



# ANNUAL REPORT 2020



# FORWORD



It's our own energy

In this country we preside over vast natural resources. Nukissiorfiit has been exploiting these for many years with hydropower plants, and we supply electricity and water throughout the country. We have what is known as a supply obligation, but we think of it more as a supply capability. We intend to continue our development in the future, so that we can become even more independent of imported resources. In this way, our country will become richer and more sustainable. In essence, it is all about harnessing our own energy – both in terms of natural resources, and in terms of our skills, their development and our inner motivation. We have the energy and the necessary expertise to drive this development.

2020 has in many ways been an unusual year for Nukissiorfiit, which, as a critical utility, took every precaution when the Covid pandemic broke out in March. In order to be able to maintain the supply in the country under the worst-case scenarios, dynamic contingency plans were drawn up. However, as the pan-

demic quickly came under control in the country, Nukissiorfiit was able to return to a relatively normal operating situation after a short period of alert.

The pandemic has not impacted Nukissiorfiit's turnover, as the consumption of electricity, water and heating has not been affected. However, the travel restrictions have caused delays and added extra expenses to a number of renovation, refurbishment and development projects, which has had a negative impact on Nukissiorfiit's costs.

The national parliament, Inatsisartut, was to have passed a resolution at its autumn session 2020 on the further expansion of the country's hydropower capacity, with the construction of a hydropower plant to supply Qasigiannguit and Aasiaat and an extension of the hydropower plant in Buksefjorden, near Nuuk. The overall construction project will have a positive impact on the finances of Nukissiorfiit and the economy of the entire country. However, due to the economic situation as a result of the pandemic, the decision was postponed to a later parliamentary session.

The extension of the Buksefjorden hydropower plant is important, as the reservoir lake is reaching a critically low water level. This means that from 2024, Nukissiorfiit will have to supplement its supply to consumers in Nuuk with diesel power, if the expansion is not implemented. Similarly, the hydropower plant at Qasigiannguit and Aasiaat is important as it will bring great benefits to society, especially in terms of climate.

In 2020, it has become clear that Nukissiorfiit is facing a number of serious financial challenges. As a consequence, Nukissiorfiit has approached the responsible ministry regarding the financial situation, with a view to implementing an external audit study. With this year-end statement, Nukissiorfiit is thus delivering a deficit of DKK 153 million. The deficit is due to the fact that the company has to write down assets by DKK 206 million, which is reflected in the accounts in the extraordinarily high depreciation for 2020. Of the DKK 206 million, approximately one-third relates to the 2020 accounts, while the remainder relates to the 2018 and 2019 accounts. The reason for the high depreciation is to be found in the realisation of the loss-making investments that Nukissiorfiit makes on an ongoing basis to maintain its supply to the whole country.

However, Nukissiorfiit has also passed a number of positive milestones in 2020. In the summer of 2020, Qaanaaq became the final town in the country to receive Documented Drinking Water Safety, which ensures higher drinking water quality and better security of supply. In 2020, renewable energy systems were also installed in two villages and one town. Work on extending the deployment of renewable energy will continue in 2021, with solar panels, battery installations and micro-hydropower plants being installed in more towns and villages.

Finally, Nukissiorfiit reached its target of having 10 percent of its employees in education and training. All of these are achievements of which Nukissiorfiit is proud.

I took over as Energy Director of Nukissiorfiit in June 2020, and Claus Andersen-Aagaard, who was acting Energy Director, returned after extraordinary efforts to the role of CFO.

A big thank you is due to all our staff members for their efforts throughout the year. Nukissiorfiit's employees are our most important asset, and in 2020 they proved once again that they are able to maintain supply and energy in all conditions.

Our ambition is that energy – in every sense of the word – should come from within, and that sets the tone for our future direction. We have both the energy and the resources to motivate future generations to enter education, preferably in a direction that matches a role in Nukissiorfiit. That motivation stems from a "we can and will do things ourselves" culture, of which the guiding principle is:

Nukissiorfiit - it's our own energy!

**Kaspar Mondrup** 

Energidirektør



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# KEY FIGURES

DKK mill.	2020	2019	2018	2017	2016
RESULT					
Net turnover	817,8	749,4	781,9	836,1	825,4
Goods consumption	(196,7)	(178,8)	(196,2)	(204,5)	(203,7)
Operating costs	(361,0)	(371,3)	(368,8)	(309,8)	(302,2)
Depreciation	(334,4)	(123,0)	(127,0)	(241,9)	(244,6)
Interest rates	(78,6)	(81,3)	(85,4)	(92,9)	(100,7)
Profit for the year before operating subsidy	(152,9)	(5,0)	4,6	(12,9)	(23,5)
Operating subsidy	0,0	0,0	0,0	13,7	24,0
Profit for the year after operating subsidy	(152,9)	(5,0)	4,6	0,8	0,5
BALANCE					
Intangible fixed assets	0,0	0,5	1,5	16,0	26,1
Tangible fixed assets	3.007,0	2.841,4	2.773,3	4.320,5	4.411,1
Current assets	293,0	226,5	246,6	266,5	255,7
Equity	1.602,5	1.371,2	1.376,2	2.996,6	2.995,8
Long-term debt	1.557,7	1.527,3	1.480,0	1.466,4	1.466,9
Balance sheet total	3.300,0	3.068,4	3.021,3	4.603,0	4.692,9
CASH FLOW					
Operations	147,8	111,8	165,1	189,6	279,1
Investment activities	(115,3)	(190,1)	(190,2)	(141,3)	(148,5)
Financing activities	24,5	83,2	18,7	(69,8)	(132,8)
Alterations in liquidity	57,0	4,9	(6,5)	(21,6)	(2,2)
KEY FIGURES					
EBITDA	260,2	199,3	217,0	321,9	319,5
Profit for the year before operating subsidy	(152,9)	(5,0)	4,6	(12,9)	(25,8)
Return on assets before operating subsidy	(4,8%)	(0,3%)	0,3%	(0,3%)	(0,5%)
Equity ratio	48,6%	44,7%)	45,5%	65,1%	63,8%
Nukissiorfiit's net liquidity impact on the National Treasury	(25,2)	(74,1)	(10,4)	198,0	215,8
STATISTICS					
Sale of electricity to ordinary consumers (GWh)	207	196	199	193	186
Sale of electricity to the seafood industry (GWh)	34	39	39	36	39
Sale of water to ordinary consumers (mill. m³)	2,6	2,5	2,5	2,4	2,5
Sale of water to the seafood industry (mill. m³)	2,6	2,4	2,3	2,0	1,9
Sale of electricity and district heating (GWh)	342	315	342	320	310
Number of employees (fuldtidsansatte)	437	405	395	374	375

# STATEMENTS

### Management statement

As of today's date, we have considered and approved the annual report for Nukissiorfiit for the financial year 1 January 2020 - 31 December 2020.

The annual report is presented in accordance with Government of Greenland Executive Order no. 24 of 22 December 2017 on financial reporting for the net subsidy-controlled companies of the Government of Greenland.

The Executive Order stipulates that the annual report shall be presented pursuant to the Financial Statements Act in Greenland, as in force at any given time, with the deviations resulting from the fact that the company is a government-owned company operated in the public interest and regulated by special legislation.

We hereby declare:

- That the annual report is accurate, i.e. the annual report does not contain material omissions or misstatements.
- That the transactions covered by the financial statements comply with the laws and other regulations, as well as with contracts entered into and usual practice.
- That business procedures are in place to ensure the sound financial management of the funds covered by the annual report.

The annual report will be submitted to the National Parliament of Greenland for approval.

Nuuk, April 22, 2021

Ministry of Foreign Affairs and Energy

Nuk is sior fiit

Kenneth Høegh

Permanent Secretary

**Kaspar Mondrup**Energy Director

# Independent auditor's report

#### TO THE NATIONAL PARLIAMENT OF GREENLAND

#### Opinion

We have audited the year-end statement of Nukissiorfiit for the financial year 01.01.2020 - 31.12.2020, comprising the profit and loss account, balance sheet, cash flow statement and notes, including the accounting policies applied. The year-end statement is presented in accordance with Government of Greenland Executive Order no. 24 of 22 December 2017 on financial reporting for the net subsidy-controlled companies of the Government of Greenland (hereinafter the Executive Order). The Executive Order stipulates that the annual report shall be presented pursuant to the Financial Statements Act in Greenland, as in force at any given time, with the deviations resulting from the fact that the company is a government-owned company operated in the public interest and regulated by special legislation.

In our opinion, the year-end statement gives a true and fair view of the assets, liabilities and financial position of the company as of 31.12.2020 and of the results of its operations for the financial year 01.01.2020 - 31.12.2020, in accordance with Government of Greenland Executive Order no. 24 of 22 December 2017 on the financial reporting of the net subsidy-controlled companies of the Government of Greenland, with the deviations arising from the fact that the company is a government-owned company operated in the public interest and regulated by special legislation.

#### Basis for the auditor's opinion

We have conducted our audit in accordance with international auditing standards and the additional requirements that apply in Greenland, as well as the standards for public auditing, with the audit being carried out in accordance with the Order. Our responsibilities in accordance with these standards and requirements are described in more detail in the section of the auditors' report entitled "Auditor's responsibility for the audit of the yearend statement". We are independent of the company, in accordance with the international ethical rules for auditors (the IESBA code of ethics) and the additional requirements that apply in Greenland, and we have fulfilled our other ethical obligations in accordance with these rules and requirements. It is our view that the audit evidence obtained provides a sufficient and appropriate basis for our opinion.

#### Highlighting of matters relating to the audit

Nukissiorfiit has included a number of appendices to the accounts. These appendices have not been subject to audit.

### The management's responsiblity for the year statement

The management is responsible for drawing up consolidated accounts and a year-end statement that provide a true and fair view in accordance with the Order. The management is also responsible for such internal control as the management deems necessary in order to draw up a year-end statement that is free from material misstatement, whether due to fraud or error.

In drawing up the year-end statement, the management is responsible for assessing the ability of the Company to continue operations, to disclose matters relating to continued operations, where applicable, and to draw up the year-end statement on the basis of the accounting principle for continued operations, unless the management intends to liquidate the Company or discontinue operations, or has no realistic alternative but to do so.

# Auditor's responsibility for the audit of the year-end statement

Our objectives are to obtain reasonable assurance concerning whether the year-end statement as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes the auditor's opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with international standards on auditing and the further requirements that apply in Greenland will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and may be considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of the users taken on the basis of the year-end statement.

As part of an audit, in accordance with the international standards on auditing and the further requirements that apply in Greenland, together with the standards for public auditing, we exercise professional judgment and maintain professional scepticism throughout the audit. In addition, we:

· Identify and assess the risks of material misstatement in the

year-end statement, whether due to fraud or error, design and carry out audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the overriding of internal control.

- Obtain an understanding of the internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control of the Company.
- Evaluate the appropriateness of the accounting policies used by the management and the reasonableness of the accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the management's use of the going concern basis of accounting in its preparation of the year-end statement and, based on the audit evidence obtained, on whether a material uncertainty exists relating to events or conditions that may cast significant doubt on the ability of the Company to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the year-end statement, or, if such disclosures are inadequate, to modify the auditor's opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the year-end statement, including the note information, and whether the year-end statement represents the underlying transactions and events in a manner that provides a true and fair view.

We communicate with the senior management on, amongst other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during the audit.

#### Statement on the Management Report

The management is responsible for the Management Report.

Our opinion on the year-end statement does not include the Management Report, and we do not express any kind of conclusion with certainty on the Management Report.

In connection with our audit of the year-end statement, it is our responsibility to read the Management Report and, in this connection, consider whether the Management Report is materially inconsistent with the year-end statement or with our knowledge obtained in the audit, or otherwise appears to contain material misstatement.

In connection with our audit of the year-end statement, it is our responsibility to read the Management Report and, in this con-

nection, consider whether the Management Report is materially inconsistent with the year-end statement or with our knowledge obtained in the audit, or otherwise appears to contain material misstatement

Our responsibility is also to consider whether the Management Report contains the information required in accordance with the Financial Statements Act

On the basis of the work performed, it is our opinion that the Management Report is in accordance with the year-end statement, and has been drawn up in accordance with the requirements of the Financial Statements Act. We did not find any material misstatement in the Management Report.

## DECLARATION PURSUANT TO OTHER LEGISLATION AND OTHER REGULATION

### Statement on compliance audit and management audit

The management is responsible for ensuring that the transactions covered by the financial statements are in accordance with the authorisations, laws and regulations, contracts entered into and usual practice. The management is also responsible for ensuring that appropriate financial care is exercised in the management of the funds covered by the year-end statement. In this context, the management is responsible for establishing systems and processes that support economy, productivity and efficiency.

In connection with our audit of the year-end statement, it is our responsibility to perform a compliance audit and a management audit of selected items in accordance with good public auditing standards. In our compliance audit, we verify, with a high degree of assurance on the selected subjects, that the transactions examined and covered by the financial statement comply with the relevant provisions in the authorisations, laws and regulations, as well as with the contracts entered into and usual practice. In our management audit, we assess with a high degree of assurance whether the systems, processes or operations examined are compatible with sound financial management of the funds and operations of the areas covered by the year-end statement.

If, on the basis of the work performed, we conclude that our audit gives rise to material critical comments, we are to report this in this statement.

We have no material critical comments to report in this respect.

Nuuk, April 22, 2021

#### Deloitte

Statsautoriseret Revisionspartnerselskab CVR-nr. 33 96 35 56

Bo Colbe

Statsautoriseret revisor MNE-nr. 24634 Thomas Hermann
Statsautoriseret revisor

MNE-nr. 26740



# NUKISSIORFIIT IN 2020

**Hydropower plants** villages 10,4% in training Solar panels **Softwarerobot** 18 processes in operation, 6 new in 2020 341,1 kW **Wind turbines** Customers 50 kW New/upgraded installations in 2020





Waterworks
4 renovated i 2019







90% receive water from waterworks with Documented Drinking Water Safety



250
days with boil water advisories



Sales

247

Prices

1,65



5,2

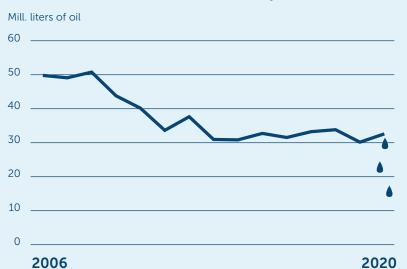
20 DKK m<sup>3</sup>



337

680-740
DKK/MWh

**Nukissiorfiit's oil consumption** 

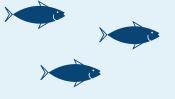






# **DKK 41,2 mill.**

discount to the seafood industry





**Turnover** 

Result of the year

19% i bygderne

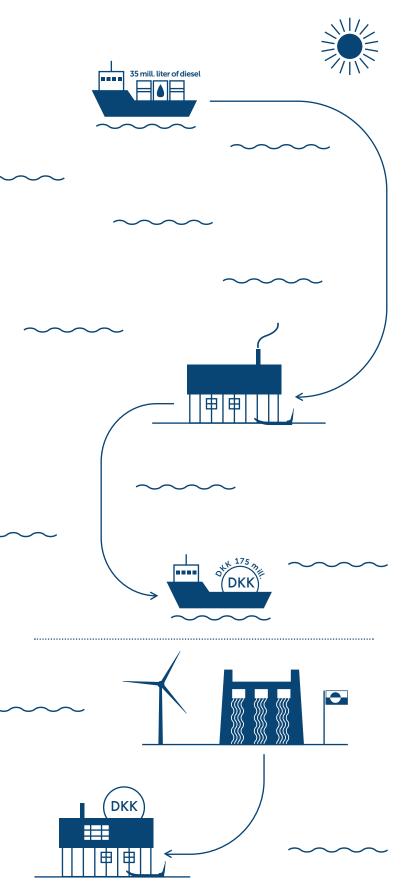
Investments

-152,9

**113** DKK mill.

817,8
DKK mill.

# MANAGEMENT REPORT



Nukissiorfiit has been supplying Greenland with electricity, water and heating since 1949.

In 1993 the first hydropower plant was commissioned, and since then renewable energy has been part of Nukissiorfiit's DNA. Today, Nukissiorfiit's energy supply consists of 70% renewable energy, and Nukissiorfiit has five hydropower plants, solar and battery plants in both towns and villages, and a wind turbine test centre. These plants not only spare the climate  $\mathrm{CO}_2$  emissions, but also play a role in the national economy and trade balance, as Greenland thereby imports less oil and avoids sending money out of the country.

When Nukissiorfiit supplies towns and villages with fossil fuels, we import large quantities of diesel oil. Diesel oil must be purchased abroad, which means that a lot of money is sent out of the country every year. With renewable energy sources such as solar, wind and hydropower, we are using our own resources and ensuring that economic resources stay in the country.

One of the targets of the national parliament's Sector Plan for Energy and Water Supply is for as much as possible of the public energy supply to be derived from renewable energy by 2030. Nukissiorfiit is currently implementing this strategy with the aim of supplying all towns and villages with renewable energy. We are doing this by investing in renewable energy plants, and by modernising and optimising our supply.

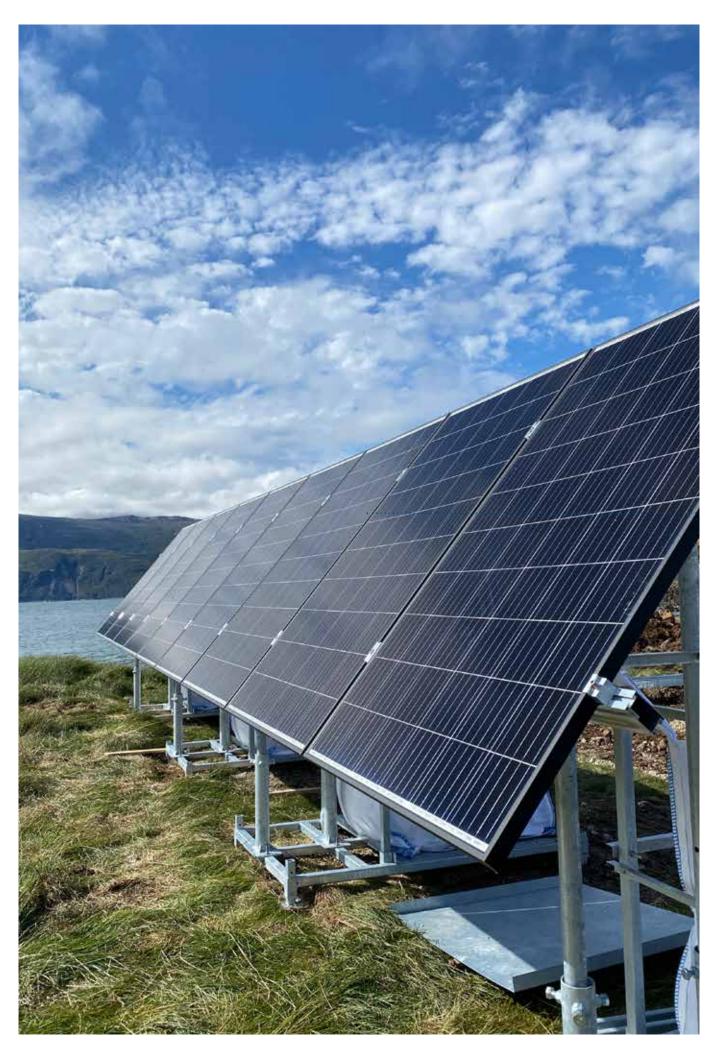
Nukissiorfiit has made great progress in this work, but we still have some distance to go. In the area of energy and heat supply, Nukissiorfiit sees three main opportunities to increase the level of renewable energy and heating supply in Greenland:

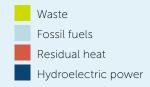
- Establishment of hydropower plants in towns currently supplied using diesel.
- Supplementing existing diesel power plants with solar panels, wind turbines and other renewable energy technologies.
- Converting customers in towns with hydropower plants from private, oil-based heating supply to public, renewable heating supply.

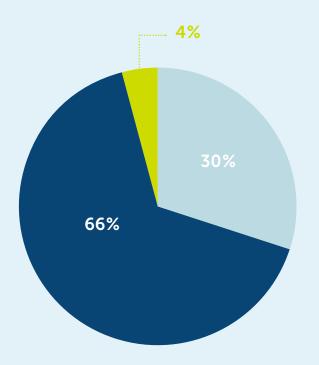
#### Figur 1

Scenario 1. Importing diesel to supply the country is expensive for society and sends money out of the country.

Scenario 2. With renewable energy, we supply ourselves – and the money stays in Greenland.







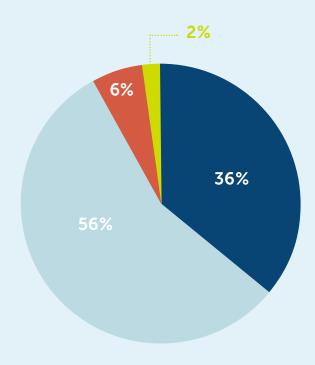


Figure 2
Public energy supply

**Figure 3**Private and public energy supply consumption

As shown in Figure 2, fossil fuels account for 30% of Nukissiorfiit's energy supply in 2020, while Figure 3 shows that in the overall energy balance for the country in 2018, fossil fuels accounted for 56%. The reason why more recent figures for the country's overall energy account are not available is that energy statistics are not yet available for 2019 and 2020. However, experience shows that the picture changes significantly only in the case of large capital investments. As no such major investments have taken place, it is assumed that the above remains accurate. This means that there is still great potential in converting from fossil fuels to renewable energy.

