COUNTRY PRACTICE
IN ENERGY STATISTICS

Topic/Statistics: Electricity and natural gas consumption of households

Institution/Organization: Statistics Austria

Country: Austria

Date: 29 March 2012

CONTENTS

Abstract

The voluntary sample survey "Electricity and natural gas consumption of households" is a comprehensive data collection on electricity and gas consumption in households broken down by consumption purpose. The main purpose of the survey was to gain a comprehensive overview concerning electricity consumption of private households, especially for electric appliances. On the one hand the information on households for energy statistics in general should be improved and on the other hand additional data for analysing electricity saving potentials in the private sector should be obtained. For natural gas the overall consumption was broken down to space heating, water heating and cooking. With four questionnaires the equipment of households with electric appliances as well as data on space heating, water heating and illumination were surveyed. In a further step the respondents had to record the use of their appliances for one week in winter and on week in summer. Additionally they had to read out their electricity and natural gas meters in 24h periods during these two weeks. Last but not least the specific electricity consumption of relevant appliances had to be metered with a portable electricity measurement system provided by Statistics Austria.

The presented project was a voluntary sample survey with a gross sample size of 500 households. The survey was conducted on behalf of the Austrian Federal Ministry of Agriculture, Forestry, Environment & Water Management. The main users apart from the customers are various institutes for scientific research, universities, media etc.

1. General information

1.1. Name of the statistics/topic

Energy consumption of households

1.2. History and purpose

State when the statistics were first published.

The statistics were first published in 2009.

Describe briefly the main purpose of producing the statistics and why it is relevant.

The survey offers a comprehensive data collection concerning electricity and natural gas consumption in households the first time. The main focus of the survey as well as of the report is electricity. Initials were the increasing electricity consumption on the one hand and the directive 2006/32 EC on energy efficiency and energy services on the other hand. Electricity consumption for water heating and space heating is well documented since 1977. Therefore core interest of this survey focused on the consumption of electric appliances and for illumination where no information was available. With this survey the database was significantly improved. Detailed information not only on the equipment of households with such appliances but also on the user behaviour was collected. Based on this information the consumption patterns for cooking, laundry washing or entertainment electronics could be calculated. For all households connected to the natural gas grid data on natural gas consumption for space and water heating as well as for cooking were surveyed additionally.

The data give an exact picture of electricity consumption in households by purpose. As a follow up, the database enables the recognition of electricity saving potentials regarding appliances used and changes in user behaviour.

1.3. Reference period

2008

1.4. Frequency

In 2008 the survey was conducted the first time and for 2011/12 a follow up survey is fixed. Further surveys depend on respective contracts.

1.5. Dissemination

The statistics are published as printed and online publications.
Web address:
http://www.statistik.at/web_en/statistics/energy_environment/energy/energy_consumption_of_households/index.html

1.6. Regional level

NUTS 1-regions

1.7. Main users

- Federal Ministry of Agriculture, Forestry, Environment and Water Management
- http://www.e-control.at/en/home_en
- http://www.umweltbundesamt.at/en/ (Austrian Environment Agency)
- Austrian Institute of Economic Research
- Eurostat
- Various institutes for scientific research, universities, media etc.

1.8. Responsible authority

Statistics Austria, Directorate of Spatial Statistics, Energy and Environment division

1.9. Legal basis and legally binding commitments

Bundesgesetz über die Bundesstatistik (Federal Statistics Act 2000) in the current version.

If the data collection is not based on a legal basis, give a short description of other agreements or volunteer arrangements.

Private contracts with the Federal Ministry of Agriculture, Forestry, Environment and Water Management and E-Control Ltd.

If applicable, give reference to national and international commitments that are legally binding (e.g. EU statistical legal acts).

None

1.10. Resource requirements

Specify how the production of the statistics is financed (e.g. over the ordinary budget, project based support, financial support from other institutions or organization). If applicable, state the contracting entity (e.g.: Ministry, EU Commission, OECD). A contracting entity is any entity which is ordering a survey or the compilation of a statistics, and paying for it

Project based support by the Federal Ministry of Agriculture, Forestry, Environment and Water Management and E-Control Ltd.

