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NEW DIRECTIONS IN THE HUNGARIAN ENERGY MARKET: TRANSFORMATION OF THE NATIONAL PUBLIC UTILITY

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This paper, using the formation of the national public utility company as an example, describes some key strategy shifts in the Hungarian energy policy. Whereas the centralised, state-controlled national public utility is merely five years old; still, it has already a ‘long’ and thought-provoking history. While public utilities traditionally focused on operational excellence, currently a greater emphasis is placed on a differentiation strategy and customer focus.

KEYWORDS:

energy policy, National Energy Strategy, public utility

1. INTRODUCTION

The European Union (EU) Member States' national energy strategies aim to balance different goals: promotion of sustainability, preservation of economic competitiveness and guarantee a long-term supply security. The Hungarian *National Energy Strategy 2030* of 2012¹ was a major step towards defining a long-term vision of the government for the domestic energy sector. The main objectives of this strategy were formulated along several pillars: 1. increasing energy efficiency and energy conservation; 2. increasing the share of renewable energy sources; 3. promoting the integration of the Central European pipeline network and the construction of the necessary cross-border capacities; 4. maintaining current nuclear power capacities and 5. preserving the domestic coal industry by using the domestic coal and lignite in the environmentally friendly production of electricity.

The strategy also gave an indication that the government planned to increase the state involvement in the industry. Several steps were taken in the recent years that complied with that intention:

- the Hungarian State via state-controlled companies acquired significant assets (Distribution System Operators, natural gas storages, largest natural gas trader, etc.);
- new cross-border developments were commissioned (e.g. Hungarian–Slovakian natural gas interconnector) or initiated (e.g. Hungarian–Slovakian high-voltage cross-border power line, increased capacity of the Hungarian–Romanian natural gas interconnector);
- Paks 2 Nuclear Power Plant (NPP) licensing process moved forward.

Other elements of the 2012 National Energy Strategy (e.g. energy conservation initiatives) were lagging behind due to the low energy prices and the lack of regulatory support. Additionally, fundamental strategic dilemmas of the Hungarian energy policy² still need to be relaxed, namely: 1. energy import dependence; 2. the role of nuclear energy (in the context of other sources, such as Renewable Energy Sources (RES) or natural gas) and 3. the effects of climate change (including RES developments and the future of the coal industry).

To address these energy policy issues, the Hungarian Government initiated³ the preparation of the renewed (Hungarian) National Energy Strategy (NES) at the end of 2018, in accordance with the EU expectations⁴ and the mandated National Energy and Climate

¹ NFM 2012.

² SZŐKE 2018.

³ 1772/2018. (XII. 21.) Government resolution ('Korm. határozat').

⁴ Article 15 of the 'Regulation on the governance of the energy union and climate action (EU)2018/1999' obliges Member States to prepare and report to the European Commission (EC) their long-term (outlook for the next 30 years) strategy by 1 January 2020, then by 1 January 2029 and every 10 years thereafter. There may be significant differences in the scope of content between individual strategies, although there is a general framework they must follow.

Policy Action Plan.⁵ The updated NES is planned to be released by the end of August 2019 and the related action plan by December 2019. Undoubtedly, the new NES priorities will have an impact on the energy industry actors (including the national public utility), who must carefully weigh the impact of the coming changes.

The national public utility (original name: ENKSZ or Első Nemzeti Közműszolgáltató Zrt, currently: NKM Nemzeti Közművek Zrt.) was established only in February 2015 but its history is already full of twists and turns. In 2019, it will most likely merge into MVM, into the company where originally it has started from. The history of the past five years demonstrates how the Hungarian energy policy and the regulatory environment affect the energy industry and business development initiatives.

2. NATIONAL PUBLIC UTILITY: BEGINNINGS

When overhead costs are rapidly rising ('rezsiköltség' in Hungarian) then they immediately become a main focus of governments. In developing countries with less purchasing power, the energy costs are especially critical that leads to government subsidies. Due to the large burden placed on the Hungarian central budget, the natural gas subsidy system was restructured after the 2008 financial crisis. Regardless, after the 2010 election the government introduced rate freezes and then other regulatory measures to prevent price increases. In 2013, electricity, gas, and district heating costs were cut in three rounds (by 10% on January 1, 2013, an additional 10% on November 1, 2013, and between 3.3% and 6.5% in 2014).⁶ The household energy price cuts proved to be politically very popular; consequently, there were cuts in other segments as well (water industry) and in case of waste management and chimney inspection fees, too.