Funding limitations are however a recurring challenge in Nukissiorfiit's work on renewable energy supply. With the introduction of the single-price reform in 2018, Nukissiorfiit's financial loan facility was reduced from DKK 140 million to DKK 60 million. In addition, Nukissiorfiit received a service contract payment of DKK 72.2 million in 2018: an amount that has since been re-

duced on the grounds that Nukissiorfiit can make its operations more efficient. Finally, due to the pandemic, the Government of Greenland has withdrawn funds earmarked for Nukissiorfiit's Construction and Renovation Fund amounting to DKK 311 million.

The same issue applies to water supply. Nukissiorfiit's main objective in water supply is to ensure high-quality water and high security of supply. In this work, the implementation of Documented Drinking Water Safety plays a central role, and is being rolled out across the country. However, investment in water supply is complicated by the fact that the sale of water is a loss-making business for Nukissiorfiit, due to loss-making pricing.

#### Organisational change

Nukissiorfiit's head office underwent a major organisational change at the turn of 2019-2020 to adapt to the changing demands of the surrounding world. The aim of the organisational change was to sharpen the focus on the execution of Nukissiorfiit's strategy, improve financial management and strengthen co-operation between districts, head office and all departments.

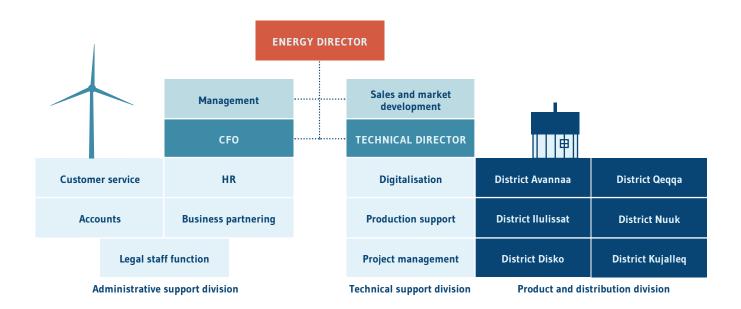
The head office departments were merged into two divisions: Technical Support Division, with Production Support, Project Management and Digitalisation departments, which are responsible for providing technical advice to the districts and co-ordinating projects across the organisation.

Administrative Support Division, which includes Customer Service, Human Resources, Accounting and Business Partnering, encompassing Nukissiorfiit's administrative departments. The Energy Director is responsible for the departments Management Secretariat and Sales & Market Development.

Nukissiorfiit's six districts make up the third division, the Production and Distribution Division, and remain organisationally unaltered.

As a result of this organisational change, the company's strategy has become clearer and more prominent in the daily work of Nukissiorfiit. The change has also led to the selection of responsible persons for each strategy track, who are responsible for the implementation of the strategy.

In the summer of 2020, Nukissiorfiit underwent a further organisational change which has had a particular impact on contact with customers. The company's customer service has been digitalised, and customers have been given the option of using self-service solutions on mobile phone or internet. This ensures a uniform and faster service, and better use of Nukissiorfiit's resources. Digitalisation has reduced the need for personal customer service, for which reason 13 office staff members who previously handled in-person customer enquiries have had to be made redundant as part of the organisational change.



**Figure 4**Nukissiorfiit's new organisation chart



# Nukissiorfiit's strategy 2018-2022

Nukissiorfiit's strategy for the period 2018-2022 includes the following five strategic tracks:

- 1. Sustainable energy
- 2. Business development
- 3. Digitalisation
- 4. Water quality
- 5. Organisational development

The following sections present the status of each strategy track and expectations for 2021.

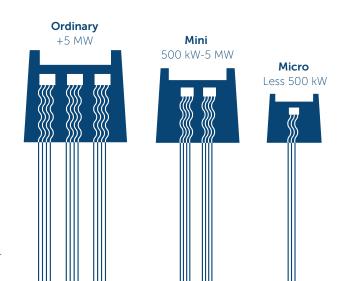
#### Sustainable energy

One of the main objectives of the Sector Plan for Energy and Water is to make use of renewable energy wherever possible. For Nukissiorfiit, this is directly in line with the company's long-standing and growing interest in the ever-greater use of renewable energy. In 2020, DKK 10 million was earmarked for renewable energy initiatives across the country. The earmarked pool ensures that diesel-based energy supply is being replaced or supplemented by renewable energy sources in towns and villages nationwide. The transition to self-sufficiency and more renewable energy is a natural part of Nukissiorfiit's business. Renewable energy is therefore a separate track in the strategy, with the following focus areas:

- Large-scale renewable energy projects, such as the construction of hydropower plants to supply towns
- Medium-scale renewable energy projects, such as small hydropower plants and urban wind farms
- Small-scale renewable energy projects, such as microhydropower plants, solar and battery installations to supplement supply in towns and villages
- Modernisation and standardisation of facilities in villages, e.g. power plants

Nukissiorfiit's ownership and financial situation means that it is only possible to independently finance and launch small renewable energy projects. The realisation of medium and large-scale projects depends on funding from the national treasury, and is therefore subject to political decision-making, as Nukissiorfiit is not allowed to take on debt independently. In 2019 and 2020, Nukissiorfiit has drawn up a series of analyses, statements and papers that form the basis for policy positions on the transition to renewable energy supply in the country.

Nukissiorfiit's analyses conclude that establishing renewable energy supply in more towns and villages is economically viable and will directly reduce production costs, as it is cheaper to produce energy with hydropower than with diesel power. In 2020, Nukissiorfiit has carried out a number of small-scale projects that displace the use of diesel and increase operating reliability, thus providing a long-term economic benefit. In addition, these projects are important as they allow Nukissiorfiit to gain experience with different renewable energy installations and deployment methods, which is crucial for future work on renewable energy in arctic regions.



**Figure 5** Nukissiorfiit's definitions of hydropower

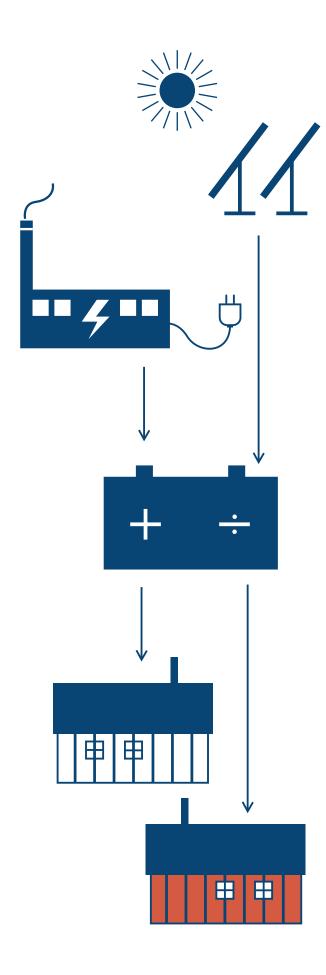


Figure 6
Hybrid plants for village supply

## SOLAR PANELS AND BATTERY PLANTS IN THE DISTRICTS

In 2020, solar panels will be installed on the roof of the Uummannaq sports hall, ensuring that part of the hall's power consumption is produced by solar energy. These solar panels are the northernmost of Nukissiorfiit's solar panels in Greenland, and therefore contribute to gaining experience with solar panels north of the Arctic Circle.

In addition, Nukissiorfiit has installed solar panels and battery systems on racks in Ammassivik and Ikerasaarsuk in 2020. The installation of solar panels on this type of rack is new in Greenland, and is therefore also a new method of gaining experience and learning about which methods are most appropriate and cost-effective for different Greenlandic conditions. The installation of battery systems ensures a stable supply, an even load on motors and energy storage over shorter or longer periods, and means that solar energy can be used even when the sun is not shining. In addition, the battery installations reduce the operating hours of the power plant's motor, which is expected to increase the motor's lifetime.

An earmarked renewable energy pool of DKK 10 million was intended to ensure that by 2020, solar panels were installed in all districts. However, the pandemic complicated this and resulted in three districts yet to have solar panels installed from the 2020 pool. Nukissiorfiit therefore expects to install solar panels in Ittoqqortoormiit, Qeqertarsuatsiaat and Qeqertat in 2021.

#### **Business development**

The strategy track aims to explore areas that can optimise the use of Nukissiorfiit's resources and competencies. It is intended to ensure future growth with a focus on both internal optimisation and external development. The focus areas of the strategy track are:

- · Sales of interruptible electric heating
- Bulk sales of water
- · Recovery of residual heat
- Minimisation or elimination of water transport by road
- Software robots for process automation
- Streamlining of procurement
- Internal optimisation of operations and general efficiency improvements

As society becomes increasingly complex and new technologies pave the way for more efficient business, it is important that Nukissiorfiit keeps pace and remains at the cutting edge. By 2020, software robots will have automated administrative processes equivalent to a saving of 1,800 man-hours per year. At Nukissiorfiit, the technological advances are seen as an opportunity to automate trivial, manual work processes, so that we can instead use our human resources where they can bring the most value to society and the company.



#### Digitalisation

Nukissiorfiit intends to be a leader in the use of digital platforms, big data and IoT (the Internet of Things). We provide electricity, water and heating in more than 70 localities across the country, and see great potential for efficiency improvements through digitalisation. In 2020 the digitalisation work has accelerated, resulting in a focus on the following platforms and focus areas:

- Payment via mobile phone
- Sending invoices and reminders via SMS and e-Boks
- · Increased cybersecurity
- Data and process review of system for remote meter reading for electricity, water and heating
- Budgeting via AI-driven rolling forecast
- Administration platform for Nukissiorfiit's electric vehicle charging network
- Systematic operation and maintenance of all plants and facilities

#### **RESIDUAL HEAT RECOVERY IN KANGAAMIUT**

Nukissiorfiit will shortly initiate the exploitation and sale of residual heat in Kangaamiut. This is being done on a trial basis, and customers who have been self-sufficient in oil-based heating will be offered the opportunity to connect to the future district heating network. It involves the use of residual heat from the existing power plant, which means the amount of heat produced is determined by the amount of electricity generated at any given time. Customers living near the power plant are given the opportunity to connect to the district heating network and be supplied with interruptible district heating whenever there is excess capacity at the power plant. This also means that customers will still have to have private oil-fired burners.

The pilot project is intended to test the viability of this approach in other villages in similar situations, which will allow better use of residual heat and reduce oil consumption in Kangaamiut.

#### **ROLLING FORECAST**

In 2020, Nukissiorfiit has benefited greatly from Rolling Forecast, an artificial intelligence-based budgeting application that Nukissiorfiit developed in 2019. Each month, the programme generates a new budget forecast for the next 18 months.

This has automated the budgeting process, which previously required the involvement of about 70 staff members and was performed once annually. With Rolling Forecast, Nukissiorfiit has a more secure and accurate overall grasp of its finances and expected results on an ongoing basis, while at the same time expending fewer resources on budgeting.

In 2020, Nukissiorfiit has been working to further optimise the algorithm and develop the reports that Rolling Forecast generates monthly. This has provided a better forecast of the company's finances and increased the usefulness of the budget and forecasting model. Throughout the year, the model has pointed with a high degree of certainty towards the expected result for the year, at a level different to that of the expected anchor budget

In addition, Nukissiorfiit has been working on the functions relating to 'bursting', which involves the automated issuing of relevant budget monitoring reports. This is done with a certain frequency, in order to focus attention on what is functionally relevant and reduce the time spent by staff on this.

Rolling Forecast is based on an IBM platform, which gave an opportunity for Nukissiorfiit to present it at IBM's Think conference in San Francisco in May, as one of IBM's Thought Leaders. The conference is attended by international stakeholders and usually has around 20,000 participants. Here, Nukissiorfiit was to present the Rolling Forecast programme to IBM and other conference participants, as the intelligent budget model may find useful applications elsewhere. The event, like many others in 2020, was cancelled due to the pandemic. However, the interest from other players has not diminished, and Nukissiorfiit's CFO Claus Andersen-Aagaard gave a presentation on the Al-powered Rolling Forecast at Computer World's 2020 Digital Conference.



### DOCUMENTED DRINKING WATER SAFETY IN ALL TOWNS

In recent years, Documented Drinking Water Safety (DDWS) has formed the framework for Nukissiorfiit's work on the quality of its water supply. DDWS is a model that assures the quality of all waterworks in the country, with the aim of achieving a documented improvement in drinking water quality. From the beginning, the work has been twofold: DDWS in towns and DDWS in villages. On the basis of the Government of Greenland's 2017 Sector Plan for Energy and Water, Nukissiorfiit has initiated DDWS in the towns. All urban waterworks have been reviewed and their condition analysed in order to optimise processes and equipment. Renovation, implementation and staff training have then taken place.

In 2020, the implementation of DDWS was rolled out in Qaanaaq as the last of the Greenlandic towns to receive this. All urban waterworks now function to DDWS standards, and processes have been adapted and deficiencies clarified. There is still a need for adjustments in the facilities, amounting in many places to tens of millions of kroner, but all waterworks have undergone major improvements and only a few have remaining deficiencies. An important step forward to ensure the quality of drinking water for citizens has thus been taken.

#### Water quality

Following a drinking water contamination incident in Uummannaq in 2019, Nukissiorfiit has placed additional focus on water quality. Water quality has therefore become a separate track in the strategy, with the following focus areas:

- Documented drinking water safety in all towns
- · Documented drinking water safety in all villages
- · Contingency for emergency supply failure
- Data efficiency
- · Optimisation of water delivery by road
- Harmonisation and standardisation of facilities in villages
- · Profitability of water supply

It is important for Nukissiorfiit to maintain the quality of the drinking water we supply. This places demands on both the facilities and treatment methods used in the treatment process. Until now, in order to test and assure quality on an ongoing basis, regular sampling followed by laboratory testing has been required. This remains an indispensable process that provides Nukissiorfiit with important information about the quality of the drinking water on an ongoing basis. In 2020, Nukissiorfiit has chosen to complement sampling and local monitoring with the purchase of a new digital system that can assist with quality monitoring and data analysis of how well a waterworks is run.

This increased focus, the new processes and the purchased systems will define the work in the coming years to improve the quality of drinking water in the country.

#### Organisational development

Nukissiorfiit invests on an ongoing basis in skills enhancement for its employees.

In this work, regularly assessments are undertaken of future skills needs while evaluating the existing workforce according to various criteria, including type and level of education, certificates and accreditations. Retirement planning and succession planning are also an important part of this work.

Other relevant areas influencing organisational development include increased digitalisation and the phasing out of diesel-based power generation: a reality that places new demands on the skills of our employees. The strategic recruitment of new employees is a continuing focus in order to equip Nukissiorfiit for the challenges of the future, so that we can ultimately help to meet our responsibilities to society.

As one of the country's largest workplaces, we take active responsibility for the education of young people in the country. We offer internships, seek to influence the supply and content of education in Greenland, and co-operate with Greenlandic students in Denmark.

In the 2020 Employee Satisfaction Survey, Nukissiorfiit was once again rated among the highest scoring companies in the Danish Commonwealth. We are actively working to spread awareness of this and thereby strengthen our brand as an attractive and professional workplace.

As a track in the strategy, organisational development has the following focus areas:

- Recruitment and staff planning
- Skills enhancement
- Branding
- Social responsibility in education and training



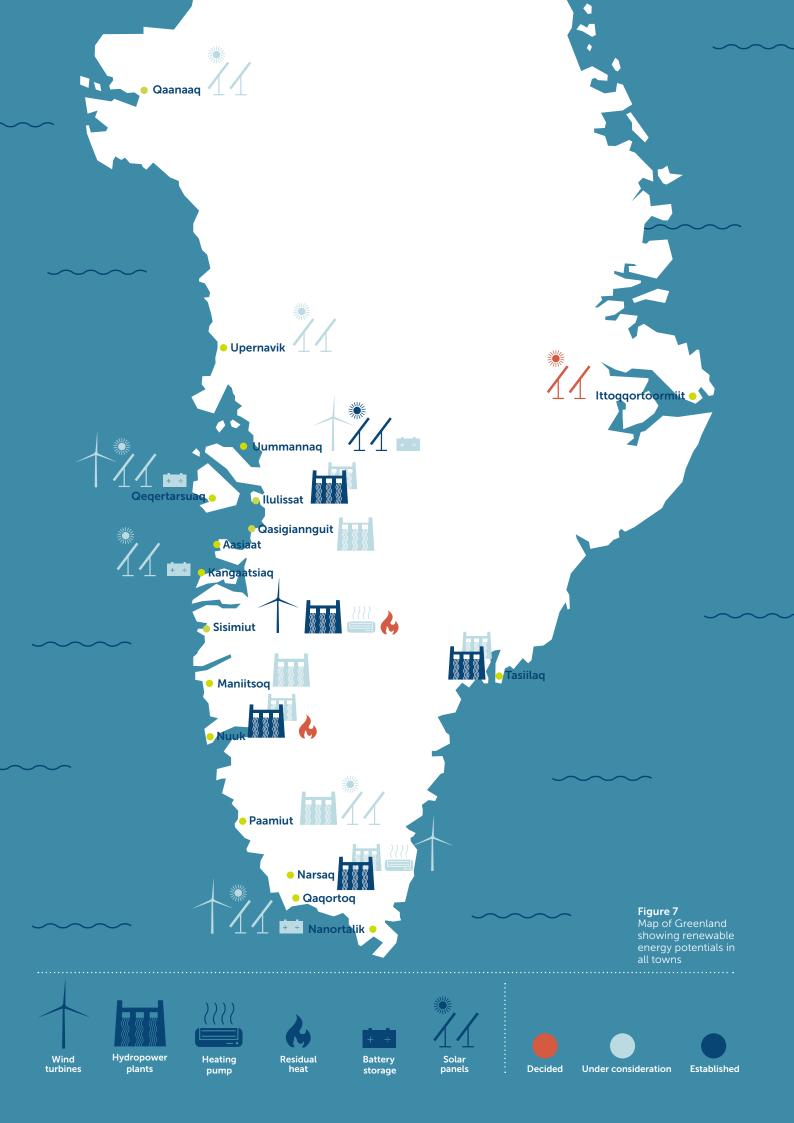
#### **E-LEARNING PLATFORM FOR EMPLOYEES**

In 2020, Nukissiorfiit launched an e-learning platform for its employees. This learning portal allows employees, regardless of geographical location, to access qualifying and relevant courses in IT, Nukissiorfiit's maintenance programmes, procurement, etc., over the Internet.

The courses offered on the e-learning platform are produced by Nukissiorfiit on the basis of what is relevant for employees across the organisation to learn. The vision for the platform is to create a space for employee-to-employee knowledge-sharing. At the end of 2020, seven courses had been produced in the e-learning platform, and Nukissiorfiit expects to present four more courses in the near future.

In 2021, there will be a particular focus on anchoring the platform as a natural entry point for knowledge-sharing in the organisation. As part of this, Nukissior-fiit is currently developing a strategy for the further implementation and production of e-learning materials

Nukissiorfiit prides itself on providing equal opportunities to all employees to access qualified and relevant learning, regardless of where in the country they are located.



### **Energy supply**

## Sustainable, secure and affordable energy across the country

Nukissiorfiit is constantly working to ensure sustainable, safe and affordable energy for citizens across the country.

Nukissiorfiit has therefore identified opportunities and potentials in all Greenlandic towns and villages, and is now working on the basis of this mapping to realise the objective of installing renewable energy supply wherever possible, in accordance with the Government of Greenland's Sector Plan for Energy and Water Supply. In this work, Nukissiorfiit pays particular attention to which renewable energy solutions are best suited to each town and village, and prioritises projects on the basis of climate benefits, economic viability and security of supply.

The first step towards renewable energy supply in the country was taken when the Buksefjorden hydropower plant was commissioned in 1993. Since then, a number of hydropower plants have been established, firstly in Tasiilaq in 2004, then at Narsaq and Qaqortoq in 2008, Sisimiut in 2010 and most recently at Ilulissat in 2013. Hydropower plants will continue to account for an increasing share of energy supply.

In the autumn of 2019, the national parliament of Greenland adopted a resolution to instruct the government to present a decision-making basis for the establishment of a hydropower supply for Qasigiannguit and Aasiaat and the expansion of the hydropower plant at Buksefjorden.

In 2020, Nukissiorfiit completed a layout proposal and scope of reference, and initiated the EIA process for the planned hydropower plants at Qasigiannguit and Aasiaat and the extension of the hydropower plant at Buksefjorden. Nukissiorfiit is now awaiting a political decision on the issue.

Nukissiorfiit has also prepared a draft proposal for the renewable energy supply of Nanortalik. In this context, the possibility of establishing either hydropower, wind turbines or solar cells to supply Nanortalik has also been examined.

A new development for Nukissiorfiit in 2020 is that it has focused on the construction of micro-hydropower plants. During the year, a contract was entered into for Nukissiorfiit to take over Mittarfeqarfiit's energy supply at Kulusuk airport. The acquisition will make an investment in a micro-hydropower plant in Kulusuk both profitable and more attractive. Nukissiorfiit will build a micro hydropower plant to supply Kulusuk with renewable energy from 2023. In addition to contributing to the achievement of the target of utilising renewable energy wherever possible, this will also be an important step in Nukissiorfiit's work on other renewable energy supply methods, and provide valuable experience in micro-hydropower energy produc-

tion that could also be applied in other towns and villages in Greenland.