Specify the resource requirements for producing the statistics (e.g. man-labour days, number of workers involved in the statistical production process of the statistics/topic in question).

510 working hours; 4 workers involved

1.11. International reporting

None

2. Statistical concepts, methodology, variables and classifications

2.1. Scope

The statistics cover the consumption of electricity and natural gas in private households.

2.2. Definitions of main concepts and variables

Describe the main concepts (e.g.: territory principle, resident principle, net calorific value, gross calorific value).

Resident principle

Describe the main variables (e.g. how are the different energy products defined in the statistics? How are production, intermediate consumption, final consumption, transformation, feed stock, the energy sector, etc. defined?).

1. Electricity and if relevant natural gas consumption and the related expenditures based on the last annual statement (2007)
2. Number and type of appliances including data on age, power and power rating
3. Number and power of lamps broken down by type and rooms
4. Electricity and natural gas consumption by 24h periods within one week in summer and one week in winter
5. The use of relevant appliances by 24h periods (consumption behaviour) within one week in summer and one week in winter differentiated by type e.g. in minutes (taking a shower), hours (watching TV) or number of uses (dish washer)
6. Stand by consumption for relevant appliances
7. The use of illumination by 24h periods (consumption behaviour) within one week in summer and one week in winter
8. Device specific electricity consumption of relevant (big) appliances metered with a portable electricity measurement system provided by Statistics Austria

2.3. Measurement units

Physical and monetary units

2.4. Classification scheme

Not relevant

2.5. Data sources

Household survey

2.6. Population

Describe the entire group of units which is the focus of the statistics (the population).

Austrian households on their main residence

Specify the following statistical units:
- Reporting unit
- Observational unit
- Analytical unit

Examples of different kind of statistical units include: enterprise, enterprise group, kind-of-activity unit (KAU), local unit, establishment, homogeneous unit of production.

In most cases the reporting unit, observational unit and analytical unit are identical, but there are examples where this is not the case. In electricity statistics, you may find that energy companies (the reporting unit) provide data about different consumers like the individual household or manufacturing company (the observational unit). The analytical unit may be a group of energy consumers, defined by the ISIC.

The reporting unit, the observational unit and the analytical unit are Austrian households on their main residence.

2.7. Sampling frame and sample characteristics

Describe the type of *sampling frame* used in the collection and compilation of the statistics (e.g. list, area or multiple frames). A sampling frame is the source material or device from which a sample is drawn. Note that the sampling frame might differ from the population.

During the labour force survey in the fourth quarter 2007 the respondents were asked to volunteer the sample survey "Electricity and natural gas consumption of households 2008". The 1 494 volunteers were broken down to classes following the grossing up criteria which are size of the household, dwelling type (single/double family houses vs. apartments), regional distribution and highest degree of education. Out of these classes a representative gross sample of 500 households was drawn.

For each survey(s) used for the compilation of the statistics, specify the *sampling design* (e.g. random, stratified, etc.). Describe the routines employed for updating the sample. Include information about the sample size, and discuss to what extent the sample covers the population (e.g. energy consumption in the sample compared to total energy use by the population).

Note that chapter *2.7: Sample frame and sample characteristics* may overlap with chapter *3.4: Grossing up procedures.*

See above

2.8. Collection method

Paper and electronic questionnaires (One third with e-mail and two third with regular mail)

2.9. Survey participation/response rate

The respondent rate was 51 % or 254 households which returned all questionnaires filled in completely.

3. The statistical production process

3.1. Data capture and storage

Manual data capture via excel by IT division in case of paper questionnaires (two third). One third was submitted as excel workbooks.

3.2. Data editing

In a first step the questionnaires were checked concerning typing errors and implausible entries. These errors could be mostly avoided with internal checks in case of data submission as excel workbooks. Afterwards plausibility checks were operated partially in excel and partially in SPSS. Although the number of surveyed features is high (around 4000 characteristics) each of them was checked separately and the internal consistency of each questionnaire was verified. In opposition the consistency between the questionnaires was verified only partially because changes within the surveyed period are possible e.g. in case of equipment with electric devices.
By running the plausibility checks e.g. in case of consumption quantities household characteristics like household size or floor area were taken into account.

