public participation for the project constructing the low-pressure boiler of 35 t/h steam boiler 2 and 2x35 t/h steam boiler facility in TE-TO Zagreb.

Purpose of the former is to increase overheated steam production efficiency and supply reliability at times when production from other EL-TO Zagreb units is not efficient or available. Purpose for the latter investment is deterioration of the unit and consequential low competitiveness of produced energy. Both procedures included development of environmental protection elaborates, published on the website of the Ministry of Environmental Protection and Energy. No comments have been received from the public or interested public. For these interventions, HEP was not obligated to implement environmental impact assessment procedures or assessments of impact on the ecological network, all in accordance to the decision from the authorized ministry.

Procedures to amend IPPC permits for TE-TO Osijek and KTE Jertovec were implemented in 2016 as well. They included exclusion of gas turbines 1 and 2 of the 45 MW block in TE-TO Osijek until December 31, 2022, as well as for limited working

# 300 visitors

saw TE Plomin plant within the second Open Door Day, finding out more about the basic principles of production and parts of facility's technology system.

A hundredth anniversary of academic Hrvoje Požar's birth was marked on the Polytechnic "Marko Marulić"in Knin. In his scientific work, Hrvoje Požar was especially engaged in the fields of electricity production and electricity systems, and has substantially contributed to HEP development.

life, i.e. up to 17,500 hours of operations by December 31, 2023 with compliance to milder emission value limits. Participation of the public in the course of the IPPC permits amendments was conducted in accordance to regulation, and there have been no comments from the public or interested public.

#### Decreasing impact of the HE Lešće operations on downstream area

During HE Lešće operations, altered water regime circumstances have contributed to bank erosion in the Dobra River bed. Hydro power plant operations and the quantity of water cannot be changed, but additional protection of banks can be implemented, as well as rehabilitate eroded areas, or compensate damages to the landowners. Measures implemented included filling in lower parts of local roads in the flood zone at 120 m<sup>3</sup>/s flow, positioning warning boards downstream from HE Lešće and developing technical documentation on the effect of HE Lešće operations on Dobra downstream to Kupa estuary, with proposals on decrease of potential damages and removal of consequences.

At the beginning of 2015, HEP-Proizvodnja and Hrvatske vode signed an agreement to implement activities in water management areas of concern to both parties till 2018. In the same year, trees and other driftwoods have been remove from the Donja Dobra banks downstream from HE Lešće, while the right bank of this river has been sanated near Zadobarje. Driftwood removal continued in 2016, and the development of technical documentation for sanation of critical locations has begun. Long term solutions will include developments

of annual and multiannual programs of the areas downstream from HE Lešće.

#### **Open Door Day at TE Plomin**

In September 2016, second Open Door Day was held in TE Plomin, opening the plant facilities to the public. Around 300 visitors saw the plant on this occasion, finding out more about the basic principles of production and parts of facility's technology system. Pupils from higher classes of local elementary schools were also among the visitors, while children from the nearest local school Vozilići had a workshop about the plant on the occasion. The plant was open for all citizens who showed interest into getting to know more about its operations.

Visitors could find out more about the realized and planned investments in Plomin, which directly improve technological characteristics of the plan and decrease environmental impact - implementation of DeNOx facility on block 2, retrofit of block 2 turbine, protection from noise and illumination system modernization in the harbor, transport and coal depot. Total value of these investments exceeds HRK 200 million. During the tour, visitors expressed their satisfaction with the possibility to visit the plan and find out more about its operations and commended the organization of the event.

### Year of the Croatian energy great

A hundredth anniversary of academic Hrvoje Požar's birth was marked on the Polytechnic "Marko Marulić" in Knin on July 4 and 5, 2016 Along with HEP and Energy Institute Hrvoje Požar, Cities of Knin and Zagreb, Croatian Energy Society, Faculty of Electrical Engineering and Computing, University of Zagreb, Miroslav Krleža Institute of Lexicography and Croatian Academy of Sciences and Arts participated in the organization of the event. Awards and scholarships of the Hrvoje Požar Foundation have also been presented at the event, while a conference on the life and work of Hrvoje Požar and his importance for the country was also held.