In 2020, the implementation of solar energy has been intensified, by comparison with previous years. Nukissiorfiit's goal is that in the future, solar and battery systems will account for a larger share of total energy production, especially in the villages. Nukissiorfiit has therefore earmarked DKK 10 million for the purchase of hardware for use in renewable energy projects in all districts. In 2020, the money has been used to install solar panels and battery systems in three towns and villages, and solar panel systems in three additional towns/villages. As an integral part of the renovation of Nukissiorfiit's plants, the possibility of installing solar panels is at the same time being explored. New solar panel systems can be installed on the roofs of Nukissiorfiit's power and water plants in several locations, thereby contributing to Nukissiorfiit's goal of increasing the share of renewable energy across the country.

Wind power generation can be an efficient source of supply in places where hydropower resources are not available. At its test centre in Sisimiut, Nukissiorfiit has now accumulated more than two years of experience with small wind turbines. This experience will provide the basis for small wind turbines to be included in the supply to villages, as soon as suitable wind turbines have been fully tested. At the same time, Nukissiorfiit has been exploring the possibility of installing larger wind turbines to supply towns.

Wind measurements have also been initiated in several towns and villages to find the optimal locations for wind turbines, thus ensuring the highest possible production, based on the wind conditions. It is Nukissiorfiit's hope to use local knowledge to find good future locations and hopefully take advantage of special local wind conditions, such as strong, steady winds from narrow valleys, fjord winds and other local conditions that weather data models will not be able to detect from a macro perspective.





## THE CONTRIBUTION OF HYDROPOWER PLANTS TO RENEWABLE ENERGY IN GREENLAND

#### Qorlortorsuag

The Qorlortorsuaq hydropower plant has been in operation since 2007 and saves society 5 million litres of diesel imports every year. This corresponds to more than 13,000 tons of  $\rm CO_2$  that the climate is spared. In its lifetime, Qorlortorsuaq has saved society the import of 54 million litres of oil and 143,640 tons of  $\rm CO_2$ .

#### Buksefjorden

The Buksefjorden hydropower plant has been in operation since 1993 and saves society 35 million litres of diesel imports every year. This corresponds to more than 93,000 tons of  $\rm CO_2$  that the climate is spared. In its lifetime, Buksefjorden has saved society the import of 835 million litres of oil and 2.2 million tons of  $\rm CO_2$ , while the hydropower plant has already paid for itself about 2.5 times over.

#### Sisimiut

The Sisimiut hydropower plant has been in operation since 2010 and saves society the import of 6.3 million litres of diesel each year. This corresponds to more than 16,000 tons of  $\rm CO_2$  that the climate is spared. In its lifetime, the Sisimiut hydropower plant has saved society the import of 75 million litres of oil and 199,500 tons of  $\rm CO_2$ .

#### **Paakitsoq**



The Paakitsoq hydropower plant has been in operation since 2012 and saves society the import of 9 million litres of diesel each year. This corresponds to more than 24,000 tons of  $\rm CO_2$  that the climate is spared. In its lifetime, the Paakitsoq hydropower plant has saved society the import of 76 million litres of oil and 202,160 tons of  $\rm CO_2$ .

#### Tasiilaq

The Tasiilaq hydropower plant has been in operation since 2005 and saves society the import of 1 million litres of diesel each year. This corresponds to more than 2,800 tons of  $CO_2$  that the climate is spared. In its lifetime, the Tasiilaq hydropower plant has saved society the import of 18 million litres of oil and 47,880 tons of  $CO_2$ .

Together, the five hydropower plants have saved society the import of over 1 billion litres of diesel and spared the climate 2.7 million tonnes of  $CO_2$ . This corresponds to about 26,500 flights from Kangerlussuaq to Copenhagen.

There are currently five hydropower plants in Greenland, supplying six towns. Nukissiorfiit is proud to have supplied the country with hydropower for 27 years, and in 2020 the company could celebrate ten years of supplying Sisimiut with renewable energy from the hydropower plant. However, there is still a need to invest in new hydropower plants and expand the existing ones.

This includes the Buksefjorden hydropower plant, which has been supplying Nuuk with renewable energy since 1993. The hydropower plant, which replaces a traditional diesel power plant, displaces about 35 million litres of diesel fuel per year. At 2020 fuel prices, this corresponds to a cost saving of around DKK 190 million per year, which helps to ensure low energy prices throughout the country. But Nuuk is growing, and consequently, the water level in the hydropower plant's reservoir lake has been decreasing since 2010. This means that for more than ten years, the water consumption has exceeded the amount flowing into the lake. In other words, the water consumption for electricity production is not sustainable and there is an urgent need to expand the hydropower plant.



26.500 ture fra Kangerlussuaq til København



#### Figure 8

The amount of diesel and CO<sub>2</sub> that hydropower plants spare the climate.



But Nuuk is growing, and consequently, the water level in the hydropower plant's reservoir lake has been decreasing since 2010. This means that for more than ten years, the water consumption has exceeded the amount flowing into the lake. In other words, the water consumption for electricity production is not sustainable and there is an urgent need to expand the hydropower plant.

If the current trend continues, Nukissiorfiit will have to supplement a large part of the supply in Nuuk with diesel from 2024, thus significantly increasing the country's consumption of imported oil. The plan was for the national parliament to have passed a resolution on the expansion of the hydropower plant at its autumn session in 2020, but this was postponed due to the pandemic. It is expected that the expansion project will be completed four years after it has been approved by parliament.

The construction of a hydropower plant to supply Qasigiannguit and Aasiaat, and the expansion of the Buksefjorden hydropower plant near Nuuk, are the projects that can contribute most to increasing the share of renewable energy in the public energy supply, and will at the same time provide an expected DKK 140 million in annual profits. Today, 70% of the public energy supply derives from renewable energy, but the construction of the Qasigiannguit and Aasiaat hydropower plant and the expansion of the Nuuk hydropower plant will increase this share to around 90%. Over a 20-year period, the two projects will reduce the country's oil consumption by more than 500 million litres, corresponding to an average of 25 million litres per year, and thus spare the climate for 60,000 tons of CO<sub>2</sub> annually.

In 2020, Nukissiorfiit submitted a decision paper to the Government of Greenland on the expansion of the hydropower plant at Nuuk and the establishment of a hydropower plant to supply Qasigiannguit and Aasiaat. In addition, Nukissiorfiit has drawn up an outline proposal and a scope of reference, and initiated the EIA process for the project.

Nukissiorfiit is proud to have supplied Sisimiut with renewable energy for a decade. The unmanned hydroelectric power plant located 30 km northeast of the city is supplied with water from Lake Tasersuaq. However, the water inflow to the hydropower plant's reservoir lake is not large enough to also cover Sisimiut's heating needs, even though the hydropower plant's turbines have the capacity to produce more energy. This means that usually only one turbine in the hydropower plant is in operation, in order to achieve the best efficiency and make the best use of the water. The hydropower production in Sisimiut cannot be increased as there are no known possibilities to expand the catchment area of the reservoir lake.

The Qorlortorsuaq hydropower plant has been in operation since 2007/2008 and is the only hydropower plant in Greenland to supply more than one town, inasmuch as it supplies both Qaqortoq and Narsaq. In the winter of 2019/2020, one of the two turbines suffered a breakdown, which led to a number of outages during the spring. Nukissiorfiit immediately initiated procedures to repair the turbine, but the pandemic complicated the receipt of spare parts and delayed the arrival of repair staff from Austria by several months. The delay cost Nukissiorfiit DKK 338,000 in additional diesel costs. Following the repair, the turbine has been working perfectly again and there has been a large overflow of excess water over the top of the dam during the summer.

The hydropower plant at Tasiilaq was officially inaugurated in 2005 and supplies the town with electricity. Since 2017, Nukissiorfiit has implemented a number of efficiency measures at the plant. The fruits of these initiatives are being reaped continuously, and are also evident in 2020.

In 2018, the control of the hydropower plant was improved so that the amount of water flowing through the turbine could be better regulated. In 2019, the catchment area of the plant's reservoir was expanded. Overall, this has made it easier to control the passage of water through the turbines, while at the same time providing more accessible water to the hydropower plant. These measures have also enabled the installation of interruptible electric heating at the school and at the Nukissiorfiit power plant.

In some years, however, it has been necessary for the power plant to be supplemented with diesel electricity generation in order to meet the town's needs. Nukissiorfiit has studied the possibility of expanding hydropower production in Tasiilaq, and has concluded that it would be possible to increase capacity by approximately 60 percent by establishing a new hydropower plant between the two reservoir lakes. In this way, the water already used by the existing hydropower plant could be reused. This would allow Tasiilaq to be supplied with renewable energy throughout the year, and at the same time enable the roll-out of more interruptible electrical heating in the town.

Paakitsoq hydropower plant has been supplying Ilulissat since 2012, and is the only hydropower plant in the country whose capacity is not yet fully utilised. The potential exists to extend this and connect public and private buildings to interruptible electric heating, as well as electrify the transport sector. Nukissiorfiit has therefore set up a task force that is working to market this capacity as interruptible electrical heating in Ilulissat, to the benefit of both customers and the climate.









#### Installations in business properties 7 completed, 26 ongoing

Overall output in 2020
480kWh

Figure 9
Number of installations in 2020

#### INTERRUPTIBLE ELECTRICAL HEATING IN ILULISSAT

Since 2018, Nukissiorfiit has focused on converting Ilulissat customers with private oil-based heating to interruptible electric heating. Nukissiorfiit is carrying out these efforts in order to utilise the excess capacity available at Paakitsoq hydropower plant. In this connection, Nukissiorfiit has expanded and upgraded the supply network in Ilulissat to enable more customers to be connected to interruptible electric heating. This applies to both private and business customers.

When a building with an oil-based heating supply has interruptible electric heating installed, it is supplied with electrical heating from the hydroelectric power plant instead, sparing the climate unnecessary  $\mathrm{CO}_2$  emissions. Interruptible electric heating works by incorporating an electric boiler into the existing heating system, and then heating the system with electricity from the hydropower plant, thus replacing the consumption of oil.

If there is an outage at the hydropower plant, or if not enough hydropower is available, the boiler switches off and the customer is supplied with heat from the oil burner. The oil burner thus acts as a back-up for the electrical heating, and is used only when it is not possible to supply energy from the hydropower plant.

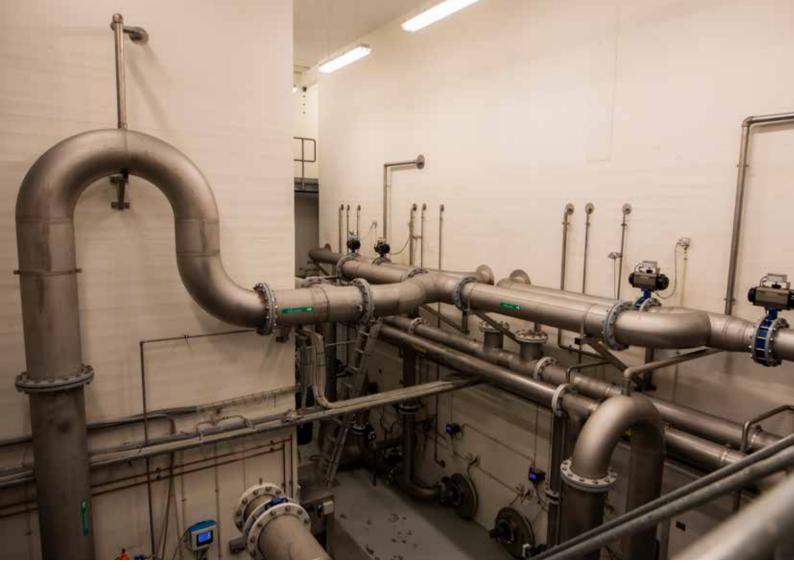
Nukissiorfiit has installed a total of 98 electric boilers since 2018, and has carried out evaluations of the technical installations in 2020.

#### Heat from refuse

Nukissiorfiit has signed a co-operation agreement with the joint municipal refuse company ESANI A/S to turn refuse into district heating, for the benefit of citizens and businesses. This will happen when Nukissiorfiit begins taking energy from the future refuse incineration plants in Sisimiut and Nuuk for use in district heating.

The first central refuse incineration plant is expected to be completed in Sisimiut in 2022. In Nuuk, the plant is expected to be completed in 2023. The heat from the incineration plants will be used as district heating for citizens and businesses in Sisimiut and Nuuk. Consequently, the district heating networks in both towns will need to be expanded so that the refuse can be converted and exploited as a useful resource. The incinerators will each be able to treat 20,000 tons of refuse per year, with an annual energy production of up to 57.6 GWh.

The co-operation agreement with ESANI A/S meets two of the objectives of the Government of Greenland's Sector Plan for Energy and Water Supply: that the collective heat supply should be expanded with a view to reducing fossil fuels, and that refuse should be regarded as a resource, and residual heat from refuse incineration plants should be used efficiently for district heating, amongst other things.



# The country's first micro-hydropower plant – and more on the way

Modernisation and optimisation of the electricity supply will not only provide a quality boost, but also reduce the long-term unit costs of providing energy to citizens and businesses. Producing energy through hydropower involves reduced production costs compared to continuing the conventional diesel supply. This applies not only to the energy production of large hydropower plants, which can supply entire towns, but also to micro-hydropower plants, which can supply smaller towns and villages with hydroelectric energy.

Nukissiorfiit has therefore been particularly focused on expanding its repertoire in renewable energy supply, and can soon include the establishment and operation of micro-hydropower plants as a supply method in the country, when Nukissiorfiit builds a micro-hydropower plant in Kulusuk to supply the village with renewable energy.

Over a number of years, Nukissiorfiit has screened all villages in Greenland for their potential to support the establishment of micro-hydropower plants. This has prompted further studies of micro-hydro potential in 15 villages and two towns. On the basis of these studies, it has been assessed that Kulusuk and Narsarmijit are the villages with the best potential for the establishment of and supply with micro-hydropower plants.

In Kulusuk, Nukissiorfiit and Mittarfeqarfiit both operate as utility companies. Nukissiorfiit supplies the village, while Mittarfeqarfiit

supplies the airport and hotel. To ensure the optimisation of the supply, it has been decided that the supply of Kulusuk airport and hotel will be transferred to Nukissiorfiit at the end of 2021, so that there will be only one actor in the energy supply area in the future. This will ensure better co-ordination and use of resources.

The transfer will enable the establishment of a micro-hydropower plant in Kulusuk, replacing the existing two power plants. The profitability of a new hydropower plant would be a significant improvement on the current supply. This also means that the existing power plant will not need to be fully renovated, as it can be downgraded to an emergency plant, which requires less renovation

The future micro-hydropower plant will be located near the airport and will cover 73% of Kulusuk's total energy supply, reducing the need for fossil fuel imports by about 229,000 litres per year. Nukissiorfiit expects the preparatory work for the project to start in the summer of 2021, and the tendering and start of construction to begin in 2022, so that the plant can be commissioned in 2023.

Nukissiorfiit has also been working on the possibility of establishing a micro-hydropower plant in Narsarmijit. Nukissiorfiit estimates that a micro-hydropower plant in Narsarmijit could cover 89% of the village's energy needs, thereby reducing the need



for diesel fuel by approximately 85,000 litres per year. It is not yet certain when this project will be realised, but Nukissiorfiit expects this to become clear during 2021.

Nukissiorfiit has also been working on the possibility of establishing a micro-hydropower plant in Narsarmijit. Nukissiorfiit estimates that a micro-hydropower plant in Narsarmijit could cover 89% of the village's energy needs, thereby reducing the need for diesel fuel by approximately 85,000 litres per year. It is not yet certain when this project will be realised, but Nukissiorfiit expects this to become clear during 2021.

#### Wind energy must be part of village energy supply

Wind turbines are an obvious renewable energy supply option in places where hydro resources are not available, or where it is too expensive to install hydropower. The use of wind turbines is still a new method of supply in Greenland, and wind turbines are not currently part of the supply of towns or villages in the country.

In the autumn of 2018, Nukissiorfiit installed two small wind turbines in its test centre near Sisimiut. These have since provided knowledge and experience in the operation and functionality of wind turbines in arctic regions. The two wind turbines are from two different manufacturers, and are so-called 'domestic' wind turbines of 25 metres, with a power output of 25 kW. Nukissiorfiit is still testing these, and sees potential for wind turbines to one day play an important role in supplying villages. However, the wind turbines are not yet ready to be connected to the grid, as Nukissiorfiit has experienced a few significant faults with them. One wind turbine has had two blade failures during the trial period, most recently in January 2020. The failures occurred when the blades became too brittle at very low temperatures and therefore intolerant to vibrations, which arise when the wind is strong. To avoid future breakdowns, a new set of blades has been installed in October 2020, with measuring equipment built into the blades. Nukissiorfiit expects to re-evaluate the project in the spring of 2021.

There have also been problems with the control of the other wind turbine. These arose in the first months of 2020, when damp and icing caused problems with the control of the turbine, resulting in temporary supply outages. Nukissiorfiit has rectified a number of these problems, which has meant the wind turbine could produce approximately 28,000 kWh in the second half of 2020. Nukissiorfiit is investigating the possibility of including this type of wind turbine in the supply of one of Sisimiut's villages. This will allow the installation of a third wind turbine, of a third make, in the test centre. However, more experience with the use of wind turbines needs to be gained before they can be included in the supply for villages.

Nukissiorfiit is carrying out wind measurements in various villages, as there is potential for wind turbines to become an active part of village supplies. Currently, a wind meter has been installed on the roof of Nukissiorfiit's Ammassivik power plant to investigate the potential for wind turbines in the village.

#### Solar energy in the villages

In 2020, in order to increase the share of renewable energy supply, Nukissiorfiit's board of directors has allocated DKK 10 million to renewable energy projects in the districts.

In 2020, Nukissiorfiit intended to install solar panels in one village or town in each district. However, due to the Covid pandemic, Nukissiorfiit has only been able to install solar panel plants in three of the six districts. Solar panels have been installed and commissioned on the roof of the Uummannaq sports hall, and in Ammassivik and Ikerasaarsuk solar panels have been installed and commissioned on racks, with associated battery systems. This secures the use of green energy over a longer period of time, and significantly reduces the running time of the power plants' engines. Nukissiorfiit has gained good experience from these sites over the autumn, which includes a 30-40% reduction in the operating time of the power plant's engines. However, it is still too early to assess how much of the villages' supply could be covered by solar panels in the future.

Nukissiorfiit will continue to install solar panels in Ittoqqortoormiit, Qeqertarsuatsiaat and Qeqertat in 2021. In addition, there are plans to install solar panels and battery systems in Eqalugaarsuit, which will take place in the context of a total renovation of the power plant in 2021.

The solar panel project will deliver a total of approximately 338 kWp of electricity production, with an expected annual output of 300,000 kWh. This is equivalent to the annual electricity consumption of around 40 households, while saving the climate up to 100,000 litres of diesel oil per year.

When the projects are complete, Nukissiorfiit will have collected data and experience for use in further work on sustainable supply to small residential areas. Nukissiorfiit can thus also pave the way for the development of renewable energy sources in Arctic conditions.

Nukissiorfiit's mapping of the renewable energy potentials in all villages forms the basis for a hybrid model that Nukissiorfiit will use in the future to roll out renewable energy in the villages. The hybrid model is a combination of a traditional diesel power plant, a battery system and renewable energy technology such as solar panels, wind turbines or micro-hydropower. By combining these technologies, it is possible to base the supply on renewable energy when the sun is shining, the wind is blowing or the water is flowing in the river, and save this energy in the battery system. This will optimise the operation of the diesel engine, which can then run at

AMMASSIVIK
Solar panels
102 panels/33 kWp
Battery system
167 kWh/100 kVA

UUMMANNAQ
Solar panels
110 panels/36 kWp

Solar panels 240 panels/78 kWp Battery system 167 kWh/100 kVA

optimum load. Excess energy is stored in the battery system and therefore saves engine hours, resulting in significant savings on diesel, and ensuring longer engine life.

# Charging networks for electric cars in the hydropower towns

With the useful experience gained from a pilot project, Nukissiorfiit is working to permanently install charging stations for electric cars in Nuuk and other hydropower towns.

In 2020, Nukissiorfiit focused on investigating what the owners of electric cars demand, and how best to meet this. Nukissiorfiit has therefore conducted a questionnaire survey among electric car owners to find out which solutions they prefer.

On the basis of this, a plan has been drawn up for the installation of charging stations, as well as an administration and payment solution that meets the wishes and needs of customers. As a result, by the end of 2020 Nukissiorfiit will have installed two additional public charging stations in Nuuk, and in early 2021 Nukissalik will be introduced as the management system for the charging stations. In addition, it will be possible from 2021 for private households and businesses to rent charging stations that Nukissiorfiit will install outside private homes and manage via Nukissalik.