3.3. Imputation

Item-Non Response imputation only;
The questionnaire on electricity and natural gas devices included questions on quantities and expenditures from the most recent annual statement. Missing expenditures were calculated with average prices from reported quantities and missing quantities in the same way from reported expenditures.
In case of completely missing data the following procedure was applied to calculate the quantities:
The difference between the meter readings reported in the questionnaires on consumption behaviour in winter in summer was broken by the number of days between these two meter readings and multiplied with 365. The expenditures were calculated with average prices.
The imputation rates are 4.7% for the first and 6.9% for the second electricity meter and 4.9% for the natural gas meter. In case of missing meter readings the daily and annual quantities were added from the calculated quantities of appliance groups (derived from the average device specific consumption quantities). The imputation rate is 2.8%.
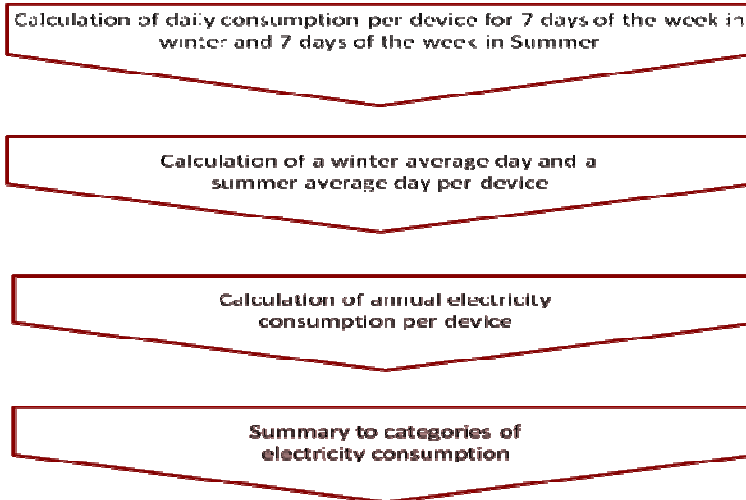
3.4. Grossing up procedures

The sample was grossed up to the overall population of main residences in Austria.
The grossing up criteria was:
    Size of households (number of household members)
    One and two family houses versus apartments
    Highest degree of education
The household size was limited to 4 characteristics (4+ = 4), the degree of education was condensed to 3 categories.

3.5. Analytical methods

By combining user behaviour with metered device-specific consumption, or in case non metered devices with default values, the average consumptions for all surveyed appliances were calculated. The quantities for space and water heating were estimated based on daily meter readings corrected by the daily appliance consumptions.

Overview of the procedure of data calculation

Calculation of daily consumption per device for 7 days of the week in winter and 7 days of the week in Summer

Calculation of a winter average day and a summer average day per device

Calculation of annual electricity consumption per device

Summary to categories of electricity consumption

With the questionnaires on consumption behaviour exact information on daily use of devices were surveyed for a week in summer and winter, respectively.

The questionnaire on specific consumption of relevant appliances provides device-specific consumption figures, which were metered in different manners depending on the device type e.g. 1h for constant consumers (TV, PC etc.), 24h for non constant consumers (freezer, cooler, aquarium) or for one use (washing machine, dish washer, tumble drier). For devices which are used shortly (e.g. micro wave, hair drier, vacuum cleaner), the power consumption in Watt had to be reported, which also was possible to meter with the portable electricity measurement system provided by Statistics Austria. A manual assisted the respondents to fill in the right values.

When metering was impossible (built-in appliances) or in case of problems using the measurement system, the median of the existing values was used. The median also was used for plausibility checks. All deviations from the median higher than 75% were replaced by it.

For all devices which were not asked to be metered default values were used.

By multiplying the daily usage (time or frequency) with its specific consumption, a characteristic consumption for each device and household can be calculated for every day.

Procedures for calculating daily electricity consumption on device level (3 varieties)

1. Measurement was asked and reported correctly:
   use * measured value = daily electricity consumption of the device
2. Measurement was asked but not reported at all or not reported correctly (deviation > 75% of the median):
   use * median = daily electricity consumption of the device
3. Measurement was not asked:
   use * default value = daily electricity consumption of the device

As far as it makes sense these consumption patterns were calculated for summer and winter season separately.