In his scientific work, Hrvoje Požar was especially engaged in the fields of electricity production and electricity systems and has substantially contributed to HEP development. In addition, he continued the tradition of innovative projects, which were realized in the Knin vicinity and Krka River, like hydro power plants Jaruga and Miljacka.

### Investment in excellent projects and safe steps

Since 2010, HEP has been organizing annual donation tender entitled "Light on the joint way", which collects more than a thousand applications every year. Decision on the distribution of the donation funds are brought based on the evaluation of quality and originality of the project, level of usefulness for the local or wider community and efficient management of the funds.

HEP secured HRK 2.5 million in the reporting period to help initiatives of various organizations directed at youth, environmental protections, arts and culture, and the development of science and society. Since the beginning of the program, HEP co-financed more than 1,900 projects and annual programs of civil society organizations. HEP does not only distribute donations via this tender; the company

## $8.2\,\mathrm{km}^2$

of area cleared from mines has been given back for community used thanks to HEP investments and donations worth HRK 77.2 million over 19 years.

HEP secured HRK 2.5 million in the reporting period to help initiatives of various organizations directed at youth, environmental protections, arts and culture, and the development of science and society. Since the beginning of the program, HEP co-financed more than 1,900 projects and annual programs of civil society organizations.

cooperates with various organizations which holds important like associations of HEP workers war veterans.

One of the more important such cooperation is the cooperation with Croatian Mine Action Center on mine clearing activities. Donation given in 2016 allowed for successful clearing of two areas in Kotar Forrest, while HEP has been participating in humanitarian mine clearing projects since 1998. The company invested HRK 65 million in mine clearing from its own objects and has been donating funds for mine clearing projects since 2011, according to the Center's priorities, donating a total of HRK 10.2 million by the end of 2016 In the last 19 years, HEP has donated HRK 77.2 million for mine clearing.

### Nearly two decades of journalism award

On the occasion of the Earth Day, "Velebitska degenija" award for best work in the field of environmental protection in print, internet, radio and TV journalism were presented in Journalist House in Zagreb in 2016 as well. The award is presented by HEP-Opskrba and Croatian Association of Journalists' committee of journalists reporting on environmental issues.

In the print and internet category, the winner is Tris portal from Šibenik, i.e. Goran Šimac for the article "Tearing down lies and myths about oil". In radio journalism category the winner was Karmen Valenta for a report on Radio Quirinus from Sisak entitled "What is your opinion about the construction of nuclear waste depot on Trgovska gora?". The best TV piece was "Dangerous weeds of the plains", by HRT's Vlatko Gregurić.

### Computers for out little geniuses

In 2016, HEP's action "For our Little Geniuses" finished with the donation of five new computers to Tin Ujević Elementary School from Šibenik. The year recorded 35 computers donated to nine elementary schools from across Croatia, with total value of HRK 171,000.

HEP launched this action in cooperation with Narodni radio in 2015, aiming to secure better conditions for IT education for as many pupils possible, but also to raise awareness on the state of IT equipment in Croatian schools. According to available data from ICILS, there are as many as 26 pupils on one computer in Croatia, while many schools have not had a serious equipment update in nearly a decade. HEP therefore donated computers to schools that have no equipment, have many students using or to those schools in locations of special state care. According to these criteria, nine schools were selected in 2016

#### IMAM ŽICU! - 22<sup>nd</sup> time

For the 22<sup>nd</sup> year in a row, HEP presented IMAM ŽICU! award to pupils from elementary and secondary schools with achievements in the fields of mathematics, physics and electrotechnics (since 2005). A total of 37 pupils received monetary price of HRK 2,500 each.