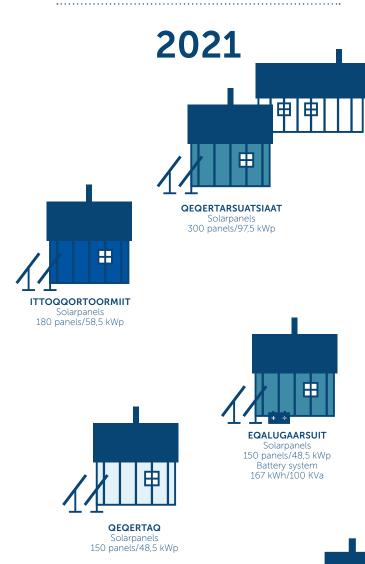
#### Nukissalik

Nukissalik gives all electric car owners the opportunity to use charging stations set up by Nukissiorfiit. Electric car owners can sign up for Nukissalik online or by downloading the Nukissalik app, through which they choose a subscription and then receive an RFID card (ID and activation card). The subscription allows the use of all public charging stations and the charging stations associated with individual subscribers, such as those installed outside private homes or apartment blocks.

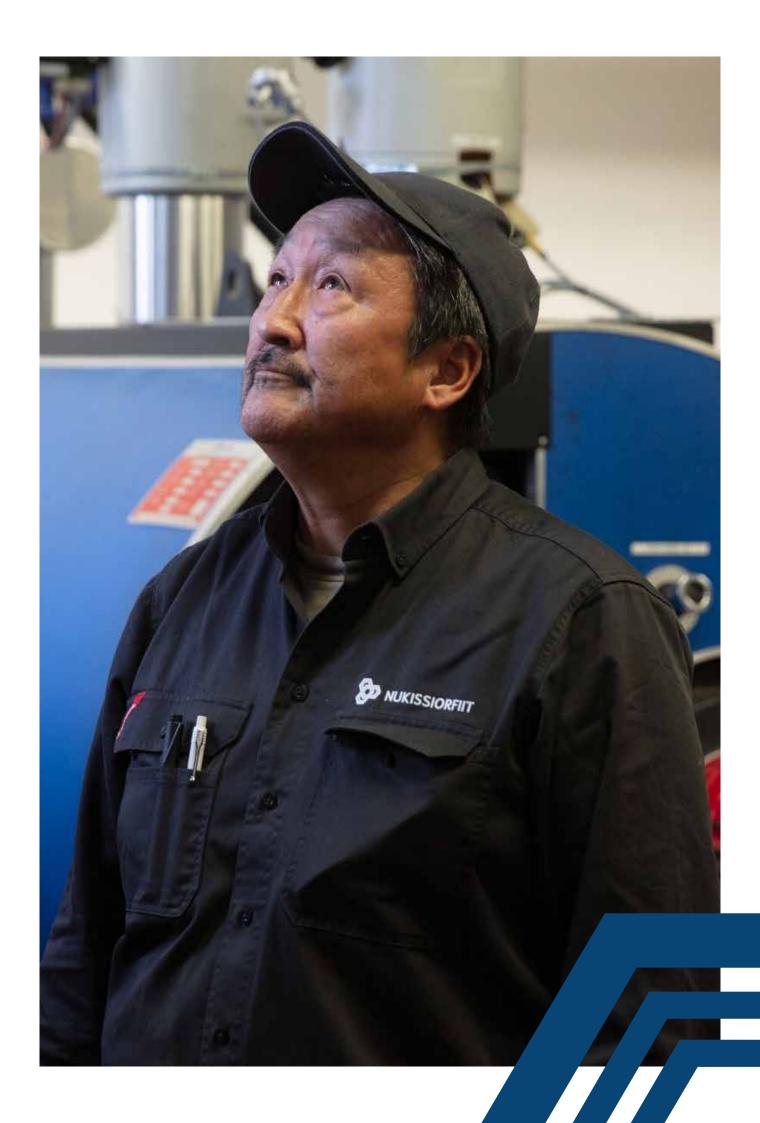
Via the website or the app, customers can see where in the town there are charging stations available, track their usage, top up their subscription and set a time for their car to be fully charged.

Some of the charging stations set up as part of the public charging network are fast chargers that can charge an electric car battery in about 30 minutes. The charging stations rented to private individuals, on the other hand, are ordinary charging stations that take 2-5 hours to charge an electric car battery.

These initiatives mark the start of permanent charging networks for electric cars in the hydropower towns. Nukissiorfiit is thereby supporting the transition to electrification of the transport sector.



**Figure 10**Solar panels in the villages



### Watersupply

Nukissiorfiit's main goal in the area of water supply is to ensure a good and stable supply of high-quality water to all citizens in the country.

Nukissiorfiit supplies drinking water to 17 towns and 49 villages. The water supply is based on surface water abstraction from lakes, rivers, seawater desalination and ice floe melting, and is delivered to customers through a network of pipes to central taprooms, or directly into buildings by means of piped connections.

Clean drinking water is essential for public health and the development of society. Nukissiorfiit has therefore focused for a number of years on improving water quality, and thereby reducing the number of boil water advisory days. In 2020, Nukissiorfiit had 250 days with boil water advisories – a drop of 93 per cent since 2014.

Ensuring high quality drinking water involves, amongst other things, continuous renovation, extension of the pipeline network and modernisation and optimisation of waterworks. In 2020, Nukissiorfiit focused on replacing cast iron pipes with PE (plastic) pipes in the towns of South Greenland.

Nukissiorfiit has also focused on the standardisation, modularisation and automation of waterworks, especially in the villages. To this end, a concept for standard village waterworks has been developed and is being implemented as the waterworks in the villages are renovated and replaced. Standard village waterworks have already been established and commissioned in Attu and Alluitsup Paa. In 2021, standard village waterworks are also expected to be established in Itilleq, Qeqertat and Ikerasak.

The standard village waterworks involves automation of the waterworks, resulting in better monitoring of water supply and quality. In addition, the standard village waterworks prevents the risks that can be associated with the manual treatment of drinking water. This helps to reduce the number of days with boil water advisories, to the benefit of Nukissiorfiit's customers.

# Documented Drinking Water Safety in towns and villages

In the summer of 2020, Qaanaaq became the final town in the country to receive Documented Drinking Water Safety (DDWS). Nukissiorfiit has thereby reached an important milestone in the goal of improving drinking water safety. DDWS maps the part of the water cycle that goes from the source to the consumer, in order to reduce and eliminate risks associated with water supply. This includes not only the layout of buildings and access conditions at the waterworks, but also hygiene requirements and the working practices of staff. Nukissiorfiit has held training courses for waterworks staff, arranged visits from water experts, and drawn up plans of action for each waterworks. DDWS has already improved water quality for citizens, and has provided the basis for a decrease in days of boil water advisories in the towns.

The process of implementing DDWS in the villages is now also underway. In 2020, all of the villages around Tasiilaq, Maniitsoq and Ilulissat have received new waterworks or renovations of their existing ones, and DDWS has been implemented in the process.

The roll-out of DDWS is ongoing through the renovation or replacement of old village waterworks, and is carried out as a separate process in which Nukissiorfiit's DDWS consultant travels to villages that have recent, non-renovated waterworks to implement the DDWS processes. Nukissiorfiit expects the implementation of DDWS in the villages to continue until 2025.

#### Contingency

Olieforureningen af drikkevandet i Uummannaq i efteråret 2019 The oil contamination of the drinking water in Uummannaq in autumn 2019 prompted Nukissiorfiit to launch a number of initiatives to prevent future pollution incidents and strengthen contingency plans.

In this connection, Nukissiorfiit has begun to use a digital water monitoring programme which provides a visual overview of the operations of waterworks and monitors the levels of critical parameters. Together with the implementation of DDWS, control over the waterworks has thus been increased and Nukissiorfiit is immediately notified of any situations that require special attention.

Following the drinking water contamination incident, a mobile laboratory flown to Uummannaq by Nukissiorfiit was crucial to normalising and restoring safe water supplies. The mobile laboratory analysed water samples within 3-6 hours, thereby reducing the waiting time for test results by several weeks. This played an important role in getting conditions back to normal quickly, and provided an overview of what interventions were needed, where and when.

For Nukissiorfiit, the collaboration with the mobile laboratory has underlined the need for the company to have its own mobile emergency response team to deal with similar situations. Work on the design of this emergency response is still ongoing and is expected to result in the acquisition of mobile contingency during 2021.

# Water supply in Kangaatsiaq secured with renewable energy

De seneste år har vandstanden i drikkevandssøen ved Kangaatsiaq været dalene, da byens forbrug overstiger den årlige mængde af nedbør. Denne udfordring betød, at vandforsyningen i marts 2020 måtte overgå til en nødtilstand.

Nukissiorfiit har arbejdet på en langsigtet og bæredygtig løsning, som kan forebygge denne tilbagevendende udfordring. Løsningen indebærer en overførsel af vand fra en fjernereliggende sø via en 5,5 km. lang råvandsledning til den eksisterende drikkevandssø. Vandet pumpes gennem et pumpehus, som forsynes med strøm fra et solcelle- og et batterianlæg, der står ved drikkevandssøen. Fremadrettet skal de to anlæg sørge for, at der i sommermånederne føres nok vand til drikkevandssøen, så Kangaatsiaq gennem hele vinteren og foråret har en tilstrækkelig vandforsyning.

#### Abnormal odour in the drinking water in Nuuk

From the end of August to the beginning of December 2020, the citizens of Nuuk experienced an abnormal odour in the drinking water. This was due to an unusually hot summer, which produced a series of reactions in the water that led to the abnormal odour. The condition was not harmful to health, but caused some inconvenience to water customers in Nuuk.

The problem was caused by strong solar radiation, high temperatures and activity in and around the lake, which increased the level of plant nutrients in the water, ultimately meaning that Nukissiorfiit's usual purification process was insufficient and customers therefore experienced an abnormal odour in the drinking water.

Nukissiorfiit immediately initiated a series of measures to address the issue, but the problem was not finally resolved until December 2020.

Nukissiorfiit is working on a solution to ensure that the problem does not recur in the future.

#### Minimisation of water transport by road

Around 1,000 of Nukissiorfiit's customers are currently supplied with water that is transported by road. This is the case in twelve towns and one village. In order to improve service and the quality of the water received by its customers, Nukissiorfiit is focusing on reducing the number of customers who receive water in this way. This is in line with Nukissiorfiit's strategy work and will be implemented by installing water mains near the households concerned, thereby enabling them to connect to the public water supply.

Supplying water by road is a costly method of supply for both customers and Nukissiorfiit, and is also subject to risks of contamination of the drinking water, both in the water truck and at the consumer. In addition to the water tariff, customers who have water delivered to them pay 50 per cent of Nukissiorfiit's costs for the deliveries, while Nukissiorfiit's other customers pay the remaining costs, including the purchase and maintenance of equipment.

However, the construction of water mains requires large investments over a number of years and is not covered by Nukissiorfiit's supply obligation. Nukissiorfiit has therefore in the first instance initiated a process to identify where it makes most sense to eliminate or minimise water transport by road. Nukissiorfiit is therefore working strategically on the issue, and investments in the construction of water mains are continuously being evaluated with the aim of providing high-quality water at the lowest possible cost for the customer as well as society.

In towns with a good and well-developed pipe network, the goal is to reduce water transport by road to those properties not currently connected to the piped network. By phasing out water transport, financial savings could be achieved which would contribute to the socio-economically sound and sustainable operation of the water supply.

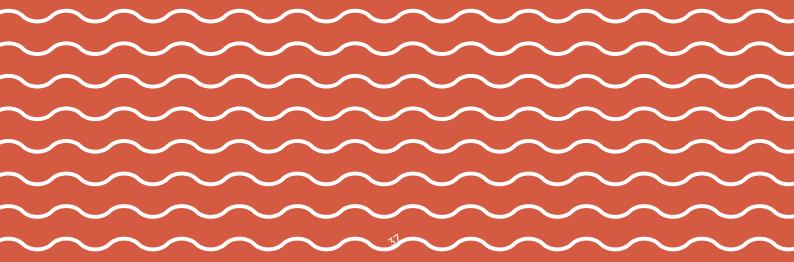
#### **Business promotion in Europe**

In January, Nukissiorfiit participated in the Government's business promotion in Europe, along with 22 other Greenlandic companies. The Ministry of Business, Energy, Research and Labour invited Nukissiorfiit to visit Denmark, Germany and France to promote Greenlandic products in ice, water and hydropower

The promotion began in Copenhagen, where Nukissiorfiit provided samples of water from Paamiut, Sisimiut and Qeqertarsuaq. Several water exporters showed great interest in Greenland's drinking water. The promotion then continued to Germany, with Berlin as the setting for a similar seminar, where participants also had the opportunity to taste water from Greenland.

Several companies have since approached Nukissiorfiit and expressed an interest in exporting water from Greenland. Nukissiorfiit has been in dialogue with those interested in buying water and continues to work on a model for exporting Greenlandic water to the outside world.

The next part of the business promotion took place in Frankfurt, where the delegation visited players from the data centre industry. Here discussions and debates were held on the framework conditions and potential for the location of data centres in Greenland. The enormous hydropower potential was of particular interest in this context.



### The districts in year 2020

In the summer of 2020, Nukissiorfiit underwent a change in customer service which allowed customers to use digital self-service solutions. From now on, it will be possible for customers to register for electricity, water and heating and receive invoices by SMS. This ensures more flexible solutions for Nukissiorfiit's customers and makes better use of the company's internal resources. The new digital solutions have reduced the need for personal customer service, for which reason 13 administrative members of Nukissiorfiit's staff in the districts were made redundant in the summer of 2020, as they could not be reassigned to other functions.





#### **District DISKO**

Important steps have been taken in 2020 towards optimising and modernising the water supply in Disko district. In Qasigiannguit, a water mains supply has been established at Affarlequtaa, to the benefit of the approximately 25 households there who are now connected to the public water supply. This means fewer customers in the town for water transport by road, as more people now have the option of having a service pipe installed with pressurised water.

In 2020, the citizens of Attu have received a new waterworks and thereby a new water supply. The waterworks was inaugurated last summer and is supplied with water from a new, remote lake. The new waterworks and drinking water lake will ensure cleaner water for the citizens of Attu, and is one of the first village waterworks in the country to have Documented Drinking Water Safety (DDWS). In Ikerasaarsuk, solar panels and battery systems have been installed, which now supplement the diesel supply of the village with renewable energy.

In addition, the district has focused in 2020 on residual heat recovery and the optimisation of heating supply in several towns and villages. In Qasigiannguit and Aasiaat, the district heating network has been optimised to make better use of the residual heat from the power plants' production. As a result, the diesel consumption in both towns has decreased.

#### **District AVANNAA**

In Qaanaaq, Nukissiorfiit produces drinking water during the winter by collecting and melting ice. Melting ice for drinking water is very energy-intensive, and is challenged by the reduction of the ice harvesting season due to shorter winters. Nukissiorfiit is constructing a new winter water tank in Qaanaaq, which will eliminate the need to collect and melt ice. Work on the winter water tank has been delayed by the pandemic, but is expected to be completed in 2022.

Nukissiorfiit's supply obligation was extended to Qeqertat in 2018. Nukissiorfiit has since established electricity supply in the village, and is working to establish a water supply. The waterworks was not completed in 2020 as expected, as the pandemic and the short construction season meant that the facility could not be completed before the ground froze. Nukissiorfiit will resume the work in 2021.

Nukissiorfiit has also installed solar panels on the roof of the Uummannaq sports hall. The solar panels are Nukissiorfiit's northernmost in the country, and can supplement the energy supply with renewable energy, especially during the summer months.

#### **District ILULISSAT**

In Ilulissat, good possibilities have been created for households and businesses to switch from private, oil-based heating to public heating based on renewable energy, thanks to the large excess capacity of the Paakitsoq hydropower plant. The transition involves the installation of interruptible electrical heating, on which Nukissiorfiit has a special focus. In 2020, a task force was set up to work on offering and installing interruptible electric heating for customers in Ilulissat. When customers switch from private to public heating supply in this way, it increases the amount of renewable energy used and reduces oil consumption.

In Qeqertaq, the village's solar panel system was expanded in 2020, and is providing an increasing share of the village's energy supply.



#### **District QEQQA**

At the end of 2020, the district's supply area was expanded, as Nukissiorfiit has reached an agreement with Mittar-feqarfiit to take over the supply of Kulusuk airport and hotel from 1 January 2021. As Nukissiorfiit now has full responsibility for the supply of Kulusuk, new possibilities have arisen. Nukissiorfiit has thus initiated the process of building a micro-hydropower plant in Kulusuk, which is expected to supply three-quarters of the village's power needs from 2023.

The wind turbine test centre located just outside Sisimiut continues to contribute to Nukissiorfiit's experience with small wind turbines. The two 25-metre tall wind turbines have now been in operation for two years, and the aim is to continue to investigate the extent to which small wind turbines can comprise a permanent addition to the supply of villages. However, the wind turbines have had several problems during the test period; most recently, a blade in one of the turbines cracked during severe cold and wind in January 2020. The blade was a particularly long test blade, which Nukissiorfiit and the manufacturers have now decided to abandon. Before wind turbines can be installed in villages, they must have demonstrated safe operation over a long period of time, so that they do not pose a safety risk to citizens or equipment.

#### **District NUUK**

Nuuk continues to experience rapid population growth and associated increased activity. This places great demands on Nukissiorfiit's energy supply and on the Buksefjorden hydropower plant. In order to meet this high energy demand, Nukissiorfiit has had to produce more energy at the plant than the sustainable level. This means that for a number of years now, more water has flowed through the turbines of the hydropower plant than accumulates in the reservoir lake each year. If this trend continues, the reservoir lake will reach a critically low water level in 2024, and Nukissiorfiit will have to supplement its supply to the citizens and businesses of Nuuk with diesel-based energy. Continued renewable energy production in Nuuk is therefore dependent on an early decision to expand the hydropower plant.

In the autumn, materials for the installation of solar panels arrived in Qeqertarsuatsiaat. Due to the pandemic Nukissiorfiit was unable to install these in 2020, but will instead install and commission the solar panels in the village during the early summer of 2021.



#### **District KUJALLEQ**

In recent years, Kujalleq district has focused on replacing old ductile iron piping with new and modern PE pipes, in order to optimise the quality of the water supply. This has been done in Qaqortoq, Narsaq and Paamiut in 2020, and will continue in 2021 in Nanortalik, Narsaq and Paamiut.

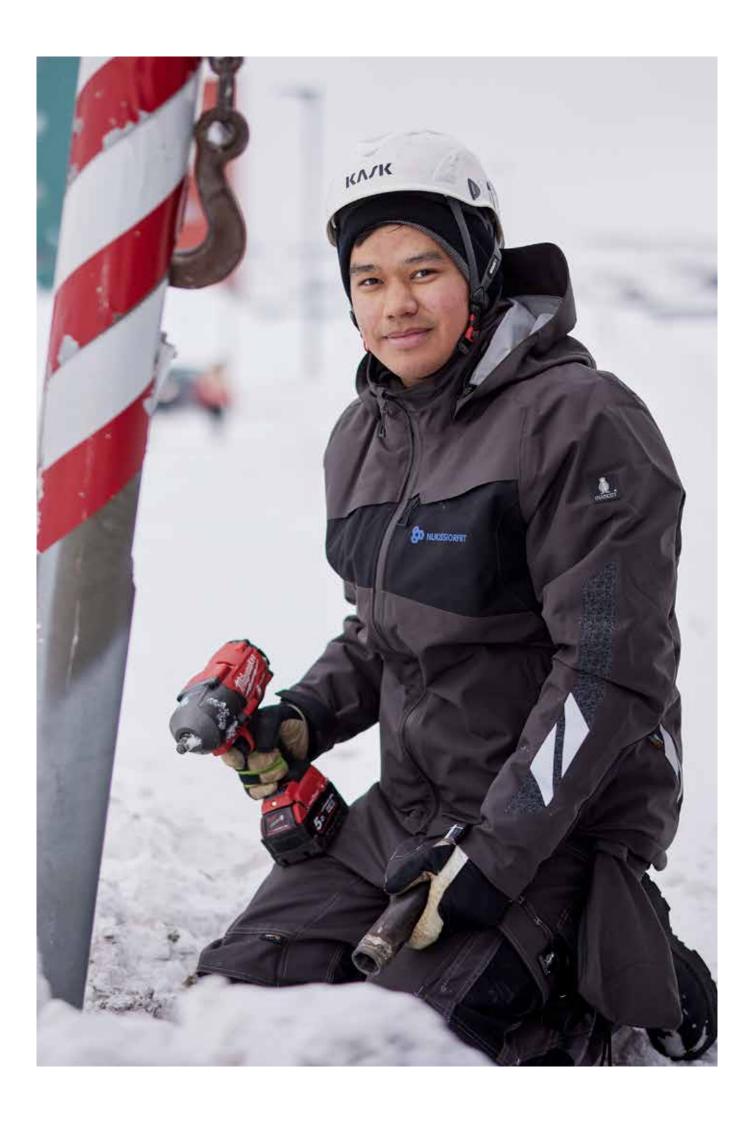
The water quality in Alluitsup Paa has also been improved in 2020. Nukissiorfiit has renovated and modernised the entire waterworks building, replaced all processing equipment and established a drainage line to a river. As part of this process, Nukissiorfiit has initiated the implementation of Documented Drinking Water Safety at the waterworks, as one of the first villages in the country to receive this.

In Ammassivik, solar panels have been installed outside Nukissiorfiit's power plant to supplement the village's renewable energy supply. A battery system has also been installed to supplement the supply when the solar panels are not producing energy themselves. Ammassivik's location and surroundings provide Nukissiorfiit with good opportunities for testing different renewable energy technologies. Nukissiorfiit has therefore also installed a wind meter in 2020 to investigate whether wind energy could be included in the village's energy supply in the future.