Additionally, at the time the Hungarian Government planned to increase state-control in the oldest gas supplier in Hungary (FŐGÁZ) and the capital's water works company (Fővárosi Vízművek) and turn them into non-profits. FŐGÁZ was one of the dominant players in the domestic natural gas market and the company's distribution system consists of the natural gas pipeline system of Budapest and some of the capital's suburbs.

With the restructuring of the regulatory environment and with the entrance of the state-owned Hungarian Electricity Works (MVM) into the natural gas market in 2011, MVM became a dominant player on September 30, 2013 when they acquired the natural gas storage and natural gas wholesale companies of E.ON in Hungary, and thus the Hungarian

⁵ 23/2018. (X. 31.) Parliament resolution ('OGY határozat') took a decision of the 2nd (Hungarian) National Climate Change Strategy ('Nemzeti Éghajlatváltozási Stratégia'), which will provide an outlook for the period from 2018–2030 to 2050, which is mandated by the United Nations Framework Convention on Climate Change and the Kyoto Protocol.

⁶ The price of natural gas was cut by 6.5% from 1 April 2014, electricity by 5.7% from 1 September 2014 and district heating by 3.3% from 1 October 2014.

Gas Storage Ltd.⁷ (MFGT, previously E.ON Földgáz Storage Zrt.⁸) and the Hungarian Gas Trade Ltd.⁹ (MFGK, previously E.ON Földgáz Trade Zrt.) were established.

Continuing the expansion and fulfilling the Hungarian Government's intention, MVM signed a contract on December 18, 2013 to purchase Germany-based RWE Gas International's 49.83% stake in FÖGÁZ for HUF 41 billion.¹⁰

In August 2014, the Government announced the necessary measures for a holding-based public service system¹¹ and the forming of a national public utility provider.¹²

On December 13, 2014 the Budapest Municipal Council's 50%-plus-one-share stake in the regional gas-distributor FÖGÁZ¹³ was purchased by the MFB Group.¹⁴ In 2015, all the shares were consolidated under MFB¹⁵ and MVM was not among the shareholders anymore. With a just recently passed law enacted in 2014,¹⁶ by the end of 2015 MFB was able to buy out the small shareholders (~0.17% of the shares) and became the 100% owner of FÖGÁZ Zrt.

3. ESTABLISHMENT OF THE INTEGRATED NATIONAL PUBLIC UTILITY

'ENKSZ Első Nemzeti Közműszolgáltató Zrt.' (ENKSZ) was established on February 13, 2015¹⁷ to oversee and expand FÖGÁZ operations and to become the holding to enter into the electricity and the district heating utility business.¹⁸ ENKSZ was formed based on MVM's human capital.¹⁹ At the time ENKSZ did not have ownership in FÖGÁZ but was

⁷ MFGT has 4 facilities (Zsana, Hajdúszoboszló, Pusztaderics, Kardoskút) in Hungary with a total annual working gas storage capacity of 4.43 billion cubic metres.

⁸ The Hungarian Government signed an agreement with E.ON AG in which the German company offers pre-emption rights if the E.ON Földgáz Storage shares are offered for sale. MIHÁLYI 2015.

⁹ MFGK is the Hungarian party in the long-term Russian natural gas supply contract.

¹⁰ 14/2014. (I. 29.) Government decree ('Korm. rendelet') declared the transaction of 'national strategic importance'.

¹¹ 1465/2014. (VIII. 15.) Government resolution ('Korm. határozat').

¹² 1484/2014. (VIII. 27.) Government resolution ('Korm. határozat').

¹³ 1545/2014. (IX. 29.) Government resolution ('Korm. határozat').

¹⁴ At the closing of the transactions, the MFB Zrt. owned 81.6% + 1 shares, while the MFB Invest Zrt. (MFB Invest Zrt. is a fully owned subsidiary of MFB Zrt.) owned 18.23% of the shares.