All pupils that win first places on state competition from mathematics, physics and public demonstrations of experimental works in physics receive this award, in addition to secondary school pupils that win first three places on state competitions from electrotechnics fields, and 3<sup>rd</sup> grade students studying in electro mechanics

or electro installation. HEP partners with Agency for Expert Education and Education of Adults, Agency for Education and the Ministry of Science, Education and Sport in this project. Along with the awards presented in 2016, HEP awarded 681 IMAM ŽICU! awards since 1995.

## Cooperation with academic community

Successful cooperation with academic community continued in 2016; HEP formally joined Summer Internship Program of the Faculty of Electrical Engineering and Computing and signed a cooperation agreement in September 2016 This program enables students to experience industrial surroundings by applying to the tender the faculty issues. All companies in the program need to join the faculty's IT system, delivering data which will be used for online internship application. Students, companies and program organizer do not only realize educational benefit; this program encourages tighter cooperation between economy and academy, while companies can get in contact with potential future employees.

HEP ESCO welcomed several students to summer internships in 2016; they participated in technical support in development of different documents and forms on energy characteristics of certain consumer groups and worked in ESCO Monitor application. A more cohesive cooperation between other HEP companies and this faculty is planned in 2017.

#### Scholarships for regular students

As a company that recognizes young talent, HEP provides scholarships for regular students of Croatian universities. Consider-

# 35 computers

have been donated to pupils from nine elementary schools within HEP's action "For our little geniuses" in 2016.

In the last ten years, we have provided scholarships for more than a hundred regular students of primarily technical vocations in electrotechnics, engineering, construction, computing, geodesy, but also from social sciences. Two tenders were conducted in 2016, granting 32 scholarships.

ing its primary business, HEP enables future young experts to develop gained knowledge and skills though professional challenges in their first workplace in one of HEP companies. In the last ten years, we have provided scholarships for more than a hundred regular students of primarily technical vocations (electrotechnics, engineering, construction, computing, geodesy), but also from social sciences. Two tenders were conducted in 2016, for two academic years, granting a total of 32 scholarships.

Net amount for the first year of graduate study is HRK 1,400, and 1,600 for the second year. Depending on the results in the previous academic year, students are eligible for a special bonus of HRK 200 for 4.6 to 5.0 grade average. Students receiving scholarships are employed at the end of their studies in the organization that provided their scholarship with open-end internship contracts.

Scholarships enable timely attracting of potential employees, while considering current practice, the goal is to continue to plan scholarship needs in accordance with development needs of HEP and its companies.

## Seeking for the visual identity of TE-TO Zagreb heat accumulator

In October 2016, Zagreb Society of Architects issued a tender in cooperation with HEP-Proizvodnja, aiming to select a solution for the visual identity of the new heat accumulator in TE-TO Zagreb. The tender aims to get the solution that will increase aesthetical value of the facility, as well as its identity and urban value, increasing also total urban value of the TE-TO Zagreb complex and its implementation in the urban structure of Zagreb.

TE-TO Zagreb heat accumulator was introduced into operations in December 2015 aiming to optimize production of electricity and heat energy, creating savings in the process. Production optimization is gained by managing surpluses of heat energy, which are store as hot water in the accumulator. Capacity of the accumulator, 53 meters high, is 750 MWh with 40 degrees Celsius difference in temperature of incoming and outgoing water. This is the first project of this kind realized in Croatia, in accordance with stipulations from the Third Energy Package of the European

Union. The facility significantly improved working flexibility of the plant and heat

energy supply in Zagreb.