### **Expectations towards 2021**

In 2021, work will continue on modernising and optimising the supply. We look forward to meeting more goals in the electricity, water and heating supply in the country. This will inter alia be done by establishing more renewable energy plants, implementing DDWS in more villages, and optimising the heating supply in towns and villages.

#### Water quality as a special focus area

Nukissiorfiit is proud of the fact that 90% of the population of Greenland now receives water from a DDWS waterworks. The work to roll out DDWS will continue in 2021, and is expected to run until 2025. In addition, Nukissiorfiit's new water supply contingency measures are expected to be ready in 2021 in the form of back-up supply in towns and villages in the event of pollution incidents or the like, as occurred in Uummannag in 2019.

#### Continued business development

The work of optimising Nukissiorfiit as a business will continue in 2021. The aim is to secure a financial basis to realise the Government of Greenland's Sector Plan for Energy and Water Supply, with the main objectives of securing low prices, renewable energy and modernisation of the supply.

The optimisation of operations and streamlining of internal work-flows remains a focus, and it is expected that Nukissiorfiit's software robot will be able to carry out more and more processes. In addition, Nukissiorfiit continues to work on minimising water transport by road and increasing the possibility for customers to obtain a pressurised water supply.

#### Renewable energy projects across the country

In 2021, the Qasigiannguit and Aasiaat hydropower projects and the Buksefjorden hydropower plant extension are expected to receive political approval, so that the projects can be launched. In addition, more solar panels and batteries will be installed in the villages, and work will continue to bring renewable energy to more towns and villages, including Kulusuk, where the country's first public micro-hydropower plant will be established in the coming years.

#### Development of the organisation

In 2020, we will continue to focus on training and skills enhancement among our employees. Digitalisation and the phasing-out of diesel-based production places new demands on the skills of our employees, and the further development of these competencies will continue in 2021. In addition, Nukissiorfiit will carry out a major recruitment campaign during 2021 to strengthen the Nukissiorfiit brand. Finally, our co-operation with students and educational institutions will be reinforced. All of these initiatives are expected to have a positive impact on Nukissiorfiit's ability to recruit the right, future-proof workforce.

#### **Finances**

## Management's assessment of the company's finances

The pandemic has, by its nature, impacted Nukissiorfiit's finances. Turnover has not generally been affected, but there have been a number of positive and negative impacts on costs. These include, in particular, increased maintenance costs due to quarantine rules, prolonged downtime and logistical difficulties in obtaining spare parts. On the other hand, the training and travel budget has been lower than expected. All in all, the pandemic is estimated to have negatively impacted the accounts by DKK 10 million.

In terms of capital investments, however, there has been a significantly larger impact. In 2020, the pandemic contributed to the postponement of construction work worth around DKK 50-55 million. As a result, Nukissiorfiit's liquidity is perceived to be artificially high at the turn of the year, due to the deferral of payments that extend into 2021. These projects are expected to be completed in 2021, which will reduce liquidity.

#### Liquidity management and financing

Due to the financial consequences of the pandemic, the parliament of Greenland decided in June 2020 to withdraw the funds it had in the Construction and Renovation Fund. The fund contained DKK 331 million that Nukissiorfiit had previously been allocated for property development, reinvestment and the expansion of the Qorlortorsuaq hydropower plant. Of the DKK 331 million. DKK 311 million was withdrawn while the remaining DKK 20 million was disbursed to Nukissiorfiit's 2020 construction programme.

This limits Nukissiorfiit's funding options. In 2018, Nukissiorfiit's ordinary funding possibilities through the Government of Greenland were reduced from DKK 140 million annually to DKK 60 million annually going forward. Nukissiorfiit has thus gone from being able to decide independently how to achieve the goals and ambitions of the Government of Greenland to a situation in which major projects cannot be implemented without separate appropriations from the Finance Act.

Nukissiorfiit is thus in a position in which the need for both reinvestment and new investment far exceeds the available funds. As a result, the most important parameter in the financial management of Nukissiorfiit is to ensure that the company does not run out of liquidity, while at the same time ensuring that the available funds are used in the most efficient way. Planning for at least two years into the future is undertaken on an ongoing

basis to secure funding for business-critical projects. In 2020, a loan of DKK 20 million was taken out in the Construction and Renovation Fund, in addition to the annual DKK 60 million set in the Finance Act, to secure financing for the year's construction programme. By the end of the autumn, however, it became clear that many projects were delayed, so some of the liquidity will not be used until 2021. In addition, the Government of Greenland decided at the end of 2020 to grant funding for a micro-hydropower plant in Kulusuk, so Nukissiorfiit acquired separate loan funding of DKK 18.1 million to initiate the project, which will be used in 2021-2023.

Liquidity and financing is one of Nukissiorfiit's biggest challenges, as the company's ordinary operations cannot provide sufficient finance to fund the company's reinvestments. Liquidity is therefore maintained only by annual loan financing in excess of the company's loan repayments. The net result is an accumulation of debt, while the need for reinvestment and maintenance is not being carried out at a sufficient level, due to a lack of liquidity. Nukissiorfiit considers this to be a very serious issue that needs to be addressed.

#### Write-downs and revaluations

Nukissiorfiit transitioned to the Annual Accounts Act in 2018, and in this connection the company carried out an impairment test of its fixed assets in accordance with the Act. As a result DKK 1.6 billion was written down from Nukissiorfiit's assets, as these assets failed to deliver a profit in isolation for the product group and settlement area in question.

In the vast majority of places in Greenland, the cost of producing energy and water is higher than Nukissiorfiit's prices. This is only economically possible because in a few places a significant surplus is generated to cover the loss-making activities. It was decided that, in future, impairment tests will be carried out whenever the company's result is  $\pm 2.5\%$  of the company's turnover. The reason for this is that the impairment test is an extensive assessment which may be expected to trigger major movements in Nukissiorfiit's finances. By the end of 2020, it was clear that the company's result would not fall within the limit of  $\pm 2.5\%$  of company turnover.

It was therefore decided to carry out a new impairment test. The results of this have subsequently been reviewed by audit, and have had the consequence that the final result for the year is

largely overshadowed by the movements resulting from the revaluation of the company's assets. For some depreciated assets, the finances have improved and the previous depreciation can be reversed. Similarly, there have been situations in which assets have seen deteriorating finances, leading to new writedowns. Finally, there are the investments that have been made since 2018, when the previous impairment test took place. These have been entered at cost price, and are now being subjected to an impairment test. Among the latter, a large proportion of the recent investments made in towns and villages are loss-making and are therefore now being written down.

In the light of this, it has been decided to carry out impairment tests on all new installations in the year of construction, as the major impact this has on the year-end statement tends to distort the picture of the company's finances. This is the case both in years where the impairment is not recognised, so that the result for the year looks better than it actually is, and in years where a series of impairments from previous years affects a single financial year, as is the case with these accounts. This makes the 2020 accounts look significantly worse than if impairment tests had been carried out every year.

The adjustments for the year due to the impairment test are as follows:

**Table 1**Adjustments for the year due to impairment test

	DKK mill.	Bookkeeping
<b>Revaluation</b> Improved finances	+384,2	Reversal of previous depreciation through equity and in assets
<b>Write-downs</b> Poorer finances	-0,0	Written down via the depreciation for the year
<b>Write-downs</b> New assets	-206,2	Written down via the depreciation for the year

#### Outlook

Nukissiorfiit's finances are under pressure, and the company has requested the responsible ministry to produce an assessment of its financial situation. As a result, a process is now underway in which Nukissiorfiit, the Ministry and the National Treasury's auditor, Deloitte, are attempting to clarify the extent of Nukissiorfiit's financial problems. Nukissiorfiit looks forward to an overall review of the serious situation in which the company finds itself. Nukissiorfiit itself is working to improve its finances through increased sales, with a particular focus on turnover from hydropower. Ilulissat, in particular, has been in the spotlight for several years, as there is an untapped energy potential in the water volumes available to the Paakitsoq hydropower plant.

Investing in hydropower generally improves Nukissiorfiit's finances. External consultants have calculated that if the Buksefjorden hydropower plant is expanded, this will strengthen Nukissiorfiit's finances by approximately DKK 40 million annually, increasing by DKK 5-10 million annually in line with Nuuk's population growth. The calculations show that Nukissiorfiit can thereby avoid an annual increase in the cost of diesel for supplying Nuuk of DKK 63-80 million by 2030. The annual difference in Nukissiorfiit's finances with and without the expansion of the hydropower plant would thus be on the order of DKK 123-141 million per year.

In addition to investments in the Buksefjorden hydropower plant, which is expected to contribute significantly to Nukissiorfiit's finances, there are possibilities to establish hydropower in Qasigiannguit-Aasiaat and Maniitsoq, both of which are expected to contribute positively to Nukissiorfiit's finances and to the national economy as a whole.

#### **REVIEW OF THE 2020 ACCOUNTS**

#### Turnover

Nukissiorfiit's primary turnover is determined by sales of electricity, water and heating, measured by volume and multiplied by product prices.

Nukissiorfiit's secondary turnover comprises the service contract payments established in connection with the single-price reform, as well as fees and other services, including installation and construction companies, etc. in Qaanaaq and Ittoqqortoormiit.

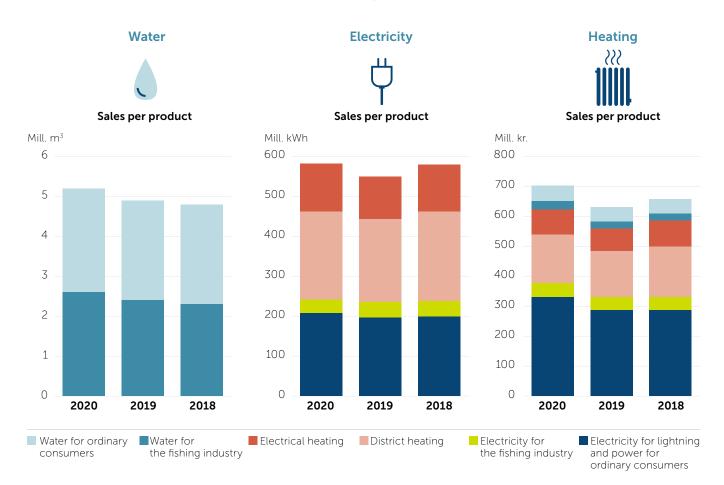
**Figure 11**Sales and turnover in 2020, 2019 and 2018, broken down by water and energy

#### Cost

Nukissiorfiit's costs may be divided into five main categories:

- Goods consumption, DKK 196.7 million (19.8%), mainly diesel fuel
- 2. Personnel costs, DKK 197.2 million (19.8%)
- 3. Other capacity costs, DKK 163.8 million (16.3%)
- 4. Depreciation, DKK 334.4 million (33.6%) of which DKK 128.2 million is ordinary depreciation and DKK 206.2 million comprises write-downs
- 5. Interest on loans to the National Treasury, DKK 78.4 million (7.9)%

Although hydropower is the primary energy source, Nukissiorfiit continues to use diesel fuel in many locations. Diesel costs thus continue to represent a significant proportion of Nukissiorfiit's overall costs. As Nukissiorfiit's production is increasingly based on renewable energy, the share of diesel oil in the overall costs is expected to fall.



wNukissiorfiit consistently hires new employees on the basis of the applicable collective bargaining agreement. The trends in personnel costs vary with the number of employees and the wage increases agreed in collective bargaining between the Government and the trade unions.

The depreciation reflects the capital investments made by Nukissiorfiit over the years. A significant part of the depreciation therefore relates to hydropower plants. On long-term loans taken out before 2016, 6% interest is paid to the National Treasury, while on more recent loans 3% interest is paid. However, the interest rate on loans

#### **Balance** sheet

The value of Nukissiorfiit's assets amounts to DKK 3.3 billion, and consists mainly of production and distribution facilities, followed by inventories, trade receivables and liquid funds. Nukissiorfiit's equity amounts to DKK 1.6 billion, and the company's long-term and short-term debt to the National Treasury amounts to DKK 1.6 billion. Other external financing consists of wages owed and debts to suppliers, totalling DKK 68.4 million.

#### Events after the balance sheet date

No events have occurred after the balance sheet date that would influence the evaluation of the result for the year.





#### **Investments**

Each year, Nukissiorfiit carries out a number of construction projects, which can be divided into four main categories:

- Reinvestments
- New installations/modernisation
- Sustainable energy
- · Water quality

In 2020, the total investment amounted to DKK 113 million. This is a fall of DKK 80 million compared to 2019. In 2020, around DKK 21 million was invested in villages, corresponding to almost 19 per cent of total investments.

DKK mill.

250

200

150

100

50

2018

2019

2020

Water quality

Sustainable energy plants

New plant/modernisation

Reinvestments

Figur 12 Investments in 2018-2020

It can be seen that the level of investment is generally lower for 2020 than in previous years. From the start of the year, a total investment level of DKK 160-180 million was planned, which would have been a decrease of DKK 12-32 million compared to 2019. The reason for the lower planned level is that Nukissiorfiit's liquidity cannot support a higher level of investment. However, the need for reinvestment, in particular, is high, as the postponement of necessary investments in the supply infrastructure increases the risk of outages.

In addition, the pandemic and tighter management of Nukissiorfiit's liquidity has also meant that the execution and completion of a number of projects has been postponed to 2021 or later.

Nukissiorfiit has however been able to implement a number of major projects in 2020. The projects that have received the most funding are:

- New transformer station in Qinngorput, Nuuk (DKK 11 million, new construction/modernisation)
- Nuukullak district heating network, Nuuk (DKK 10 million, new construction/modernisation)
- Property development Ungusivik, Maniitsoq (DKK 6.5 million, new construction/modernisation)
- Property development for new commercial area at the prison in Nuuk (DKK 5 million, new construction/ modernisation)
- New winter water tank in Qaanaaq (DKK 5 million, reinvestment)

Due to the fact that Nukissiorfiit has written down its fixed assets on the basis of whether or not the individual asset was profitable, particularly in 2018, it is not possible to regard write-downs in isolation as an expression of the ongoing impairment, and hence the ongoing need for reinvestment. Accordingly, part of the company's analysis is based on the unimpaired asset values.

#### Reinvestment in existing facilities

To ensure security of supply, it is necessary to reinvest in existing facilities. Without reinvestment, Nukissiorfiit's stock of facilities will deteriorate over time. Nukissiorfiit estimates that a minimum of DKK 200 million per year will need to be spent on reinvestment in existing facilities, in addition to necessary maintenance. This level is based on industry standards, with the assumption that reinvestments can be reduced as the lifetime of the facilities can be extended through necessary maintenance.

It is however doubtful whether lifetime extension of the facilities can be achieved, as the funds allocated for facility maintenance represents only about 50% of the requirement, as estimated by Nukissiorfiit's technical staff. As a result, the facilities will deteriorate faster than their expected technical lifetime.

In 2020, DKK 38 million has been spent on reinvestment, corresponding to 19 per cent of the estimated annual requirement. This is also due to delays caused by the pandemic. Nukissiorfiit has thus not been able to make the necessary reinvestments to maintain the existing level of security of supply. See also the section on *Reinvestment arrears*.

#### Investments in new facilities and modernisation

Nukissiorfiit carries out ongoing assessments of the need to replace equipment and modernise existing facilities. In addition, a high level of residential construction activity has had the knock-on effect of creating a strong need for property development. This requires new supply infrastructure and an upgrading of existing facilities in already developed areas. An example of the latter is the increasing supply to the Qinngorput district of Nuuk, where energy demands are currently so high that the supply infrastructure for the whole area needs to be upgraded.

In general, Nukissiorfiit finds that municipalities report far greater needs for property development than Nukissiorfiit's property development pool is able to meet. This has the consequence that Nukissiorfiit must reduce its other investments, which results in less funds being available for reinvestment in the company's own facilities and investments in renewable energy. Finally, this is a limiting factor for urban development. Property development funds are included under new facilities/modernisation in Figure 11.

In addition to property development, Nukissiorfiit is undertaking a number of modernisations to existing facilities. When there is a need to replace facilities, Nukissiorfiit assesses whether it is best to replace the facility with an equivalent one, or whether it is cost-effective to replace the facility with more modern equipment that offers more functions, or is of higher quality. Modern-

isation thus often contributes to reducing part of the reinvestment needs.

In addition, investments in new facilities may be needed to improve daily work routines. However, due to Nukissiorfiit's financial situation, it can be difficult to find funding for the construction of new buildings and facilities, even though there is a great need for this in many places.

#### Investments in renewable energy

Many investment possibilities benefit both the economy and the climate, and Nukissiorfiit undertakes investments with both perspectives in mind. Investments in renewable energy help to strengthen Nukissiorfiit's finances and thereby ensure stable prices for customers. Investments in hydropower, for example, have ensured that Nukissiorfiit's prices are now considerably lower than they would have been if the supply was solely based on diesel power plants. In 2020, Nukissiorfiit has made special investments in solar panels and battery systems to increase the conversion to renewable energy in the villages. Nukissiorfiit has limited funds for self-investment in renewable energy, which means that many economically viable projects are postponed due to a lack of funding.

#### Investments in water quality

Investments in water are based on the Government of Greenland's Sector Plan for Energy and Water Supply. The investments help to ensure high water quality and are allocated for new waterworks and the replacement of old cast iron piping, amongst other things.

However, the investments rarely lead to additional sales. As the price of water is the same throughout the country, it is not affected by local investments and improvements. Given Nukissiorfiit's financial challenges, investing in water quality is difficult as it does not yield financial returns.

In addition, the uniform pricing also means that water sales are a loss-making business. A significant price increase is estimated to be required if the supply of water is to cease to be loss-making. Alternatively, the special discount for the fishing industry could be adjusted.

#### Reinvestment arrears

Depreciation is an expression of the ongoing impairment of an asset based on its technical lifespan. For a number of years, Nukissiorfiit has reinvested less than its depreciation before

write-downs. Nukissiorfiit has also reinvested less in its existing facilities than the company considers necessary.

In 2017, Nukissiorfiit estimated the reinvestment need to be at least DKK 150 million annually, which is reflected in the Energy and Water Supply Sector Plan of the Government of Greenland from November 2017. In 2020, Nukissiorfiit has recalculated the reinvestment need on the basis of price trends, the situation in the construction industry and the condition of the current asset base. Nukissiorfiit now estimates that a minimum of DKK 200 million per year will be required if the asset base is not to deteriorate in 2021 and beyond.

Nukissiorfiit's finances, especially since 2018, have not been sufficient to sustain an adequate level of reinvestment. The situation was reviewed in early 2019, with Nukissiorfiit's technical staff reporting reinvestment needs of approximately DKK 370 million. Such a level is far beyond what Nukissiorfiit's finances can bear, and therefore only the most critical projects were prioritised.

Nukissiorfiit has initiated the preparation of a condition assessment to clarify the full extent of this reinvestment backlog. The

assessment shows that a disturbingly large maintenance backlog has built up over a number of years. The condition assessment covers all of Nukissiorfiit's facilities and shows that 746 facilities are in need of reinvestment. In this context, a facility can be a power plant, a water supply network, an anti-freezing plant or the like. The condition assessment shows the following examples:

- Production facilities that should have been replaced up to 25 years ago
- Plants that are in operation but are assessed as being ready for reconstruction
- Missing and defective backup systems, which are critical in the event of outages
- Large parts of the urban water and district heating networks that should have been replaced.

The final condition assessment will be included in the ongoing audit study by Deloitte to provide an overview of Nukissiorfiit's financial situation.





#### **Stakeholders**

#### Customers

On a national basis, Nukissiorfiit has 20,000 customers, of whom 20,000 buy electricity, 8,700 buy water and 4,100 buy heating. Approximately 7,500 customers pay via the automatic payment service.

Nukissiorfiit's total customer receivables and losses at year-end have developed as follows in recent years:

**Tabel 2**Claims and losses, DKK mill.<sup>1</sup>

	2020	2019	2018
Customer receivables			
(debtors) <sup>1</sup>	140,5	130,1	129,6
Realised losses on debtors	3,0	0,5	2,1

Losses typically arise from the bankruptcies of business clients, as well as deceased or emigrated customers.

#### **Employees**

Nukissiorfiit has 437 full-time employees. Of these, 356 are employed on monthly salaries and 81 are hourly-waged. This is an increase compared to 2019, when the number of employees was 405, measured as full-time employees. All of the employees are resident in Greenland.

#### **Suppliers**

In 2020, Nukissiorfiit made total purchases of DKK 469 million, compared to DKK 533 million in 2019. Purchases from local suppliers accounted for 76% of all purchases (including the purchase of gas oil). The aim is to consolidate purchases into higher volumes from fewer suppliers in order to achieve better price conditions for Nukissiorfiit. In 2020, gas oil purchases accounted for 37% of total purchases, corresponding to DKK 174 million.

#### **Owners**

Nukissiorfiit is a net subsidy-controlled company under the Ministry of Foreign Affairs and Energy. The company is ultimately owned by Greenlandic society and by its customers.