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The annual consumption by device or meter was derived from the daily seasonal consumptions as follows:
Average summer day * 175 + average winter day* 175

350 days for device use were chosen because the average holiday period is two weeks.

Additionally following assumptions were made:
Cooler: for calculating the overall consumption, the volumes of freezing and cooling compartments were taken into account separately. The consumption by 100l was calculated and used for plausibility checks. In cases of missing measurements, the median by 100l was used and converted to the reported size.
Freezer: for calculating the overall consumption, the volume was taken into account. The consumption by 100l was calculated and used for plausibility checks. In cases of missing measurements, the median by 100l was used and converted to the reported size.

Washing machine: the consumption reported for different washing temperatures were taken into account by calculating the average consumption.
Iron: after the sixth minute, only 50% of the operating period is classified as heating phase.
Food processor: operating period 10 minutes by use
Blender, mixing rod: operating period 1 minute by use
Handheld blender: operating period 5 minutes by use
TV: in case of missing measurements screen diagonals were used for calculating the specific consumption.

4. Dissemination

4.1. Publications and additional documentation

Describe the form of dissemination of the statistics/topics in question (e.g. printed publications, website, etc.). Please provide relevant website link(s) if available.

The report is published on the website of Statistics Austria:
http://www.statistik.at/web_en/statistics/energy_environment/energy/energy_consumption_of_households/index.html.
Tables and charts are also available on the website of Statistics Austria:
http://www.statistik.at/web_en/statistics/energy_environment/energy/energy_consumption_of_households/index.html and
http://www.statistik.at/web_en/statistics/energy_environment/energy/energy_consumption_of_households/index.html

Give a complete reference to publicly available statistics databases where data from the statistics can be extracted. Include web addresses if available online.

Not relevant

Indicate whether you charge users for access to the statistics at any level of aggregation.

Not relevant

4.2. Revisions

Describe the current revision policies. E.g.: Is historical data revised when new methodology, new definitions, new classifications etc. are taken into use? Is the data continuously revised, or is the data revised at certain points in times (e.g. every third year, annually, etc.)?

Not planned

If applicable, describe any major conceptual or methodological revisions that have been carried out for this statistic/topic in the past.

Not relevant

4.3. Microdata

Describe how microdata are stored.

Microdata are stored as SPSS and Excel files.

Specify if microdata are available for scientific and/or public use. If so, describe under what conditions these are made available.

Microdata are available for scientific and public use, but the data supply to third parties follow strictly the Federal Statistics Act 2000 (in the current version). That means data are only supplied in anonymized form, therefore no conclusions to single households are possible.

4.4. Confidentiality

Describe the legal authority that regulates confidentiality, and what restrictions are applied to the publication of the statistics.

The publication and data supply to third parties follow strictly the Federal Statistics Act 2000 in the current version. That means data are only supplied in anonymized form, therefore no conclusions to single households are possible.

Describe the criteria used to suppress sensitive data in statistical tables (cell suppression).

Not relevant

Describe how confidential data are handled.

Personal data (e.g. name, address, telephone number, etc.) were deleted before publishing or supplying the data to third parties.

Describe any confidentiality standards that go beyond what is legally required.

Not relevant

5. Quality

5.1. Relevance

The representational survey gives a comprehensive overview of the electricity and natural gas consumption by purposes and devices.

The main reasons for the survey were the increasing electricity consumption on the one hand and the directive 2006/32 EC on energy efficiency and energy services on the other hand. Electricity consumption for water heating and space heating is well documented since 1977, whereas no information about the consumption of electric appliances and for illumination was available. The present survey significantly improved the information not only on the equipment of households with such appliances but also on the user behaviour. Based on this information the consumption patterns for cooking, laundry washing or entertainment electronics could be calculated. All households connected to the natural gas grid data were additionally surveyed on their natural gas consumption for space and water heating as well as for cooking.

The data give an exact picture of the electricity consumption in households by purpose. Furthermore, the database enables the recognition of electricity saving potentials with regard to appliances used and changes in user behaviour.