¹⁵ 1586/2014. (X. 21.) Government resolution ('Korm. határozat').

¹⁶ Act of 2009 CXXII was amended on 14 December 2014. The amendment created the possibility to mandatory buy out the minority shareholders of the state controlled entities – at the time for example MVM, Vértes Power Plant, Paks Nuclear Power Plant.

¹⁷ 1027/2015. (I. 29.) Government resolution ('Korm. határozat').

¹⁸ 1545/2014. (IX. 29.) Government resolution ('Korm. határozat'), 7/2015. (II. 18.) Resolution of the Ministry of National Development ('NFM rendelet'), 1568/2015. (IX. 4.) Government resolution ('Korm. határozat').

¹⁹ For example, the first CEO of ENKSZ was appointed from MVM, where – before arriving to ENKSZ – he was a (co-)CEO responsible for the natural gas operations.

the representative of the MFB and exercised voting rights and managed the asset based on contractual agreement ('quasi' operated as a holding).²⁰

On April 1, 2015 FŐGÁZ received a natural gas universal service license for the whole territory of Hungary, which triggered a complete consolidation of the universal service portfolios. Besides the original 800.000 customers at FŐGÁZ, the company acquired on 1 August 2015 60.000 customers from Magyar Telekom and on 29 September 2015 from the GDF SUEZ²¹ natural gas universal service portfolio in Hungary.²² After the remaining natural gas universal service providers indicated their wish to pass their respective licenses, the resolutions of the Hungarian regulatory authority (MEKH) appointed FŐGÁZ to take over both E.ON's (1 January 2016) and ENI's (1 October 2016) universal service portfolio in Hungary. Therefore, FŐGÁZ became responsible for supplying approximately 3.400.000 universal service customers.

By late 2015, the negotiations with the German majority shareholders (RWE, ENBW) of ELMŰ Plc. and ÉMÁSZ Plc. were intensified. By December 2015, the parties agreed on the planned transactions parameters, subject to the owners' approval. For the purpose of the transaction, ELMŰ and ÉMÁSZ united their respective universal service portfolio into 'ELMŰ-ÉMÁSZ Energiaszolgáltató Zrt.' and ENKSZ established a subsidiary, the 'ENKSZ Északi Áramhálózati Vagyonkezelő Zrt.' (ENKSZ ÉÁV) on December 16, 2015 which was registered on the next day.²³ On December 21, 2015, the General Meetings of ELMŰ and ÉMÁSZ approved the sale. However, the Hungarian State unexpectedly halted the transaction indefinitely.

In 2015, ENKSZ was selected to prepare the state to enter the district heating service market. The company was responsible for carrying out the District Heating Audit Project.²⁴ In 2016, the assessment of the largest Hungarian district heating operators was finished based on their operating model, including the areas of property, finance, engineering-technological, regulatory and cost-efficiency. In the first half of 2016, ENKSZ entered into negotiations with the City of Hódmezővásárhely and the City of Szeged²⁵ for the purchase of the cities' district heating service providers. Due diligence was carried out but no purchase was agreed on.

On December 7, 2015, ENKSZ signed a share purchase agreement (SPA) with MFB Zrt. for the purchase of 'MFB Földgázkereskedő Zrt.' (MFBF).²⁶ Following a regulatory approval,²⁷

²⁰ On 16 April 2015, MFB Zrt. and MFB Invest Zrt. entered into a voting agreement with ENKSZ in respect of Főgáz Zrt. Based on the agreement, ENKSZ Zrt. exercised voting rights and asset management related to the 100% shareholding in MFB Zrt. ENKSZ Zrt. 2015 Annual Report.

²¹ GDF SUEZ is rebranded as ENGIE on 24 April 2015.

²² GDF SUEZ Energia Magyarország Zrt. (GSEM) was renamed to ENKSZ Észak-Dél Regionális Földgázszolgáltató Zrt., then merged into FŐGÁZ on 30 December 2016.

²³ ENKSZ ÉÁV 2015 Annual Report.

²⁴ 1794/2015. (XI. 10.) Government resolution ('Korm. határozat').