The Parliamentary Regulations of 1997 on energy supply, and the corresponding Water Regulations of 2007 lay down the framework for Nukissiorfiit's operations as the primary supplier of electricity, water and heating in the country. Within the given framework, and taking into account the socio-economic conditions, Nukissiorfiit operates as an independent undertaking focusing on the increased use of renewable energy technology and on customer-efficient solutions. Nukissiorfiit's prices and its terms and conditions of sale and delivery are subject to approval by the Government of Greenland.

<sup>1</sup> These are predominantly invoices that were not due for payment at the balance sheet date (as of 31 December 2020) and do not reflect a specific or unusual risk.



### Riskmanagement

#### Security of supply

Nukissiorfiit works continuously to ensure a high level of security of supply and to improve the existing infrastructure. This is done through increased monitoring, improved management, modernisation, redundancy in the distribution network and stockpiling of critical components. Backup and reserve capacities at each location are tailored to the size of the population of the town or village and the possibility to rapidly provide emergency facilities by sea or air. Nukissiorfiit draws up and continuously updates contingency plans for the various emergencies that can arise. This was also the case when the pandemic hit and Greenland was locked down. Nukissiorfiit was one of the first to have a forward-looking and dynamic contingency plan for all scenarios that could ensure the continued supply of electricity, water and heating.

However, the security of supply is under increasing pressure as Nukissiorfiit's limited finances are severely constraining the necessary maintenance work as well as necessary reinvestment. Nukissiorfiit consequently experiences many breakdowns in which the cause can be traced back to a lack of maintenance and technically obsolete equipment. Old equipment further increases the risk of long breakdowns, as the necessary spare parts are in some cases no longer produced.

#### **Employees**

One challenge Nukissiorfiit faces is attracting and retaining well-educated employees at public sector salary levels. From 2020, Nukissiorfiit will have a special focus on securing locally-anchored staffing of all units in the organisation, and on ensuring good working conditions that will attract employees with the competencies that Nukissiorfiit requires. Nukissiorfiit's efforts to attract and retain talented employees are described in the section on *Corporate Social Responsibility*.

#### Oil prices and currency

Nukissiorfiit's purchases of diesel fuel are settled in DKK and fluctuations in the price of oil cause Nukissiorfiit's costs to vary with the price of oil. In addition, there is a natural correlation with Nukissiorfiit's pricing. However, the latter is politically determined, so there may be a time lag between them, as well as a few cases with deviations from the above principle.

#### Sales prices

Nukissiorfiit's prices and its terms and conditions of sale and delivery are subject to approval by the Government of Greenland on the basis of proposals from Nukissiorfiit. The prices thus reflect political choices to some extent, rather than directly reflecting the underlying production costs.

Since the single-price reform came into force in January 2018, all customers have been paying the same prices for electricity, water and heating. However, the land-based facilities of the fishing industry pay as little as 41.5% of the local unit costs, though up to a maximum of DKK 1.65/kWh of electricity and DKK 20.00/ m³ of water, which are the standard prices for these products, and at least 41.5% of the consumer prices. In practice this means that there may be lower prices in the large towns, whereas in the villages and smaller towns there is no difference in pricing between private individuals and the fishing industry.

#### Suppliers

Nukissiorfiit is a large company in a Greenlandic context, but a less significant customer in financial terms in relation to several of our necessary foreign suppliers. In practice, this means that Nukissiorfiit cannot always obtain the same favourable supply and price conditions as significantly larger customers of the suppliers. Moreover, Nukissiorfiit could potentially come to be dependent on partners with arctic experience. The range of suppliers is also limited in several settlement areas, which can, for example, delay Nukissiorfiit's construction works.



In general, Nukissiorfiit is working to use more of a few qualified suppliers and support the development of a locally competent and competitive supplier base. Long lead times for suppliers necessitates stockpiling critical components, and several locations in the country are only visited by ships during limited periods of the year. This places extra demands on planning, managing and monitoring the flow of products in both spare parts and construction projects.

Interest risks

Nukissiorfiit has all its loan agreements with the Government of Greenland. There is therefore currently no risk of market interest rate impact on Nukissiorfiit. On long-term loans taken out before 2016, 6% interest is paid to the National Treasury, while on more recent loans 3% interest is paid. However, the interest rate on loans initially set at 6% is gradually being reduced to 3% via an annual interest rate reduction of 0.22%. Interest expenditure is therefore expected to decline over time.

#### Climate change

Changes in precipitation patterns pose a real threat to Nukissiorfiit, as the hydropower plants and drinking water supply depend on precipitation. If Nukissiorfiit's hydropower plants must eventually be supplemented with additional diesel-based electricity and heating generation, the company's results will be negatively affected, and new drinking water reservoir lakes will have to be connected to the existing water supply network through new capital investments.

So far, climate change has impacted Nukissiorfiit's hydropower plants by increasing meltwater rates to some of the country's hydropower reservoir lakes. This has meant that more water can be tapped in Paakitsoq than was originally expected. Nukissiorfiit is collaborating with Asiaq and the Technical University of Denmark (DTU) on climate change projections to estimate melting and precipitation for the country's existing and future hydropower catchment areas.

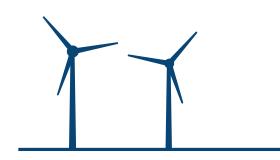
Rising temperatures in the Arctic have led to increased evaporation and, in some places, reduced precipitation. As a result, drinking water resources are under pressure at several locations in Greenland. Accordingly, Nukissiorfiit continuously assesses drinking water resources and expands existing supply catchment areas by including remote lakes. This naturally comprises a significant cost in Nukissiorfiit's construction programme. In additi-

on, Nukissiorfiit has in recent years experienced a reduced inflow of water to the reservoir lake for the hydropower plant in Nuuk. Consequently, energy in Nuuk may have to be partly supplied by diesel generation from as early as 2024.

#### IT security

Across the world, there is an increased awareness of the risk of hacking and similar attacks on utility companies and other critical infrastructure. There is a need for a sustained focus on enhancing IT security to avoid cyber-attacks that could affect energy or water supply.

In 2018, Nukissiorfiit had a security and vulnerability assessment carried out on the company. As a follow-up, work is underway to secure access to IT systems and utility control systems, as described in the section on *Digitalisation*.





## SOCIAL RESPONSIBILITY

Nukissiorfiit ensures that all towns and villages in the country have light and energy, and supplies water to the population. The supply obligation is crucial for the development of society and public health. Every year, Nukissiorfiit therefore reports on its corporate social responsibility (CSR) measures as part of its year-end statement, in accordance with Section 99a of the Financial Statements Act.

## Tumit - Nukissiorfiit's corporate social responsibility policy

Every day, Nukissiorfiit performs a vital social task that is central to the everyday lives and well-being of Greenlandic families, and to the ability of businesses to keep the other functions of society running. A great responsibility therefore rests on the shoulders of Nukissiorfiit – a responsibility that we are aware of, and a task that we are proud to undertake every day.

Nukissiorfiit's corporate social responsibility policy, Tumit, is essential in our daily work. The policy contains the following four focus areas:

- · Access to water and energy
- · Putting people first
- Business ethics
- Involvement in the local community

The focus areas include objectives and initiatives relating to employee relations, social relations, anti-corruption and climate matters. In addition, Nukissiorfiit is covered by the Government of Greenland's anti-corruption policy, the basic principle of which is that corruption is not tolerated, and which sets guidelines for employees.

As the country's utility company, Nukissiorfiit is responsible for many construction projects and makes major purchases. Tumit ensures that projects and procurements adhere to fair and ethical conditions, and that competition-distorting activities do not take place. In order to safeguard the integrity of its employees and avoid abuse and illegal or unethical influence, Nukissiorfiit also has a gift policy.

Nukissiorfiit's CSR policies are under continuous development, and in 2020 they will also include a stress policy and a senior citizen policy. In addition, Nukissiorfiit's language policy has also been updated. This states that Greenlandic is the company's primary language, and that staff and customers should always be served in the language they use. Nukissiorfiit's language policy ensures that language is used in an engaging and lively manner, and that all employees have the opportunity to attend language training.

In the light of the Killiliisa governmental strategy and the MeToo movement, Nukissiorfiit has updated its workplace bullying and harassment policy in 2020 to include sexual harassment. Nukissiorfiit has seen fit to make it clear that it will not tolerate bullying, sexual harassment or similar unacceptable behaviour under any circumstances. The policy stipulates that respect must be shown and a safe environment created for all. Nukissiorfiit has been a member of CSR Greenland since 2013 and is also represented on the organisation's board. The overall responsibility for the CSR work lies with Nukissiorfiit's management secretariat.

## The main areas of Nukissiorfiit's corporate social responsibility

Nukissiorfiit is a natural part of the everyday life of citizens in Greenland and employs people in every town and village across the country. The work with corporate social responsibility is based on the areas that are of most significance to the company itself, and where we have the greatest opportunity to make a significant and positive difference to society.

The UN Sustainable Development Goals have created a common vocabulary across countries, and define clear objectives for how the world can move in a more sustainable direction. The SDGs are therefore a natural point of departure for Nukissiorfiit's CSR work, and form the basis of the company's work with social responsibility.

## Nukissiorfiit and the UN Sustainable Development Goals

It is important for Nukissiorfiit to act in a sustainable manner, both internally and externally.

Renewable energy is a priority at Nukissiorfiit, and we strive to generate as much energy as possible from hydropower, solar panels and wind turbines. In this way, the amount of energy produced from diesel is reduced every year. It also means that we have a strong focus on energy efficiency, the optimisation of existing systems and processes, and measures to reduce diesel consumption, which can be achieved, for example, through battery systems alone.

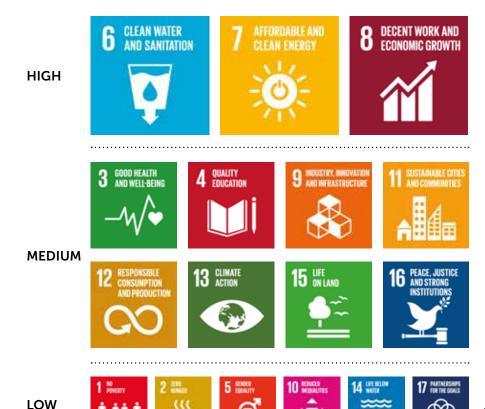
Everything relating to efficient and climate-responsible employment is a natural part of Nukissiorfiit's DNA. Consequently, some of the 17 SDGs have a natural link to the company's mission.

In 2020, Nukissiorfiit conducted a mapping exercise to identify the SDGs with which its operations and strategy currently overlap. The mapping shows that Nukissiorfiit is currently meeting subtargets across all 17 SDGs. Further analysis shows that there is a particularly high degree of overlap between three particular SDGs and Nukissiorfiit's business. These SDGs are as follows:

- SDG 6: Clean water and sanitation
- SDG 7: Sustainable energy
- SDG 8: Decent work and economic growth

In addition, Nukissiorfiit has a medium level of activities that overlap with sub-goals and indicators for SDGs 3, 4, 9, 11, 12, 13, 15 and 16. The mapping also shows that there are six SDGs, namely SDG 1, 2, 5, 10, 14, and 17, that are poorly represented in Nukissiorfiit's daily operations and strategy.

**Figure 13** SDGs



Nukissiorfiit works with the SDGs as a platform for development. This means that the goals with which we are mainly concerned must be monitored, so that we can hold ourselves accountable in relation to them. It also means that we identify the SDGs where we have an opportunity to make a significant difference by actively working towards their achievement.

For Nukissiorfiit, this means that we take responsibility for implementing the global guidelines in the country's supply wherever possible, in a manner which is economically, socially and climatically sound.

At the present time, Nukissiorfiit's main focus is on the following SDGs:

- SDG 6: Clean water and sanitation
- SDG 7: Sustainable energy
- SDG 4: Quality education
- SDG 8: Decent work and economic growth
- SDG 17: Partnerships for action

The following sections present Nukissiorfiit's efforts within each SDG in 2020, as well as the future efforts that will pave the way for further realisation of these goals

#### SDG 6 Clean water and sanitation

Nukissiorfiit supplies drinking water to 17 towns and 49 villages. The production and delivery methods vary according to local conditions and depend on the available water resources. The size of the individual water resources depends on precipitation, the location of lakes and rivers, and the distance to the water resource.

Nukissiorfiit produces drinking water in three different ways:

- Abstraction of water from lakes and rivers: The fresh water that Nukissiorfiit uses to supply drinking water is in most places surface water.
- 2. Desalination of seawater: In some villages where there are no other alternatives, seawater desalination is used to provide clean drinking water.
- 3. Melting of glacial ice: In Qaanaaq, Nukissiorfiit produces drinking water from melted glacial ice during the winter season..

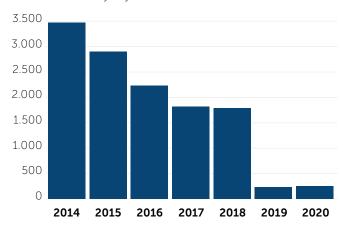
In 2020, Nukissiorfiit sold approximately  $5.2 \text{ million } m^3 \text{ of drinking water.}$ 

Nukissiorfiit's main objective in water supply is to ensure high-quality water and a high security of supply. Security of supply is crucial to the continued well-being of society and is therefore always in focus in Nukissiorfiit's work.

Since 2014, water quality has been a special focus area for Nukissiorfiit. These efforts have been stepped up since the Uummannaq oil contamination in 2019, particularly in terms of emergency response capability. Nukissiorfiit regards the fall in the number of boil water advisory days as an indicator of water quality improvement, and is proud of the fact that these have decreased by 93% since 2014.

**Figure 14**Number of days with boil water advisories in the period 2014-2020

Boil water advisory days



As the figure shows, there were 250 boil water advisory days in 2020. This is an increase compared to 2019, and is partly due to the fact that in 2020 there have been problems with sending samples for analysis in laboratories in Denmark, due to the pandemic. However, Nukissiorfiit expects this figure to decrease further in the coming years, especially due to the implementation of DDWS in the settlements.

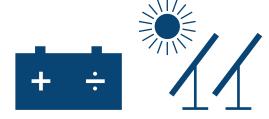
Nukissiorfiit's efforts in water supply are further described in the section on *Water supply*.



**Hydropower** Nuuk, Tasiilaq, Narsaq, Qaqortoq, Sisimiut og Ilulissat



**Solar panels** Nuuk, Uummannaq, Atammik, Kangerluk, Saqqaq og Qeqertaq



**Solar panels and battery plants** Igaliku, Ammassivik og Ikerasaarsuk

**Figure 15**Overview of Nukissiorfiit's sustainable energy plants

#### SDG 7 Sustainable energy

Nukissiorfiit has a goal to supply all towns and villages with renewable energy. Today, renewable energy accounts for 70% of the energy produced by Nukissiorfiit, while 44% of the country's total energy consumption for electricity and heating is based on renewable energy and residual heat from refuse incineration. This means that 56% of the country's total energy consumption in electricity and heating is based on fossil fuels. The share of fossil fuels consumed at national level is high due to the fact that private, oil-based heating still used in the vast majority of buildings across the country.

Although Nukissiorfiit is well on its way to achieving its renewable energy goal, there is still a long way to go when we look at the country's total energy consumption.

Nukissiorfiit is the key player in making the country independent of fossil fuels, and is working on the following initiatives:

- Replacement of diesel power plants with hydropower plants, so that hydropower comprises the primary supply
- Supplementing diesel power plants with solar panels, wind turbines and micro-hydropower plants in towns and villages where it is not possible to install hydropower plants
- Conversion of private oil-based heating in hydropower towns to electricity in the form of interruptible electrical heating

In addition, Nukissiorfiit is working to roll out infrastructure for charging electric cars in hydropower towns, which is an important step towards the green transformation of the transport sector.





## Nukissiorfiit's consumption of diesel oil in energy supply

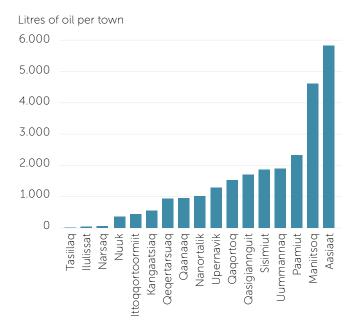
The graph shows that Aasiaat is the town where Nukissiorfiit uses most diesel oil to supply energy. After that come Maniitsoq, Uummannaq, Paamiut and Qasigiannguit.

In order to increase the share of renewable energy in the public energy supply, it is therefore clear that the aforementioned towns should be prioritised in the establishment of hydropower. Establishing hydropower plants in these cities will increase the share of renewable energy in the public energy supply from the current 70% to a significantly higher proportion. The country's need for imported oil will also decrease accordingly.

In addition, the establishment of hydropower plants in these towns will create an opportunity to convert customers from private oil-based heating to public heating supply based on renewable energy. This means that the share of renewable energy in the country's total energy accounts could be increased from the current 44%.

**Figure 16**Nukissiorfiit's oil consumption for electricity and heat

production in towns 2020



The main factors that Nukissiorfiit considers when investing in renewable energy are security of supply, finances and climate. Socio-economic impact assessments are thus carried out to assess the viability of potential new hydropower plants, to ensure that the investments do not comprise an economic burden for the country. These assessments provide the starting point for further work on the projects, as Nukissiorfiit has a responsibility to manage society's resources in a way that benefits society as much as possible. In some cases, therefore, the conclusion is that it is not appropriate to establish a hydropower plant. In these cases, the possibility is explored of installing other types of renewable energy installations to complement the existing diesel-based supply.

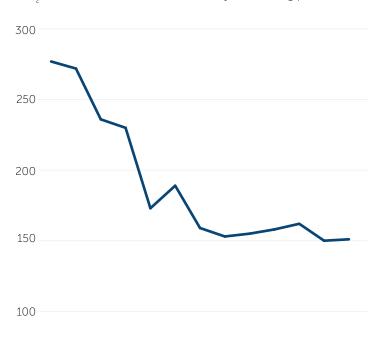
In towns with diesel-based energy supply, it is possible for private individuals to install solar panels as well as small wind turbines or micro-hydropower plants. In addition to providing for one's own consumption, it is also possible to sell surplus energy from these plants to Nukissiorfiit. In this way, private individuals also have an opportunity to play a role in the transition to renewable energy. Private investment in renewable energy installations in the hydropower towns of Nuuk, Sisimiut, Ilulissat, Qaqortoq, Narsaq and Tasiilaq does not generally contribute to the green transition, and instead risks creating an economic loss for society.

As described in the chapter on energy supply, Nukissiorfiit has identified potentials in all villages, which forms the basis for Nukissiorfiit's transition to renewable energy supply in the villages. The model for introducing renewable energy to the villages is based on hybrid plants, which involve the combination of a traditional diesel power plant, a battery plant and renewable energy technology, such as solar panels, wind turbines or microhydropower.

The combination of these technologies makes it possible to base the supply on renewable energy when the sun is shining or the wind is blowing. The battery system can store the energy from the productive hours and optimise the operation of the diesel engine by allowing it to run at the most optimal load. This extends the engine life and reduces diesel consumption.

You can also read about Nukissiorfiit's efforts in the field of energy supply in 2020 in the section *Energy supply*.

Figure 17
CO<sub>2</sub> emissions in Nukissiorfiit's electricity and heating production



0 2006 2008 2010 2012 2014 2016 2018 2020

#### SDG 4 Quality education

Nukissiorfiit is raising the level of education and skills in the country by offering staff development and further training to our employees on an ongoing basis, and by focusing on providing apprenticeships, internships and trainee positions.

In Nukissiorfiit, many employees have a high level of seniority, and every year employees who have been employed for 10, 25 or 40 years are celebrated. We are able to retain our employees, amongst other things because we give them the opportunity to develop and improve their skills throughout their working lives. Nukissiorfiit employees are known for being professional, solution-oriented and adaptable. By offering skills-enhancing courses and training, we are able to meet the challenges we face today and in the future.

Digitalisation and the phasing-out of diesel-based supply are playing an increasingly important role in Nukissiorfiit and are shaping the work tasks of the company's employees. New production types and workflows are being accommodated through upskilling courses, which from 2020 will also be offered via Nukissiorfiit's newly launched e-learning platform. In May 2020,

Nukissiorfiit introduced a new system for registering courses and training for employees, and will therefore be able to report on developments in this area in the future.

However, Nukissiorfiit cannot avoid the fact that we are facing a generational change in our workforce. Loyal employees over many years are facing retirement. This presents both challenges and opportunities for development. A mapping of skills needs is therefore being carried out now and in the future, together with a sharpened focus on targeted and strategic recruitment, in order to ensure a more precise recruitment of the right people.

#### Trainees, apprentices and interns

In 2020, Nukissiorfiit succeeded in achieving a long-term goal of having 10% of its employees in education and training. The share of employees in training has increased from 7.2 per cent in 2019 to 10.4 per cent in 2020. Nukissiorfiit is aware of its responsibility in the field of education, and takes responsibility not only for our own employees, but also for young people throughout the country, as this ultimately brings the greatest benefit to society.

Nukissiorfiit's employees in education and training include apprentices/trainees in, for example, electrician and ship fitter training, marine engineer and university interns, electricians training to become electrical fitters through distance learning, and employees taking an MBA or diploma course through Nukissiorfiit.

In order to retain trainees and apprentices and help them complete their training, HR holds monthly well-being talks with trainees, while local team leaders hold regular dialogues with apprentices on their well-being and future plans.

At the same time, however, we must acknowledge that we have difficulty attracting staff from certain professional groups. Nukissiorfiit has a high proportion of employees with technical, medium-cycle and higher education in its workforce, but is still experiencing difficulties in recruiting within these levels of education.