5.2. Accuracy

Generally seen, a moderate underestimation of the overall electricity and natural gas consumption 2008 is likely due to the following reasons:

February 2008 was clearly and March 2008 moderately warmer than the long term average of these two months. The two months with the highest space heating shares, December and January, were out of the survey period. Therefore the heating shares tend to be underestimated.

The month with the shortest daylight periods, November till January, were out of the survey period too. Therefore the electricity consumption for illumination is underestimated for sure.

Measurement and processing errors

The measurement of power with the electricity cost meter worked from 7 Watt onwards exactly; figures lower 5 Watt were not displayed at all. E.g. cell phone chargers could not be measured although these chargers were part of the previous questionnaires.

Non-response errors

Unit non response: 49%
Item non response: only in single cases and then around 5%

Sampling errors

The following tables show the observed sampling errors. The higher values in single categories are caused by lower sample numbers.

Sampling errors for annual electricity and natural gas consumption 2007 (last annual statement)	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Total annual electricity consumption in kWh	254	4.518	9,1
Total annual electricity costs in €	254	611	8,1
Total electricity price in euro per kWh	254	0,14	2,8
Meter 1, annual electricity consumption in kWh	254	3.725	8,1
Meter 1, annual electricity costs in €	254	535	7,7
Meter 1, electricity price in euro per kWh	254	0,15	2,6
Meter 2, annual electricity consumption in kWh	72	2.621	26,4
Meter 2, annual electricity costs in €	72	258	25,6
Meter 2, electricity price in euro per kWh	72	0,10	7,0
Total annual natural gas consumption in kWh	82	13.696	17,1
Total annual natural gas costs in €	82	716	16,0
Total natural gas price in euro per kWh	82	0,06	18,6

Annual electricity consumption 2008 in kWh	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Total annual electricity consumption 2008 in kWh	254	4.518	9,1
Refrigerator	254	316	6,8
Freezer	155	398	10,4
Stove, oven	237	376	9,5
Washing machine	228	206	8,5
Laundry dryer	65	313	22,7
Dishwasher	185	259	9,4
Other kitchen and household appliances	254	163	8,3
Office equipment (PC, Laptop)	194	128	17,6
Entertainment electronics (TV etc.)	252	186	8,9
Communication electronics	143	52	9,4
Chargers	238	20	29,4
Other relevant domestic appliances	221	192	29,0
Stand by: Office appliances (PC, printer etc.)	123	27	24,3
Stand by: Entertainment electronics (TV etc.)	218	151	12,5
Stand by: Stove, oven	100	42	6,6
Stand by: Other household appliances	134	61	10,0
Illumination	254	387	9,6
Hot water generation	95	1.861	13,9
Circulation pump of the heating system	159	407	9,4
Space heating	150	1.181	39,7

Daily electricity consumption in kWh	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Total daily electricity consumption, Winter	254	14,9	11,7
Total daily electricity consumption, Summer	254	9,9	7,6
Refrigerator	254	0,9	6,8
Freezer	155	1,1	10,4
Stove, oven , Winter	235	1,2	9,5
Stove, oven , Summer	223	1,1	11,2
Washing machine, Winter	219	0,6	8,8
Washing machine, Summer	216	0,6	9,0
Laundry dryer, Winter	63	1,2	23,4
Laundry dryer, Summer	49	0,9	23,8
Dishwasher, Winter	176	0,8	9,1
Dishwasher, Summer	175	0,8	9,6
Other kitchen and household appliances, Winter	251	0,5	8,6
Other kitchen and household appliances, Summer	251	0,5	9,2
Ventilator, dehumidifiers and humidifiers, Winter	22	0,2	69,6
Ventilator, dehumidifiers and humidifiers, Summer	19	0,1	59,9
Office equipment, Winter	189	0,4	17,8
Office equipment, Summer	179	0,4	19,0
Entertainment electronics, Winter	250	0,6	8,9
Entertainment electronics, Summer	249	0,5	9,9
Communication electronics	143	0,1	9,4
Chargers, Winter	224	0,1	31,3
Chargers, Summer	225	0,1	29,4
Other relevant domestic appliances (incl. air conditioners, additional heating), Winter	202	0,8	38,0
Other relevant domestic appliances (incl. air conditioners, additional heating), Summer	185	0,4	22,5
Stand by: Office appliances, Winter	96	0,1	26,5
Stand by: Office appliances, Summer	92	0,1	27,0
Stand by: Entertainment electronics, Winter	204	0,5	12,1
Stand by: Entertainment electronics, Summer	177	0,5	12,8
Stand by: Stove, oven	100	0,1	6,6
Stand by: Other household appliances	134	0,2	10,0
Illumination, Winter	254	1,5	10,3
Illumination, Summer	250	0,7	11,2
Hot water generation	95	5,3	13,9
Circulation pump of the heating system, Winter	157	1,8	10,4
Circulation pump of the heating system, Summer	156	0,4	12,6
Space heating, Winter	150	6,7	39,7