²⁵ Available: www.nemzetikozmuvek.hu/Hirek/2016/05-06 (Downloaded: 15.01.2019.)

²⁶ MFBF was established by MFB with natural gas trading as its main activity. MFBF was registered on September 2, 2014 and received its restricted natural gas trading license on November 3, 2014. MFBF 2016 Annual Report.

²⁷ 195/2016. MEKH resolution ('MEKH határozat').

the transaction was closed on February 19, 2016. On April 5, 2016, due to the respective regulations, MEKH withdrew the restricted natural gas trading license of MFBF.²⁸

4. FROM A PUBLIC UTILITY TOWARDS A ‘HOME SOLUTION PROVIDER’

Political changes triggered changes in the managements of NKM and MVM. Once again, MVM stepped in to provide the financial basis for further expansion. With the capital injection²⁹ and with the parent company lending MVM, ENKSZ completed its acquisition of EDF DÉMÁSZ,³⁰ a regional electricity distributor, from France’s EDF International on January 31, 2017. The MFB contributed its shares into ENKSZ.³¹ To facilitate the process, the government declared these transactions of ‘national strategic importance’ as well. The ownership structure of NKM is 100% state-owned and at the time the owners were: MVM 50%,³² MFB 44%, Hungarian State 6%.³³ With this transaction, NKM increased its activity in the district heating segment and through its subsidiaries NKM became the minority owner of one of the largest district heating service providers.³⁴

DÉMÁSZ received the national universal service provider license from MEKH, which gives the company access to all residential customers from June 1, 2017. Magyar Telekom left the Hungarian electricity market on October 31, 2017 and on November 1, 2017 the majority of customers previously contracted by Magyar Telekom have become the customers of NKM.³⁵

In the third quarter of 2017, ENKSZ adopted the strategy of the ‘home service provider’ and just after two years re-branding took place and it continued its operation under the new name of NKM National Utilities. As part of the new strategy several changes took place.

- Goals were defined for MFBF: as a first step it was sold to ENKSZ ÉÁV in March, 2017, then on April 5, 2017, the name of the company was changed to ‘NKM Plusz Zrt.’³⁶ The scope of the activity has been defined as the sale of third party services (e.g. insurance, financial products) and the organization and management of NKM Group loyalty programs (with a special focus on residential customers). Practically, the company forwarded NKM partners’ business offers to end users.

²⁸ MFBF 2016 Annual Report.

²⁹ 455/2016. (XII. 19.) Government decree (‘Korm. rendelet’).

³⁰ 434/2016. (XII. 15.) Government decree (‘Korm. rendelet’).

³¹ 146/2017. (VI. 12.) Government decree (‘Korm. rendelet’).

³² Both MVM and MFB are 100% state-owned enterprises.

³³ 1342/2016. (VII. 5.) Government decree (‘Korm. rendelet’).

³⁴ A local district heating provider’s (Kecskeméti Termostar Hőszolgáltató Kft.) share (34.09%) was owned through NKM Áramszolgáltató Zrt. (former DÉMÁSZ Zrt.), while the share (51%) of a heating plant in Budapest (Zugló-Therm Energiaszolgáltató Kft.) was owned through NKM Földgázzolgáltató Zrt. (former FÖGÁZ Zrt.).

³⁵ Available: www.nemzetikozmuvek.hu/Hirek/2017/10-31 (Downloaded: 15.01.2019.)

³⁶ NKM Plusz Zrt. 2017 Annual Report.

- On July 5, 2017, the name of the ENKSZ ÉÁV was changed to ‘NKM Optimum Zrt.’. This subsidiary is responsible for the development, marketing and lifecycle management of the non-core activities of the NKM Group (electricity, NG, DH sales and network services).³⁷
- Former ‘FŐGÁZ CNG Kft.’ was rebranded to ‘NKM Mobilitás Kft.’³⁸ and became a 100% subsidiary of NKM Optimum Zrt. Originally the company’s mission was to supply customers with compressed natural gas (CNG) fuelled vehicles.
- On August 1, 2018, the ‘NKM Ügyfélkapcsolati Kft.’ started its operation after the customer service was reorganized into that subsidiary.