Nukissiorfiit thus sees it as its duty, as one of the country's largest companies, to make its mark on education by securing internships, building relationships with students and, at the same time, seeking to influence educational institutions. Nukissiorfiit believes that investing in young Greenlanders is an investment in the country's future. We therefore play an active role in shaping technical education in the country, and we wish to contribute to creating a talent pool that benefits society.

At Nukissiorfiit, it should be possible to start your career and, through a programme of skills enhancement, eventually become capable of holding positions at a higher and more complex level. We have good experiences with employees making a career in Nukissiorfiit and moving from a trainee to a managerial position over a long career in Nukissiorfiit.

Nukissiorfiit is represented on the training committees for the electrician and ship fitter apprentice programmes, and through this, we help to shape the technical content of the programmes. In addition, it is expected that from 2023 it will be possible to train as a marine engineer in Greenland. Nukissiorfiit is in dialogue with Tech College Greenland (KTI) about the programme, and expects to be represented on the education committee, provide guest lecturers in the programme, and take on interns. Nukissiorfiit, in co-operation with KTI and Skive College, has also helped to design an electrical supply technician training course for unskilled workers and electricians. It is expected that the course will be offered from 2021. In 2023, it is also expected to become possible to take a 'green' craftsman's training course in the country. The course is aimed at young people who are interested in, for example, running Nukissiorfiit's village facilities, and will comprise 16 modules of 1-2 weeks' duration each. The course is still in the pipeline and is awaiting feedback from other stakeholders.

Nukissiorfiit's other training and skills enhancement efforts are described in the section on *Strategy-driven organisational development*.

## SDG 8 Decent work and economic growth

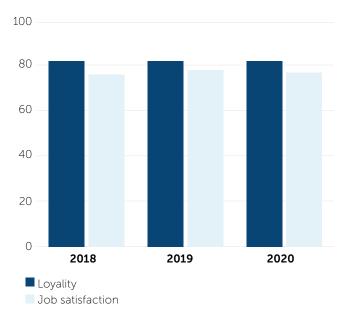
Nukissiorfiit is a workplace with high degree of employee satisfaction and a safe and developing work environment. The results of this year's employee satisfaction survey show that Nukissiorfiit ranks high in employee satisfaction, motivation and loyalty. Concrete examples of measures that increase job satisfaction among employees include exercise during working hours, good teamwork supported by staff associations, flexitime and a good work-life balance.

The high response rate of 84% shows that employees have an interest in the development of their workplaces, and wish to contribute to it. We are proud of our employees' commitment, as it creates a good foundation for creating the best framework together for the development and well-being of all Nukissiorfiit's employees.

There is of course still potential for development and areas that we need to work on improving in 2021. All of the districts and departments have now worked locally to promote well-being and a good working environment.

At an overall level, Nukissiorfiit also plans to work on the themes of "overall management" and "reputation", as there has been a decline in satisfaction ratings on these parameters. Awareness of, and work on, these themes is already underway. In the first months of 2021, new, comprehensive initiatives will be launched, focusing on management strategy and the Nukissiorfiit brand.

**Figure 18**Trend of job satisfaction and loyalty in Nukissiorfiit, 2018-2020



#### **Employee safety**

One of Nukissiorfiit's values is safety. We work actively to ensure that there are no accidents in the workplace, and that our employees do not become ill from being at work. Ongoing initiatives to improve employee safety are carried out, including on the basis of employees' responses to the workplace assessments, and training in the safe use of chemicals.

Unfortunately, some accidents are unavoidable. The table below provides an overview of the number of accident reports and improvement notices issued by the Working Environment Authority.

**Table 3**Accident reports and improvement notices issued by the Working Environment Authority

	2020	2019	2018
Reported workplace accidents	9	19	15
Reported work-related diseases	0	3	1
Immediate improvement notic-	0	0	0
es from the Working Environ-			
ment Authority			
Improvement notices from the	0	0	0
Working Environment Authority			

The table shows that the number of reported accidents has decreased dramatically from 2019 to 2020.

The Working Environment Authority did not issue any notices to Nukissiorfiit in 2020. The reason for the low number is probably closely related to the fact that the Authority's travel activities have been curtailed due to the pandemic.

#### Gender balance among employees

In the professions that employ the majority of Nukissiorfiit employees, such as marine engineers, electricians and ship fitters, there is still a predominance of men. In 2020, 18 per cent of the total staff were women, while there were two women in the management group, representing 11%.

For Nukissiorfiit, gender equality and equal access to positions at all levels of the company is an imperative. We aim to achieve a 60/40 gender balance in the management team, which we consider to be gender neutral.

Under the Financial Statements Act, companies must set a target for the under-represented gender in senior management, and have a policy on how to increase numbers of the under-represented gender in other layers of the company's management. In this context, the Executive Board is considered to be the senior management. The Board currently consists of three male directors. It is Nukissiorfiit's ambition that both genders should be represented on the Board.

Gender composition is taken into consideration when recruiting, as Nukissiorfiit believes that both genders bring valuable input to the company. However, gender as a criterion will never overshadow other relevant competencies to such an extent that the post cannot be properly filled.

#### SDG 17 Partnerships for action

At Nukissiorfiit, we believe that we achieve most when we work together. That is why SDG 17 on partnerships for action is also at the heart of our corporate social responsibility work. The goal, which is intended to support the achievement of other goals, provides the framework for the co-operation agreements that Nukissiorfiit enters into with other actors working in the fields of water, energy, education and occupational health and safety. In this way, we commit ourselves to working with others who focus on the same core areas, to the benefit of all parties.

In 2020, Nukissiorfiit's co-operation in the CSR reporting network has resulted in information on diesel consumption and  $CO_2$  emission figures being presented by us for the first time in relation to our electricity and heating production at all sites. In future, the figures will be presented annually and will be available to all citizens and businesses. Nukissiorfiit expects that this information can help to influence citizens and businesses towards more conscious consumption, and ultimately result in greater use of renewable energy in the country.

Nukissiorfiit looks forward to establishing more partnerships in our core areas in 2021.





## YEAR-END STATEMENT

The result for the year was a substantial deficit of - DKK 153 million, as against a deficit of - DKK 5 million in 2019. Turnover totalled DKK 818 million in 2020, compared to DKK 749 million in 2019. The net increase is thus DKK 68 million.

Tariffs have been maintained throughout 2020. The rise in turnover is thus solely driven by an increase in sales, with the increase in electricity sales being the main contributor, at DKK 36.1 million. Heating sales rose by DKK 16.8 million. and water turnover by DKK 8.4 million.

Other net turnover rose by DKK 7 million. This is mainly due to two additional allocations from the National Treasury, the largest of which is a payment for the takeover and refurbishment of the electricity supply to Kulusuk airport, while the other is business support for the establishment of a supply to the Kuummiut fish factory. Debtor fees are unchanged compared to 2019. Street lighting has not generated the same revenue as in 2019, which has fallen by DKK 4 million.

Consumption of goods, which mainly comprises diesel oil for electricity and heating production, has increased by DKK 17.9 million in 2020 compared to 2019, which mainly reflects the increased sales.

Salaries and personnel costs have increased by DKK 5.7 million in 2020. The rise is due to an increase in the number of staff, but also encompasses a drop of – DKK 2.6 million in expenditure on training activities due to the pandemic. The 13 employees who were made redundant in 2020 as a result of the digitalisation of customer services will continue to be included as employees throughout 2020 and will be included with salary costs. The effect of this reduction will not be felt until 2021.

Other capacity costs, which include maintenance, insurance operation of facilities and IT, were reduced by DKK 16 million This is mainly due to a reduction in expenditure on plant maintenance as a result of the fact that Nukissiorfiit's finances do not permit a higher level. Despite the low level compared to 2019 the cost level is still higher than planned in the 2020 budget with a number of overruns on maintenance tasks.

There have been fewer breakdowns in 2020 than in 2019. As 2019 was marked by the Uummannaq water contamination incident, 2020 may be considered a relatively normal year in terms of breakdown costs. On the other hand, costs consumption for external consultants is DKK 6.4 million lower than in 2019, which should be seen in relation to the increased number of staff, which has increased the company's ability to solve tasks in-

Depreciation and impairment totalled DKK 334 million in 2020, compared to DKK 123 million in 2019. The rise is due to this year's impairment test. Ordinary depreciation amounted to DKK 128 million, while write-downs of fixed assets amounted to DKK 206 million. DKK 204 million of the DKK 206 million should be seen over three years, as this item covers new loss-making facilities from 2018, 2019 and 2020. In future, Nukissiorfiit will subject new investments to an impairment test every year so that impairment does not build up, as has been the case in 2020. Interest expenses were DKK 78.6 million in 2020, which represents a fall of DKK 2.7 million compared to 2019. The decrease is due to the repayment of old loans at higher interest rates. New loans are being taken out at a lower interest rate, and interest is being reduced on old loans until the interest rate has been reduced by three percentage points.

The debit mass was DKK 140.6 million in 2020, which is an increase of DKK 10.4 million compared to 2019. The increase is due to higher sales and turnover, which naturally increase customer receivables. A thorough debtor clean-up has been carried out in 2020, with a focus on recovery from bad debtors. Nukissiorfiit therefore considers the ability to pay of the remaining debtor mass to be intact. In 2020, the observed bad debt losses are therefore slightly higher than in a normal year, and have amounted to DKK 3.0 million, as against DKK 1.4 million, seen in relation to the past three years. In 2019, losses on debtors amounted to just DKK 0.6 million, which should be seen in the light of the fact that there was no opportunity for a special focus on recovery from bad debtors. Part of the higher loss in 2020 can therefore be attributed to 2019.

Cash and cash equivalents at the end of 2020 were DKK 70.5 million, compared to DKK 13.5 million in 2019. The significant increase of DKK 57.0 million in liquidity is due to the impact of the pandemic on the non-implementation of construction projects, which has resulted in payments of DKK 50-55 million being deferred. Without this impact, Nukissiorfiit's level of cash and cash equivalents in 2020 would have been essentially unchanged compared to year-end 2019.

The total balance amounted to DKK 3.3 billion at the end of 2020, compared to DKK 3.1 billion in 2019. This is a change of DKK 232 million, and is mainly due to the impairment test, which has resulted in a reversal of the impairment from 2018 by DKK 384 million. Further factors are the increased liquidity and, finally, new write-downs on new facilities of DKK 206 million. The net debt to the National Treasury amounted to DKK 1.6 billion, compared to DKK 1.5 billion in 2019, while equity has increased, mainly as a result of the aforementioned revaluation to DKK 1.6 billion, compared to DKK 1.4 billion at the end of 2019.

# PROFIT AND LOSS ACCOUNT

Note		2020	2019
1	Net turnover	705.760	644.449
2	Other operating income	112.055	104.936
	Total revenue	817.815	749.385
	Costs of raw materials and consumables	(196.664)	(178.806)
	Other external costs	(163.774)	(179.814)
	GROSS PROFIT	457.377	390.765
3	Personnel costs	(197.205)	(191.497)
4	Write-downs and revaluations of assets	(334.401)	(122.959)
	OPERATING PROFIT	(74.229)	76.309
	Financial revenue	14	0
5	Financial costs	(78.660)	(81.331)
	RESULT FOR THE YEAR	(152.875)	(5.022)
	Retained earnings	(152.875)	(5.022)

## BALANCE SHEET

### **Assets**

Note		2020	2019
	Fixed assets		
	INTANGIBLE FIXED ASSETS		
6	Software	0	484
	Intangible fixed assets	0	484
	PROPERTY, PLANT AND EQUIPMENT		
7	Buildings and facilities	2.861.405	2.743.018
8	Facilities under construction	130.178	80.421
9	Transport means and equipment	15.426	17.965
	Tangible assets, total	3.007.009	2.841.404
	Fixed assets, total	3.007.009	2.841.888
	Current assets		
	Inventories		
10	Warehouses	81.907	82.792
	Inventories, total	81.907	82.792

## RECEIVABLES

### **Assets**

Note		2020	2019
	Receivables		
11	Receivables from sales and services	140.511	130.111
	Receivables in the National Treasury	57	0
12	Other receivables	61	63
	Receivables, total	140.629	130.174
	Cash holdings		
	Liquid funds	70.458	13.500
	Current assets, total	292.994	226.466
	Assets, total	3.300.003	3.068.354

## LIABILITIES

### **Passiver**

Note		2020	2019
	Equity		
	Fixed capital contribution	37.160	37.16
13	Adjustment of asset values	1.314.768	905.94
14	Retained earnings	250.560	428.06
	Equity, total	1.602.488	1.371.16
	Debt liabilities		
	Long-term debt liabilities		
15	Long-term debt	1.557.672	1.527.26
	Long-term debt liabilities, total	1.557.672	1.527.26
	Short-term debt liabilities		
15	Short-term part of long-term liabilities	70.200	72.38
	Other debts to the National Treasury	0	3.64
	Holiday allowance and salaries owed	22.428	22.930
	Suppliers of goods and services	34.108	39.114
	Other debt	13.107	31.85
	Short-term debt liabilities, total	139.843	169.93
	Liabilities, total	3.300.003	3.068.354
16	Contingent liabilities and contractual obligations		

<sup>16</sup> Contingent liabilities and contractual obligations

## CASH FLOW STATEMENT

Note		2020	2019
	5 4 4 4		
	Result for the year	(152.875)	(5.022)
	Depreciation and write-downs of fixed assets	334.401	122.959
	Changes in working capital	(33.773)	(6.162)
17	Net allocation for the year	0	0
	Cash flow from operations	147.753	111.775
	Purchase of fixed assets	(115.861)	(190.761)
	Sale of fixed assets	541	667
	Cash flow from investment	(115.320)	(190.094)
17	Long-term loans taken out	98.100	117.000
17	Instalments on long-term loans	(69.870)	(62.198)
17	Change in drawing rights	(3.705)	28.414
	Cash flow from financing	24.525	83.216
	Total cash flow for the year	56.958	4.897
	Cash and cash equivalents, 1 January	13.500	8.603
	Cash and cash equivalents, 31 December	70.458	13.500
	Cash and cash equivalents include:		
	Cash in hand	1	1
	Bank balance	70.457	13.499
	Liquid funds, total	70.458	13.500

## NOTES

#### (DKK 1,000)

Note 1 Net turnover	2020	2019
Sale of electricity	378.381	342.255
Sale of water	82.116	73.693
Sale of heating	244.948	228.185
Sale of residual heat	315	316
Net turnover, total	705.760	644.449
Note 2 Other operating income		
Sales and rental of goods	7.659	6.431
Meter rental	16.511	16.111
Charges and connection fees	10.875	11.041
Maintenance of street lighting, net	2.451	6.398
Service contract payments	74.559	64.955
Other operating income, total	112.055	104.936
Note 3 Personnel costs		
Nukissiorfiit has no obligations towards ongoing pension payments.		
Personnel costs may be specified as follows:		
Wages and salaries	186.355	179.070
Other personnel costs	15.779	19.283
In-house production of construction works	(4.929)	(6.856)
Personnel costs, total	197.205	191.497
Total remuneration of the Executive Board, including pension, etc.	1.104	1.500

In 2020, Nukissiorfiit employed 437 full-time salaried and hourly-waged employees, as against 405 in 2019.

## NOTER

Note 4 Write-downs and revaluations of assets	2020	2019
Depreciation of intangible fixed assets	483	967
Depreciation of tangible fixed assets	128.203	122.581
Write-downs of tangible fixed assets	206.225	0
Profit on disposals of fixed assets	(510)	(589)
Write-downs and revaluations of assets, total	334.401	122.959
Note 5 Financial costs		
Interest on facility debt	78.390	81.184
Interest expense, National Treasury	35	32
Interest expense, banks	222	72
Miscellaneous interest expenditure	13	43
Financial costs, total	78.660	81.331
Note 6 Intangible fixed assets		
Acquisition cost		
Initial	44.317	44.317
Start of year	0	0
Year-end	0	0
Acquisition cost, end of period	44.317	44.317
Depreciation and write-downs		
Depreciation, initial	(43.833)	(42.866)
Depreciation for the year	(484)	(967)
Depreciation and write-downs, end of period	(44.317)	(43.833)
Accounting value as of 31 December	0	484

#### (DKK 1,000)

Note 7 Buildings and facilities	2020	2019
Acquisition cost		
Initial	7.354.835	7.257.342
Start of year	61.420	176.806
Year-end	0	(79.313)
Acquisition cost, end of period	7.416.255	7.354.835
Depreciation and write-downs		
Depreciation and write-downs, initial	(4.611.817)	(4.575.800)
Write-downs for the year (impairment test)	(206.225)	0
Depreciation for the year	(121.009)	(115.330)
Reversed write-downs (impairment test)	384.201	0
Reversed depreciation and write-downs at year-end	0	79.313
Depreciation and write-downs, end of period	(4.554.850)	(4.611.817)
Accounting value as of 31 December	2.861.405	2.743.018
Note 8 Facilities under construction		
The year's influx of DKK 112.6 million includes in-house produte DKK 6.9 million of the total influx of DKK 191.6 million.	uction of DKK 4.9 million. In 2019, in-ho	ouse production amounted
Acquisition cost		
Initial	80.421	69.998
Start of year	112.628	191.576
Completed facilities	(61.420)	(176.806)
Completed facilities in operation	(1.451)	(4.347)
Accounting value as of 31 December	130.178	80.421

# NOTES

#### (DKK 1,000)

Note 9 Transport means and equipment	2020	2019
Acquisition cost		
Initial	82.259	82.695
Start of year	4.684	3.532
Year-end	(3.831)	(3.968)
Acquisition cost, end of period	83.112	82.259
Depreciation and write-downs		
Depreciation, initial	(64.294)	(60.934)
Depreciation for the year	(7.193)	(7.251)
Reversed depreciation at year-end	3.801	3.891
Depreciation and write-downs, end of period	(67.686)	(64.294)
Accounting value as of 31 December	15.426	17.965
Note 10 Inventories		
Fuel oil	27.775	28.371
Lubricating oil	4.159	3.546
Spare parts and consumables	49.973	50.875
Total	81.907	82.792

#### Note 11 Receivables from sales and services

2020

2019

The gross amount of DKK 147.3 million has been adjusted by DKK 6.8 million to cover losses on debtors likely to default. The corresponding adjustment amounted to DKK 6.7 million at the end of 2019. The adjustment is deducted from debtors with the oldest balances.

(Age distribution DKK 1,000)		
0-30 days	124.430	120.436
30 days - ½ year	11.774	7.546
½ - 1 year	4.307	1.879
Older than a year	0	250
Total	140.511	130.111

#### Note 12 Other receivables

The item "Other receivables" consists mainly of paid deposits.

Note 13 Adjustment of asset values		
1998	1.831.067	1.831.067
2004	742.294	742.294
2005	(36.438)	(36.438)
2006	7.851	7.851
2007	(14.594)	(14.594)
2008	4.682	4.682
2009	2.882	2.882
2011	(6.770)	(6.770)
2018	(1.216.206)	(1.625.034)
Total	1.314.768	905.940

Adjustments to the value of fixed assets represent the value adjustments made to the assets over time, and which are not allocated to net income.

## NOTES

#### (DKK 1,000)

Note 14 Retained earnings	2020	2019
Retained earnings from previous years	428.062	433.084
Write-down adjustments on disposed assets	(24.627)	0
Retained earnings for the year	(152.875)	(5.022)
I alt	250.560	428.062

#### Note 15 Long-term debt due after 5 years

The company is not allowed to take out external loans, but can only receive loans from the Government of Greenland, which in real terms is an expression of intra-organisational financing. The agreed rate of repayment implies that long-term debt maturing after 5 years amounts to DKK 1,305 million. In 2019, the amount was DKK 1,263 million.

#### Note 16 Contingent liabilities/claims and contractual obligations

Furniture transport obligations in the event of staff departures are not calculated. Significant contractual obligations: Significant contractual commitments are entered into on an ongoing basis for capital projects financed via the Finance Act, or where permission has been granted by the Government of Greenland to self-finance the capital projects.

Nukissiorfiit is regularly involved in joint property development projects in co-operation with municipalities, with agreements on the sharing of joint costs. In these cases, there may be delays or errors in execution, which may have a financial impact. Nukissiorfiit has one case of this type from 2018, which is classified as a contingent liability of DKK 5 million.