	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Natural Gas, Winter in Bm³	80	6,7	17,1
Natural Gas, Summer in Bm³	65	0,9	20,9

Other sources of error

Not relevant

5.3. Timeliness and punctuality

Specify the time between the end of the reference period and publication.
If the statistics are published both as preliminary and final figures, specify the time between publication of preliminary and final figures. You should also point out whether the publication date is set according to certain rules (e.g. advance release calendar, a specific day or prior to other publications).

The final data for 2010 were available in May 2010.
Preliminary results are not published.
Final results are published at latest as announced in the "Veröffentlichungskalender" on the Statistics Austria website (only available in German):
http://www.statistik.at/web_de/ueber_uns/veroeffentlichungskalender/index.html

Point out if there have been any major discrepancies between the planned publication date and the actual publication date in recent years. If so, state the length of this discrepancy and its cause.

No discrepancies

5.4. Accessibility

The statistics are easily to access on Statistics Austria website. There is no advance release calendar because the data are not published regularly.

5.5. Comparability

Discuss the comparability of the statistics over time, geographical areas and other domains.

Comparability over time
Discuss comparability over time and include information about whether there have been any breaks in the time series of the statistics and why. Also describe any major changes in the statistical methodology that may have had an impact on comparability over time.

Due to the fact that this is a pilot study, the questions on comparability are not relevant.

Comparability over region
Discuss comparability over geographical areas, and include information about whether the statistics are comparable to relevant statistics published by other countries and/or international organisations.

See above

Comparability over other domains
Discuss comparability over domains, and include information about whether the statistics are comparable between different industries, different types of households etc.

See above

5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

Not relevant

Discuss the coherence/consistency between monthly, quarterly or yearly statistics within the same subject area. Can the results of different frequencies for the same reference period be combined in a reliable manner?

Not relevant

Discuss the coherence/consistency with other related statistics (also those produced by other institutions/organisations on the same subject).

The results of the present survey were compared with the comparable ones from "Household energy consumption survey 2008" and are fitting very well.