Nevertheless, the cost of service remained a major consideration for the government. Winter utility cost reduction (‘téli rezsicsökkentés’)³⁹ took place in 2018, which gave compensation (e.g. residential customers received HUF 12,000 credit to their balance) from the ‘regulatory account’ and this was sent to the accounts of each of the universal service customers.

On January 11, 2018, NKM acquired ‘Égáz-Dégáz Földgázelosztó Zrt.’ (Égáz-Dégáz), which name changed from May 2, 2018 to ‘NKM Észak-Dél Földgázhálózati Zrt.’⁴⁰ With the transaction the (electricity and natural gas) distribution network of NKM increased to over 60,000 km.⁴¹

On April 24, 2018, NKM and the City of Oroszlány signed a share purchase agreement for the acquisition of Oroszlányi Szolgáltató Zrt. (OSZ). The transaction was successfully completed on July 31, 2018 following the authorities’ approval and the new name of the company became ‘NKM Oroszlányi Szolgáltató Zrt.’, which was the first fully owned district heating service company in the portfolio of the NKM. From October 2018, cooperation between NKM and FŐTÁV was launched with a shared customer service.

By summer, MVM and NKM were directly under the same Ministry, NVTNM.⁴² Once again management changes were underway, including several restructuring initiatives within the MVM Group. The stated goal of the government is to finish the MVM–NKM merge by the end of 2019.

³⁷ NKM Optimum Zrt. 2017 Annual Report.

³⁸ NKM Mobilitás Kft. 2017 Annual Report.

³⁹ 37/2018. (III. 8.) Government decree (‘Korm. rendelet’).

⁴⁰ Available: www.nemzetikozmuvek.hu/Hirek/2018/05-02 (Downloaded: 15.01.2019.)

⁴¹ Available: www.nemzetikozmuvek.hu/Hirek/2017/2018-01-11 (Downloaded: 15.01.2019.)

⁴² 3/2018. (VIII. 1.) NVTNM decree (‘NVTNM rendelet’).

5. THE FUTURE OF THE STATE-OWNED PUBLIC UTILITY

Originally, the plans for ENKSZ–NKM were to remain a non-profit public utility.⁴³ Mejía-Dugand, Hjelm and Baas⁴⁴ found that despite public ownership, administrative autonomous companies may remain competitive in a liberalised market but economic autarchy with the liberalization conditions may create a blurry line between private and public domains. While a non-profit public utility could have been a feasible choice, ultimately this expectation changed with time for the following reasons:

1. The regulated universal service tariff sends disadvantageous price signals and hinders CAPEX intense investments (e.g. renewables developments), while the profit of NKM can be allocated to make up for the reduced network investments.
2. The EU pressured Hungary to fulfil its obligation regarding the energy related directives and investor protection treaties (e.g. to determine fair tariff rates for the natural gas DSOs).

Thus, the governmental focus shifted towards acquisitions and further strengthening the state-owned public utility. Moreover, NKM started to concentrate on developing complex service solutions and building on its unique ability to reach almost all residential end-user in the country.

The planned utility transformation must consider the tariff environment.⁴⁵ As energy prices started to increase, the government could prevent the increase of the regulated price assigning a tariff-keeper role to MVM (as the parent company of NKM) as in the recent years it became the 3rd largest Hungarian company based on revenue. MVM (NKM was not fully consolidated in 2017, yet) was the 3rd largest company from the electricity industry (Table 1).

Table 1 • Largest Hungarian companies by revenue (2017) Source: HVG⁴⁶

Ranking	Name of company
1.	Mol Magyar Olaj- és Gázipari Nyrt.
2.	Audi Hungaria Zrt.
3.	MVM Magyar Villamos Művek Zrt.
4.	Mercedes-Benz Manufacturing Hungary Kft.
5.	GE Infrastructure Hungary Holding Kft.
6.	Samsung Electronics Magyar Zrt.
7.	Magyar Suzuki Zrt.
8.	Magyar Telekom Távközlési Nyrt.
9.	Robert Bosch Elektronika Kft.
10.	Ventas Coffee Hungary Kft.

⁴³ For a detailed discussion on utility models see BÁLINT et al. 2014, 2015.

⁴⁴ MEJÍA-DUGAND–HJELM–BAAS 2017.