#### (DKK 1,000)

Note 17 Payments to and from the National Treasury	2020	2019
Payments to the National Treasury from Nukissiorfiit		
Instalments on long-term loans	69.870	62.198
Interest on loan capital	78.390	81.184
Interest on drawing rights	35	32
Positive impact on the state operating, capital and lending budget (DAU) in the National Treasury	148.295	143.414
Balance alteration on drawing right	3.705	0
Positive liquidity impact on the National Treasury	152.000	143.414
Payments from the National Treasury to Nukissiorfiit		
Net allocation for the year	(66.659)	(64.955)
Appropriations for capital projects	(7.900)	0
Long-term loans taken out	(98.100)	(117.000)
National Treasury's share of street lighting expenses	(4.506)	(7.142)
Negative impact on the state operating, capital and lending budget (DAU) in the National Treasury	(177.165)	(189.097)
Balance alteration on drawing right	0	(28.414)
Negative liquidity impact on the National Treasury	(177.165)	(217.511)
Nukissiorfiit's net impact on the state operating, capital and lending budget (DAU) in the National Treasury	(28.870)	(45.683)
Nukissiorfiit's net liquidity impact on the National Treasury	(25.165)	(74.097)
Operating profit calculated pursuant to National Treasury principles		
Result according to profit and loss account	(152.875)	(5.022)
Adjustment for self-financed acquisitions	(9.861)	(73.761)
Adjustment for difference between depreciation and instalments on loan capital	58.816	61.350
Adjustment for difference between depreciation and instalments on loan capital	(103.920)	(17.433)
Net allocation for the year	0	0
Under- or overspending for the year	(103.920)	(17.433)
Provisions, end of period	(98.632)	5.288

## ACCOUNTING POLICIES

This year-end statement is presented in accordance with Government of Greenland Executive Order no. 24 of 22 December 2017 on financial reporting for the net subsidy-controlled companies of the Government of Greenland. The Executive Order requires Nukissiorfiit to draw up its accounts in accordance with the Danish Financial Statements Act, including primarily the provisions for accounting class C companies. This is done taking into account the fact that Nukissiorfiit is a public utility company subject to political price regulation.

#### **Accounting class**

The year-end statement has been drawn up in accordance with the provisions of the Financial Statements Act for accounting class C (large), with adjustments resulting from the fact that the company is a net subsidy-controlled company operating in the public interest, regulated by Greenland Parliamentary Act no.12 of 3 November 1994 on electrical power installations and electrical equipment, and Greenland Parliamentary Act no. 14 of 6 November 1997 on energy supply.

Explanation of deviations from the provisions of the Financial Statements Act in accordance with section 5 of the Government of Greenland Executive Order no. 24 of 22 December 2017 on financial reporting for the net subsidy-controlled companies of the Government of Greenland.

The company is not a limited liability company. The company's equity cannot therefore be broken down into share capital and retained earnings, and an equity statement has not been drawn up. The company is not subject to tax, and therefore the information on this which would normally be included in the accounts is not included.

The write-down requirement has been calculated on a settlement by settlement and product by product basis as the difference between a weighted sales price and a calculated cost price. No actual discounting of future cash flows has been carried out with the inclusion of an internal interest rate. The company believes that the calculation method used gives the most accurate picture of the financial performance of each settlement, taking into account the nature and management requirements of the settlement.

#### General remarks on inclusion and valuation

Revenue is recognised in the profit and loss account as it is earned. External costs are recognised in the period to which they relate.

Assets have been included in the balance sheet when it is likely

that future financial advantages will accrue to the company, and when the value of the assets can be reliably measured.

Liabilities have been included in the balance sheet when it is likely that future financial advantages will be deducted from the company, and when the value of the liability can be reliably measured.

On initial recognition, assets and liabilities are valued at cost price. Subsequently, assets and liabilities are measured as described for each item of the accounts.

Recognition and measurement take into account predictable losses and risks that arise before the report and which confirm or deny conditions that exist at the balance sheet date.

The book value of intangible and tangible fixed assets is reviewed annually to determine whether there is any indication of significant impairment beyond that expressed by normal depreciation.

#### Net turnover

Net turnover primarily comprises turnover from the sale of electricity, water and heating invoiced to customers.

Nukissiorfiit's primary turnover, which consists of sales of electricity, water and heating, is mainly calculated on the basis of remote reading of consumption meters.

As the network connection to the meters can be unstable and readings from individual meters cannot always be obtained, consumption at these meters is estimated on the basis of past consumption. The correct reading is included in the turnover when the connection to the meters is re-established.

This uncertainty is not considered to have a material impact on the year-end statement.

#### Other operating income

Other operating income includes service contract payments, fees and other revenue.

#### Costs of raw materials and consumables

Costs of raw materials and consumables include the consumption of raw materials and consumables used to produce the net turnover for the year.

#### Other external costs

Other external costs include costs relating to the primary activities of the company, including direct costs relating to the operation of facilities, premises costs, office maintenance costs, promotional costs, etc. This item also includes write-downs of receivables, recognised under receivables from the sale of goods and services.

#### Personnel costs

Personnel costs include wages and salaries as well as the cost of social security, pensions, etc. for the company's employees.

#### Depreciation and write-downs

Depreciation and write-downs of tangible and intangible assets consist of the depreciation and write-downs for the period, together with gains and losses on the sale of tangible and intangible assets.

#### Tangible and intangible fixed assets

Buildings, production plant and machinery and other plant, equipment and inventories are measured at cost price less accumulated depreciation and impairment.

The cost price comprises the price of acquisition and expenses directly attributable to the acquisition, plus the preparation costs for the asset until such time as the asset is ready to be placed in service. The main principle for capitalising fixed assets is that they are capitalised in the month in which they are placed in service, after which time depreciation begins.

In-house production is measured at cost, including indirect production costs.

Facilities which possess the nature of an experimental project and which are not profitable at the time of entry into service are recognised as costs.

In the case of vehicles and fixtures, depreciation begins in the month after acquisition.

Buildings and machinery are depreciated over their estimated useful lives.

IT acquisitions are generally expensed unless they form part of a larger overall IT project with an expected useful life of several years, in which case they are recognised as intangible assets.

Linear depreciation is conducted, based on the following assessment of the estimated useful lives of the assets:

Buildings and facilities,

including distribution network 5-80 years
Vehicles and machinery 4-10 years
IT projects and ERP softwaree 3-5 years

Assets with an acquisition value of less than DKK 50,000 per unit are fully expensed in the year of acquisition.

Expected useful lives and residual values are reassessed annually.

Tangible fixed assets are written down to the recoverable amount, if this is lower than the book value.

#### Impairment test

Impairment tests are performed on all the company's buildings and facilities by location and product segment, to identify those facilities which may be subject to adjustment. The calculations take account of all the costs of the company and its entire turnover. Adjustments are made only for possible structural changes and exceptional events of a non-continuous nature.

The starting point for the calculation of adjustments is "Government of Greenland Executive Order no. 22 of 22 December 2017 on the determination of prices for electricity, water and collective heating, etc.", parts 3-7, on the calculation of Nukissiorfiit's unit costs and allocation accounts.

The unit costs per facility and product segment are compared with the capacity of the facility to generate revenue, based on the current weighted average tariffs. The weighted average tariffs are also corrected for any structural changes such as changes in service contract payments, which are recorded as a tariff increase.

This results in a financial statement that is site-specific and segmented, and shows where Nukissiorfiit has a surplus or deficit, on the basis of the current year-end statement. The distribution accounts are attached as an appendix.

This ensures a focus on the company's fixed assets, seen in relation to the company's structural profitability and structural level of costs.

Write-downs on facilities under construction are not recognised until the facility enters into service, at which time the actual cost of the facility is known.

#### Treatment of write-downs

Deficits judged to be of a lasting nature will lead to a new writedown of fixed assets on loss-making sites, and will thus affect the result.

#### Treatment of reversal of write-downs

Profits identified by a new impairment test will result in assets that have been adjusted in impairment tests in previous years, and which now indicate a higher value than the book value, being reversed until they reach the book value that the asset would have had if no impairment had been recognised.

Reversals of depreciated capital investments made at the beginning of 2018 will be entered as adjustments to the depreciations made, with no impact on the profit and loss account. Reversals of write-downs of facilities made after 2018 will impact the profit and loss account.

#### **Inventories**

Inventories are valued at average cost plus freight costs, with the exception of stocks of gas oil. The latter are valued at cost price. Write-downs are made to net realisable value where this is lower than the acquisition cost. Gas oil and spare parts are included in the stock value, see note on inventories.

#### Trade receivables

Trade receivables are valued at face value less provisions to cover losses. Provisions to cover losses are calculated on the basis of individual evaluations of the various amounts outstanding.

#### Cash holdings

Liquid holdings comprise cash and bank balances.

#### Fixed capital contribution

Fixed capital contribution is a historically calculated amount intended to signal a base capital.

#### Adjustment of asset values

Does not include realised revaluations of the company's fixed assets.

In 1998, the company transitioned from expense-based accounting to cost accounting principles. In this connection, the value of the company's fixed assets was calculated as the value

of the previous year's capital expenditure less the calculated accumulated depreciation.

Other value adjustments have subsequently been made to the company's fixed assets with a contra-entry on this equity item. In 2018, an impairment test was performed in connection with the company's transition to measurement principles that are broadly in line with those of the Financial Statements Act. As this was an adjustment due to a change of policy, the value adjustment was also posted to this equity item.

#### Other financial liabilities

Other financial liabilities are measured at amortised cost price, which usually corresponds to the nominal value.

#### Cash flow statement

The cash flow statement is presented on the basis of the indirect method, and indicates cash flows associated with operations, investments and financing, as well as liquid funds at the beginning and end of the year.

Cash flows from operations are calculated as operating profit for the year adjusted for non-cash operating items, changes in working capital and non-recognised operating appropriations from the Government of Greenland. Cash flows relating to investment activities encompass payments in connection with the purchase and sale of intangible and tangible assets. Cash flows from financing activities include borrowings, repayments of interest-bearing debt and changes in the drawing right at the Government of Greenland.

Cash and cash equivalents are comprised of the company's bank deposits and cash on hand.

#### **Key figures**

The key figures have been prepared in accordance with the guide 'Recommendation and Key Figures' published by the Danish Society of Financial Analysts. Please refer to the Key Figures table for the formula used to calculate each figure.

Formulas for key figures:

Return on assets: Operating profit in % of balance sheet total Equity ratio: Capital and reserves in % of balance sheet total

#### Fixed capital contribution

Fixed capital contribution is a historically calculated amount intended to signal a base capital.



Results per location and segment for electricity, water and heating, by town/village

	Ψ̈́		<b>≀</b> ≀≀	
	ı			
(DKK 1,000)	Electricity	Water	Heating	Total
Nanortalik	-5.621	-4.106	167	-9.560
Aappilattoq	-1.274	-695		-1.968
Narsarmijit	-1.048	-1.048		-2.096
Tasiusaq	-798	-929		-1.727
Ammassivik	-1.227	-447		-1.674
Alluitsup Paa	-1.891	-2.111		-4.002
Qaqortoq	1.145	-3.632	-7.843	-10.330
Saarloq	-609	-349		-958
Eqalugaarsuit	-804	-1.235		-2.039
Qassimiut	-588	-337		-925
Narsaq	5.799		-177	2.287
Igaliku	-752	-514		
Qassiarsuk	410	-1.720		
Paamiut	-7.019	-5.208	792	
Arsuk	-1.531	-994		
Nuuk	137.620	4.303	20.281	162.204
Qeqertarsuatsiaat	-1.059	-1.164	112	-2.111
Kapisillit	-1.027	-625	-4	-1.656
Maniitsoq	-11.388	-1.803	2.627	-10.564
Atammik	-1.343	-1.787	-4	-3.135
Napasoq	-1.511	-1.084	-8	-2.603
Kangaamiut	-1.484	-1.641	0	-3.124
Sisimiut	24.185	1.583	-11.600	14.168
Itilleq	-1.013	-276	0	-1.289
Sarfannguit	-1.224	-801	-295	-2.320
Kangaatsiaq	-3.671	-3.742		-7.413
Attu	-1.503	-1.839		-3.341
Iginniarfik	-751	-448		-1.199
Niaqornaarsuk	-1.293	-1.131		-2.424
Ikerasaarsuk	-1.223	-542		-1.765
Aasiaat	-19.789	-1.239	1.433	-19.595
Akunnaaq	-1.546	-279		-1.825
Kitsissuarsuit	-1.182	-603		-1.786
<b>Qasigiannguit</b>	-12.747	-2.049	1.476	-13.320
Ikamiut	-847	-725		-1.572













		Ϋ́	۵	??? <b>]     </b>	
Continued	(1.000 kr.)	l Electricity	Water	Heating	Total
	Ilulissat	23.964	3.933	-18.309	9.588
	Oqaatsut	-692	-480		-1.172
	Qeqertaq	-1.866	-495		-2.362
	Saqqaq	-2.184	-338		-2.522
	Ilimanaq	-1.267	-889		-2.156
	Qeqertarsuaq	-5.611	-2.908	-2	-8.522
	Kangerluk	-665	-219		-884
	Uummannaq	-13.544	-7.005	455	-20.095
	Niagornat	-895	-352		-1.248
	Qaarsut	-966	-177		-1.143
	Ikerasak	-866	-176		-1.042
	Saattut	-1.254	-465		-1.720
	Ukkusissat	-857	-356		-1.213
	Upernavik	-9.977	-3.373	133	-13.217
Upe	ernavik Kujalleq	-1.606	-204	-26	-1.836
ŀ	Kangersuatsiaq	-1.417	-285		-1.702
	Aappilattoq	-1.553	-593		-2.146
	Nutaarmiut	-874	0		-874
	Tasiusaq	-1.808	-885		-2.693
	Nwuussuaq	-2.210	-339	-1	-2.550
	Kullorsuaq	-1.872	-1.394		-3.266
	Naajaat	-885	-1		-886
	Innaarsuit	-1.314	-93		-1.407
	Qaanaaq	-6.587	-4.952	173	-11.365
	Savissivik	-963	-357		-1.320
	Siorapaluk	-674	-561		-1.235
	Tasiilaq	-1.770	-2.947	-388	-5.105
	Sermiligaaq	-916	-355		-1.271
	Isortoq	-859	-240		-1.099
	Kulusuk	-985	-390		-1.375
	Tiniteqilaaq	-948	-279		-1.227
	Kuummiut	-1.164	-932		-2.096
ltte	oqqortoormiit	-5.379	-1.758	0	-7.137
	TOTAL	30.930	-72.415	-11.007	-52.492









#### Distribution account

### THE DISTRIBUTION ACCOUNT IS NOT PART OF THE YEAR-END STATEMENT AND IS THEREFORE UNAUDITED

Nukissiorfiit's annual distribution account shows the costs incurred by Nukissiorfiit in the production and supply of electricity, water and heating at each site. The unit costs for electricity, water and heat indicate the total costs per unit, i.e. per m³ of water, per kWh of electricity, and per MWh of heat. Unit costs include the cost of goods consumed, personnel costs, capacity costs, depreciation and interest.

Costs vary greatly from location to location. This is partly because the form of production varies, and partly because there are very low sales in some places, resulting in high unit costs. There is a high cost sensitivity in the calculation of unit costs in places where relatively small amounts of energy and water are sold.

Nukissiorfiit dimensions its facilities according to the needs of its customers, as expressed through the anticipated local demand from households and businesses, including the fishing industry, which often determines the size of the facilities. In general, there is a positive correlation between unit costs and demand and economies of scale, which means that society usually benefits from the high demand of the fishing industry, even if it leads

to larger facilities than would be the case without the fishing industry.

The DKK 1.6 billion write-down in 2018 has, by its nature, significantly changed the distribution account. In order to maintain consistency with the capital investments incurred and thus provide a realistically costed view of the production costs for each site, the unit costs are calculated using the non-adjusted values, so that the full initial write-downs are included in the unit costs shown.

The map below shows the unit costs in the towns in 2020, while the table shows the unit costs in all locations supplied by Nukissiorfiit.

The distribution account is calculated on the basis of the principles laid down in Government of Greenland Executive Order no. 22 of 22 December 2017 on the determination of prices for electricity, water and collective heating, etc.

The distribution account is not part of Nukissiorfiit's year-end statement and is therefore unaudited.





### Production costs for each locality

	Ϋ́		??? <b>111111</b>
	Electricity	Water	Heating
	DKK /kWh	DKK /m³	DKK/MWh
Nanortalik	3,57	82,26 345,86	483,27
Aappilattoq	6,17		
Narsarmijit	6,84	1.396,28	
Tasiusaq	8,94	1.738,25	
Ammassivik	10,94	927,94	
Alluitsup Paa	5,41 1,56	606,57	1.170,58
<b>Qaqortoq</b> Saarlog	1,30	40,62 864,48	1.170,36
'	6,64	1.070,19	
Eqalugaarsuit Qassimiut	8,14	205,22	
Narsaq	0,91	63,27	69,98
Igaliku	10,87	468,02	09,90
Qassiarsuk	5,61	2.074,55	
Paamiut	3,13	63,59	667,40
Arsuk	5,61	361,79	007,10
Nuuk	0,61	16,31	268,64
Qeqertarsuatsiaat	2,79	235,64	57,87
Kapisillit	5,49	556,99	2.,2.
Maniitsog	2,75	28,01	633,30
Atammik	4,63	515,91	
Napasoq	10,04	979,43	
Kangaamiut	3,62	247,81	
Sisimiut	0,66	11,19	954,70
Itilleq	6,95	280,96	
Sarfannguit	3,29	409,85	
Kangaatsiaq	3,95	326,30	
Attu	5,57	529,55	
lginniarfik	7,47	922,20	
Niaqornaarsuk	4,85	408,57	
Ikerasaarsuk	8,38	441,96	
Aasiaat	3,19	20,84	633,47
Akunnaaq	7,89	242,43	
Kitsissuarsuit	8,66	1.614,84	
<b>Qasigiannguit</b>	4,55	40,98	516,14
lkamiut	4,82	613,38	
Ilulissat	1,20	8,21	694,92
Oqaatsut	8,40	910,04	
Qeqertaq	4,66	215,86	
Saqqaq	5,06	105,54	
Ilimanaq	4,85	354,16	
Qeqertarsuaq	3,54	106,81	
Kangerluk	14,71	2.743,72	

	Electricity	Water	??? <b>      </b> Heating
Continued	DKK /kWh	DKK /m³	DKK /MWh
Uummannaq	4,37	142,74	334,78
Niaqornat	7,96	329,75	
Qaarsut	4,50	96,71	
Ikerasak	2,86	48,71	
Saattut	3,20	121,02	
Ukkusissat	3,24	190,65	
Upernavik	4,00	224,92	171,41
Upernavik Kujalleq	5,19	77,43	
Kangersuatsiaq	6,88	437,24	
Aappilattoq	4,47	236,76	
Nutaarmiut	17,33		
Tasiusaq	3,77	137,39	
Nuussuaq	5,69	371,37	
Kullorsuaq	3,81	413,02	
Naajaat	15,62		
Innaarsuit	3,40	119,67	
Qaanaaq	5,00	653,18	799,92
Savissivik	8,69	1.358,72	
Siorapaluk	6,58	2.181,64	
Tasiilaq	2,05	56,34	1.011,87
Sermiligaaq	4,88	275,00	
Isortoq	7,92	356,29	
Kulusuk	4,52	83,50	
Tiniteqilaaq	6,46	386,26	
Kuummiut	3,10	167,37	
Ittoqqortoormiit	7,32	319,12	

Places without information are due to the fact that Nukissiorfiit does not sell the product in question at the site.



### Diesel and CO, accounts for electricity and heating production

Nukissiorfiit's diesel and  $CO_2$  accounts show how much diesel oil Nukissiorfiit uses in the supply of electricity and heating at each site, as well as how much  $CO_2$  is emitted from this supply. The amount of diesel used – and therefore also the amount of  $CO_2$  emitted – varies from site to site. The diesel and  $CO_2$  accounts show that Nukissiorfiit uses significantly less diesel in towns with hydropower and other renewable energy sources. The diesel and  $CO_2$  accounts are not part of Nukissiorfiit's year-end statement and are therefore unaudited.

		Ϋ		??? <b>!!!!!!</b>
	Electricity	Electricity	Heating	Heating
	Oli consumption L. per. kWh	Kg. CO <sub>2</sub> pr. emitted per. prod. kWh	Oli consumption L. per. kWh	Kg. CO <sub>2</sub> pr.emitted per. prod. kWh
Nanortalik	0,239	0,636		
Aappilattoq	0,361	0,961		
Narsarmijit	0,311	0,827		
Tasiusaq	0,368	0,978		
Ammassivik	0,343	0,912		
Alluitsup Paa	0,322	0,857		
Qaqortoq	0,010	0,027	0,082	0,218
Saarloq	0,420	1,118		
Eqalugaarsuit	0,317	0,843		
Qassimiut	0,316	0,840		
Narsaq	0,007	0,020		
Igaliku	0,089	0,237		
Qassiarsuk	0,060	0,159		
Paamiut	0,271	0,720	0,071	0,190
Arsuk	0,334	0,888		
Nuuk	0,000	0,001	0,003	0,009
Qeqertarsuatsiaat	0,137	0,365		
Kapisillit	0,266	0,707		
Maniitsoq	0,271	0,722	0,066	0,176
Atammik	0,272	0,724		
Napasoq	0,305	0,812		
Kangaamiut	0,244	0,648		
Sisimiut	0,001	0,002	0,060	0,161
Itilleq	0,275	0,731		
Sarfannguit	0,294	0,781		
Kangaatsiaq	0,274	0,728		
Attu	0,363	0,966		
lginniarfik	0,289	0,768		
Niaqornaarsuk	0,229	0,610		
Ikerasaarsuk	0,343	0,912		
Aasiaat	0,291	0,775	0,078	0,207
Akunnaaq	0,440	1,171		
Kitsissuarsuit	0,332	0,884		
<b>Qasigiannguit</b>	0,281	0,748	0,051	0,136
Ikamiut	0,273	0,726		
Ilulissat	0,001	0,002	-0,000	-0,001
Oqaatsut	0,332	0,883		
Qeqertaq	0,274	0,728		
Saqqaq	0,321	0,853		
Ilimanaq	0,282	0,750		