6. Future plans

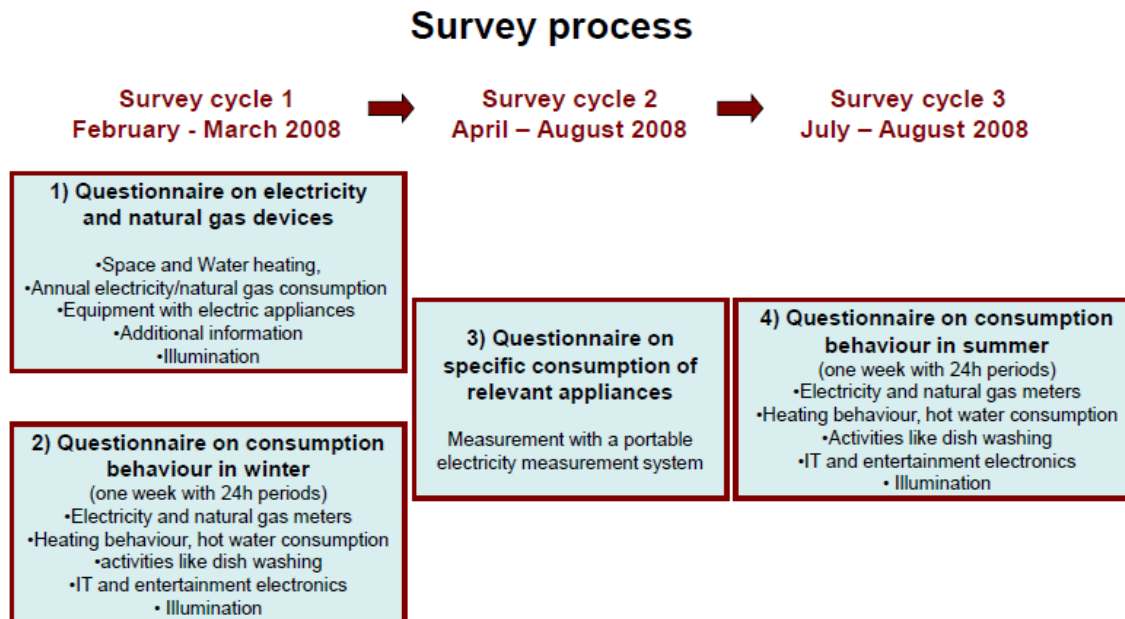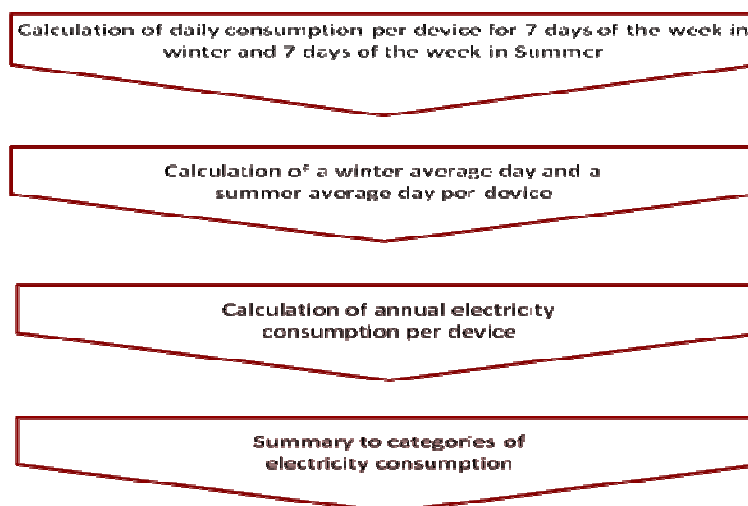| |
|---|
| A follow up survey is fixed for 2011/12. Further surveys depend on respective contracts. Concerning respondents burdens, the questionnaires will be shortened. |

Annexes

Illustrations and flowcharts

Illustrations and flowcharts are useful to summarize information and to get a better overview of the statistical production process. Illustrations and flowcharts can either be places in annexes or be included under relevant paragraphs in the template.

E.g.:
- A conceptual flowchart which illustrates the flow of data in the production of the statistics.

Survey process

| Survey cycle 1 February - March 2008 | → | Survey cycle 2 April – August 2008 | → | Survey cycle 3 July – August 2008 |

1) Questionnaire on electricity and natural gas devices

•Space and Water heating,
•Annual electricity/natural gas consumption
•Equipment with electric appliances
•Additional information
•Illumination

2) Questionnaire on consumption behaviour in winter
(one week with 24h periods)
•Electricity and natural gas meters
•Heating behaviour, hot water consumption
•activities like dish washing
•IT and entertainment electronics
• Illumination

3) Questionnaire on specific consumption of relevant appliances

Measurement with a portable electricity measurement system

4) Questionnaire on consumption behaviour in summer
(one week with 24h periods)
•Electricity and natural gas meters
•Heating behaviour, hot water consumption
•Activities like dish washing
•IT and entertainment electronics
• Illumination

- A flowchart which illustrates the main tasks in the production process and the dependency between them.

Calculation of daily consumption per device for 7 days of the week in winter and 7 days of the week in Summer

Calculation of a winter average day and a summer average day per device

Calculation of annual electricity consumption per device

Summary to categories of electricity consumption

Time schedule

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Clarify needs	▓														
Plan and design	▓	▓													
Build		▓	▓												
Collect				▓	▓	▓	▓	▓	▓	▓	▓				
Edit								▓	▓	▓	▓	▓			
Analyse													▓	▓	
Disseminate														▓	▓

Questionnaires

Include the complete questionnaire(s)/survey form(s) used

1. Questionnaire on electricity and natural gas device

STATISTIK AUSTRIA
Die Informationsmanager

Questionnaire on electricity and natural gas device 2011/12

Please return the questionnaire by 2nd March 2012 at the latest!