⁴⁵ ALT 2006.

⁴⁶ The list of the largest Hungarian firms as of 2017. Available: https://hvg.hu/gazdasag/20180725_Az_50_legnagyobb_magyar_ceg_a_HVG_exkluziv_listaja (Downloaded: 15.01.2019.)

Artificially low energy prices could hinder the transition to sustainable energy generation forms as well: including large RES development and small-scale distributed energy resources (DER).

While the government and the national utility recognised the (marketing) potential of a more customer focused service, a broader value chain definition should be kept in mind by the industry actors: “supply chain consists of all parties involved directly or indirectly, in fulfilling a customer request”.⁴⁷ The implications for energy policy are clear:

1. To understand the real depth of the supply chains and the stakeholders.
2. To not only have customer focus but to meet actual customer requests (e.g. continuous, convenient access to affordable energy that comes from a source without biasing the quality of the life and environment), which should be a priority for technology choices, implied tariff system, etc. Moreover, from a customer perspective – as real competition on the Hungarian residential energy market is practically non-existent at present⁴⁸ – the national public utility has a greater responsibility to identify and actively engage to meet residential customer needs.

While still a long shot, theoretically with proper management, the national public utility, as part of MVM, could become an innovation driven company making available affordable RES solutions and new technologies⁴⁹ for its customers.

Applying the framework of Treacy and Wiersema⁵⁰, the public utilities in the Hungarian energy industry fell into the *Operational excellence* category (Figure 1) with narrow product lines (electricity with a strictly defined quality, heat, etc.), high expertise in chosen areas of focus and with a slow pace of change (*Network*). The major goal was to keep cost down with efficient generation derived from the high volumes. While in case of electricity, the volumes once again started to increase, the fix costs have also been rising steadily (e.g. expanding network, decrease of fixed fee element in tariffs, stricter regulations, etc.). Overall, it becomes more challenging to strive for low costs.

New products (household-scale generation, smart homes, etc.) and new markets (electric vehicles, CNG, etc.) became available while new entrants (e.g. telecommunication companies) entered into the traditional business lines (*Strategy*), part of the *Product leadership* category.

Customer relationships (*Social*) need more focus and resources, as not only the regulator, but also the owner (state-owned utility) expects to provide residents (voters) quality service (e.g. one-stop-shop to run electricity, natural gas and district heating business) (*customer*

⁴⁷ CHOPRA–MEINDL 2016.

⁴⁸ At present, there are going to be no alternative offers for Hungarian residential customers. After February 28, 2019, E.ON Energiakereskedelmi Kft. will no longer offer non-USP offers for residential customers (its tariffs have more favourable pricing than the USP tariffs). Available: www.eon.hu/hu/rolunk/vallalatsoport/eon-energiakereskedelmi-kft.html (Downloaded: 15.01.2019.)

⁴⁹ In Spring 2019, the NKM Áramhálózati Kft. plans to finish the development of its first energy storage units at two locations (Kecel, Zsombó). Available: www.nemzetikozyvek.hu/Hirek/2018/12-05 (Downloaded: 15.01.2019.)

⁵⁰ TREACY–WIERSEMA 1997.

intimacy). Therefore, the national public utility faces the dilemma to focus on ‘customer intimacy’ as the best total solution’ or find the ‘best product’ to maintain profitability and compensate for the increasing total costs.