### Community investments

#### Fees for power plant spatial use in 2016 / HRK

Facility	City/Municipality		2015	2016
HEP PROIZVODNJA			59,486,057	67,524,936
HYDROPOWER PLANT SECTOR			43,690,466	48,791,159
Production area HE North			8,640,146	9,877,773
HE Varaždin TOTAL			3,347,350	3,725,907
	Varaždin	14%	468,629	521,627
	Sračinec	22%	736,417	819,699
	Petrijanec	39%	1,305,466	1,453,104
	Cestica	25%	836,837	931,477
HE Varaždin			3.347.350	3.702.951
	Varaždin	14%	468,629	518,413
	Sračinec	22%	736,417	814,649
	Petrijanec	39%	1,305,466	1,444,151
	Cestica	25%	836,837	925,738
mHE Varaždin			0	22,955
	Varaždin	14%		3,214
	Sračinec	22%		5,050
	Petrijanec	39%		8,953
	Cestica	25%		5,739
HE Čakovec			2,511,028	3,124,002
	Orehovica	5%	125,551	156,200
	Čakovec	25%	640,138	781,001
	Nedelišće	8%	200,882	249,920
	Varaždin	8%	213,264	249,920
	Trnovec Barto- Iovečki	46%	1,179,835	1,437,041
	Sveti Đurđ	4%	100,441	124,960
	Martijanec	4%	50,916	124,960
HE Dubrava			2,781,769	3,027,865
	Prelog	43%	1,196,160	1,301,982
	Sveta Marija	12%	333,812	363,344
	D. Vidovec	2%	55,635	60,557
	D. Dubrava	3%	83,453	90,836
	Sveti Đurđ	24%	667,624	726,687
	Mali Bukovec	2%	55,635	60,557
	Veliki Bukovec	14%	389,448	423,901

Facility	City/Municipality		2015	2016
Production area HE West			11,533,868	15,060,666
HE Rijeka			438,046	831,253
	Rijeka	64%	280,350	532,002
	Jelenje	36%	157,697	299,251
HE Vinodol			771,895	
HE Vinodol			719,757	1,199,575
	Vinodolska	22%	158,346	263,906
	Lokve	35%	251,915	419,851
	Fužine	40%	287,903	479,830
	Kraljevica	3%	21,593	35,987
HE Zeleni Vir	Skrad	100%	52,139	64,058
HE Senj and Sklope			8,074,060	9,998,754
HE Senj			7,444,615	9,219,920
	Senj	18%	1,340,031	1,659,586
	Otočac	29%	2,158,938	2,673,777
	Perušić	29%	2,158,938	2,673,777
	Gospić	24%	1,786,708	2,212,781
HE Sklope			629,445	778,834
	Perušić	20%	125,889	155,767
	Gospić	80%	503,556	623,067
HE Gojak	Ogulin	100%	1,420,001	1,904,134
HE Ozalj	Ozalj	100%	180,452	195,208
HE Lešće TOTAL			649,413	867,685
		32%	207,812	277,659
		23%	149,365	199,567
		45%	292,236	390,458
HE Lešće			573,099	794,072
	Ogulin	32%	183,392	254,103
	Generalski stol	23%	131,813	182,637
	Bosiljevo	45%	257,895	357,332
ABM Lešće			76,314	73,613
	Ogulin	32%	24,420	23,556
	Generalski stol	23%	17,552	16,931
	Bosiljevo	45%	34,341	33,126

Facility	City/Municipality		2015	2016
Production area HE JUG			22,073,853	18,041,923
RHE Velebit			3,349,421	4,471,354
	Obrovac	39%	1,306,274	1,743,828
	Gračac	8%	267,954	357,708
	Lovinac	41%	1,373,263	1,833,255
	Jasenice	12%	401,931	536,562
HE Đale			964,730	792,546
	Trilj	26%	250,830	206,062
	Vrlika	29%	279,772	229,838
	Hrvace	20%	192,946	158,509
	Otok	25%	241,183	198,136
HE Kraljevac			395,239	368,192
	Omiš	10%	39,524	36,819
	Zadvarje	90%	355,715	331,372
HE Orlovac			3,130,592	1,155,613
	Otok	67%	2,097,497	774,261
	Trilj	33%	1,033,095	381,352
HE Zakučac			12,143,808	9,315,709
	Vrlika	22%	2,671,638	2,049,456
	Hrvace	14%	1,700,133	1,304,199
	Otok	19%	2,307,324	1,769,985
	Omiš	21%	2,550,200	1,956,299
	Trilj	24%	2,914,514	2,235,770
HE Peruća			1,028,828	857,739
	Vrlika	60%	617,297	514,643
	Hrvace	40%	411,531	343,096
HE na Krki			1,061,304	1,080,770
HE Miljacka			754,267	747,863
	Promina	50%	377,134	373,932
	Ervenik	22%	165,939	164,530
	Kistanje	28%	211,195	209,402
HE Jaruga			156,257	172,674
	Skradin	38%	59,378	65,616
	Drniš	50%	78,129	86,337
	Šibenik	12%	18,751	20,721
HE Golubić	Knin	100%	142,752	152,476
HE Krčić	Knin	100%	7,957	7,757