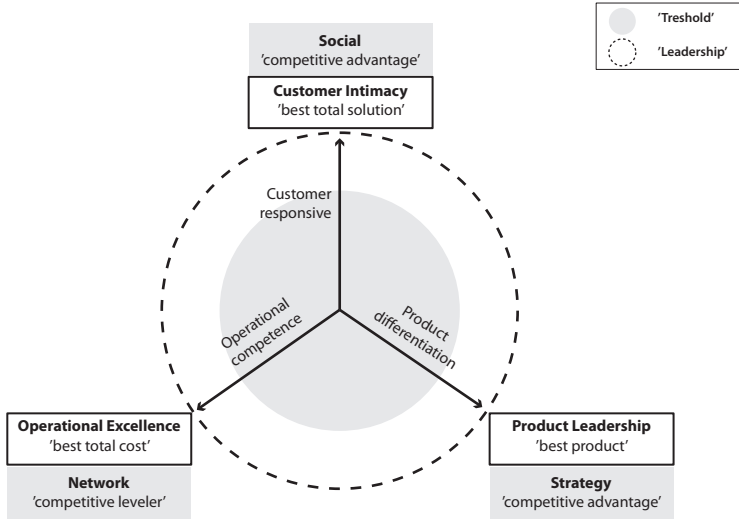


Figure 1 • *The Three Disciplines in the context of the three-aggregate clusters of the Hungarian RES trade-offs*
 (Source: Compiled by the author based on the data of TREACY–WIERSEMA 1997.)

6. CONCLUSION

The national public utility was created by increasing market concentration at a state-owned entity. Economies of scale and lack of competition allowed NKM to start changing its strategy from cost leadership to ‘differentiation’,⁵¹ targeting *customer intimacy*. While the centralised, state-controlled national public utility is not yet five years old; still, it already has a ‘long’ and thought-provoking history.

The turning strategic focus of a utility company could help to meet the changing expectations and to ease the most pressing energy policy trade-offs. From the customer point of view, the change in value discipline could be beneficial, as the state expectation of affordable energy (thus of ‘operational excellence’) could smooth price increases in the future, as well. However, these also carry potential strategic and supply chain risk, as companies – including the national public utilities – cannot master all three categories at the same time.

⁵¹ PORTER 1985.

REFERENCES

1. BÁLINT, Norbert – HERCZEG, András – TÓTH, Máté – GEBHARDT, Gábor (2014): *Gondolatok az integrált, non-profit vezetékes közműszolgáltató létrehozásának és üzemeltetésének egyes szabályozási kérdéseiről*. [Regulatory Considerations on the Establishment and Operation of an Integrated, Non-Profit Public Utility.] Budapest, Magyar Energetikai Társaság, Interdiszciplináris Tagozat [Hungarian Energy Association].
2. BÁLINT Norbert – HERCZEG András – TÓTH Máté – GEBHARDT Gábor (2015): A közösségi közműszolgáltatás megszervezésének egyes szabályozási kérdéseiről. [On the Regulatory Matters of the Publicly Owned Utility Service Organization.] *Pro Publico Bono*, No. 1. 4–18.
3. CHOPRA, Sunil – MEINDL, Peter (2016): *Supply Chain Management: Strategy, Planning, and Operation*. 6th edition, Pearson.
4. ALT, Lowell E., Jr. (2006): *Energy Utility Rate Setting. A Practical Guide to the Retail Rate-Setting Process for Regulated Electric and Natural Gas Utilities*. Lulu.com.
5. MEJÍA-DUGAND, Santiago – HJELM, Olof – BAAS, Leo (2017): Public utility companies in liberalized markets – The impact of management models on local and regional sustainability. *Utilities Policy*, Vol. 49 (C). 137–144. DOI: <https://doi.org/10.1016/j.jup.2017.05.002>
6. MIHÁLYI, Péter (2015): A privatizált vagyon visszaállamosítása Magyarországon, 2010–2014. [The renationalisation of privatised assets in Hungary, 2010–2014.] *IEHAS Discussion Papers*, No. MT-DP – 2015/7.
7. PORTER, Michael E. (1985): *The Competitive Advantage: Creating and Sustaining Superior Performance*. New York, Free Press.
8. NFM (2012): *National Energy Strategy 2030*. Ministry of National Development. Available: www.terport.hu/webfm_send/2658 (Downloaded: 15.01.2019.)
9. SZŐKE, Diána (2018): Energy Policy Goals and Challenges for Hungary in the 21st Century. *KKI Policy Brief*, E-2018/16. Institute for Foreign Affairs and Trade (KKI). Available: https://kki.hu/assets/upload/16_KKI-elemzes_HUN_Szoke_20180423.pdf (Downloaded: 15.01.2019.)
10. TREACY, Michael – WIERSEMA, Fred (1997): *The Discipline of Market Leaders: Choose Your Customers, Narrow Your Focus, Dominate Your Market*. Massachusetts, Addison-Wesley.

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