Facility	City/Municipality		2015	2016
Pogon HE Dubrovnik			1,442,599	5,810,796
HE Dubrovnik			1,414,034	5,776,927
	Konavle	35%	494,912	2,021,925
	Župa	65%	919,122	3,755,003
HE Zavrelje	Župa	100%	28,565	33,868

TPP SECTOR			15,823,708	18,733,777
TE Sisak	Sisak	100%	1,699,054	2,207,802
TE Rijeka	Kostrena	100%	312,074	0
TE Plomin			7,310,342	8,467,692
	Kršan	50%	4,259,073	5,419,323
	Labin	26%	1,555,602	1,524,184
	Raša	8%	498,556	508,061
	Pićan	8%	498,556	508,061
	Sveta Nedelja	8%	498,556	508,061
KTE Jertovec	Konjšćina	100%	44,828	4,688
TE-TO Zagreb	Grad Zagreb	100%	4,254,477	5,651,373
<b>TE-TO Zagreb</b> TE-TO Zagreb	Grad Zagreb	100%	4,254,477	<b>5,651,373</b> 1,881,730
	Grad Zagreb	100%	4,254,477	
TE-TO Zagreb	Grad Zagreb	100%	4,254,477 486,809	1,881,730
TE-TO Zagreb TE-TO Zagreb blok L	Grad Zagreb Osijek	100%		1,881,730 3,769,644
TE-TO Zagreb blok L  TE TO Osijek	-		486,809	1,881,730 3,769,644 <b>688,146</b>
TE-TO Zagreb  TE-TO Zagreb blok L  TE TO Osijek  TE TO Osijek	Osijek	100%	<b>486,809</b> 486,676	1,881,730 3,769,644 <b>688,146</b> 534,848

TE PLOMIN d.o.o.			11,950,495	15,825,626
	Kršan	50%	6,977,947	10,128,401
	Labin	26%	2,534,158	2,848,613
	Raša	8%	812,797	949,538
	Pićan	8%	812,797	949,538
	Sveta Nedelja	8%	812,797	949,538

HEP GROUP TOTAL	71,436,552	83,350,562
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## 8

Report profile and indicators

# 107 indicators

Are included in this Sustainability Report, developed according to core option of Global Reporting Initiative Standard.

Each year we invest effort into increasing the level of data quality and show progress in comparison to the previous report. Feedback from our stakeholders will be helpful on this road of progress, so we encourage you to read this report and talk to us about its content.

#### 8

## Report profile and indicators

HEP Group Sustainability Report for 2016 is one of the first in Croatia following the new Global Reporting Initiative Standard. It is also third such HEP's report in a row and is developed in accordance with "core" option of the GRI Standard, but it also includes dana according to indicators from Electric Utilities Sector Supplement.

HEP Group has been reporting on its non-financial impacts for over a decade within their Annual Reports which included these data as well. However, since out first Sustainability Report for 2013 and 2014, we strive to increase detail in which we describe our significant impact on economy, society and environment. We invest effort into increasing the level of data quality and show progress in comparison to the previous report. Feedback from our stakeholders will be helpful on this road of progress, so we encourage you to read this report and talk to us about its content.

This report, same as the previous one, has not been subject of external verification. However, HEP plans to engage external independent verifier for the next reporting period.

General disclosures: GRI 102				
Organizationa	l profile			
102-1	Name of the organization	9		
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