For questions, please contact Ms Manuela Strasser or Mr Walter Frech, workdays from 8:00 to 16:00 under the telephone number (01) 71128-7235 resp. (01) 71128-7254.

General information on the electricity and gas consumption in your household
section 1: refrigerators, freezers
section 2: stove, oven, washing machine, laundry dryer, dishwasher
section 3: kitchenware, domestic appliance, cooling, air conditioning equipment, additional heating
section 4: office quipment, consumer electronics, other relevant current consumers
section 5: illumination
section 6: space heating and hot water generation

ID: _____

Basic data on your household

G1 Please quote your last name and your telephone number:

last name _____   telephone number _____

Last name and telephone number alleviate queries in the frame of the evaluation. This information is treated confidentially.

G2 How many people live at present regularly in your household, in age groups?

age group	<= 12 years	13-18 years	19-65 years	> 65 years
quantity	_____	_____	_____	_____

G3 What is the legal position of your household compared to your residence?

☐ home ownership   ☐ main rental
☐ free of charge as a relative of the home owner ☐ subtenancy
☐ condominium   ☐ other legal position
            ☐ unknown / I don´t know

G4 Please declare the size of the apartment (floor space) and the number of rooms:

floor space _____ m² number of rooms* _____ rooms

* Please quote the number of living and bed rooms (including the kitchen) with more than 4m².

G5 Please declare the building size (number of apartments in the building):

☐ 1 apartment   ☐ 3 to 9 apartments
☐ 2 apartments   ☐ 10 to 19 apartments
            ☐ 20 apartments and more

G6 When was the house you live in, errected? (please estimate)

☐ before 1960   ☐ 2001 or later
☐ between 1961 and 1990   ➥ please quote the year: _____
☐ between 1991 and 2000   ☐ unknown / I don´t know

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General information on the electricity and gas consumption in your household

H1 Please provide information on the annual electricity consumption and the annual electricity charges <u>excluding VAT</u> according to your last electricity bill**:

current consumption meter 1 [ ] kWh   electricity costs 1 [ ] Euro

if available - meter 2 (e.g. off-peak storage heating)**
current consumption meter 2 [ ] kWh   electricity costs 2 [ ] Euro
reading
period of your electricity bill

[_ _ / 20 _ _] month/year   to   [_ _ / 20 _ _] month/year

* Please quote the annual electricity charges excluding VAT.

** If you have 2 electric meter quoted on your electricity bill (e.g. off-peak current, electricity on interruptible basis), please give information for both meter. If you receive due to an amalgation of flats 2 separate electricity bills, please give data for both of them.

H2 Do you use (to some extent) an electric space heater?

☐ yes, exclusively   ☐ yes, to some extent   ☐ no

H3 Do you use (to some extent) an electric water heater?

☐ yes, exclusively   ☐ yes, to some extent   ☐ no

H4 Do you use (to some extent) solar power?

☐ yes, for hot water   ☐ yes, for hot water and heating   ☐ no

H5 Do you have a (natural) gas connection in your household?

☐ yes   ☐ no   ⇨ **Please proceed to E1** (refrigerators)

H6 Please provide information on the annual gas consumption and the annual gas charges <u>excluding VAT</u> according to your last gas bill:

gas consumption [ ] kWh   gas costs [ ] Euro

** Please quote the annual gas charges excluding VAT.

H7 Please provide information on how you use (natural) gas:

☐ heating   ☐ hot water   ☐ cooking   ☐ baking

section 1: refrigerators, freezers

E1 **How many refrigerators (with or without icebox, cooling/freezing combinations too) are actually in operating state?**   quantity of refrigerators: [ ]

Please provide further informations on your refrigerator in "refrigerator 1".
If you have more than 1 refrigerator, please provide the relevant informations in "refrigerator 2" and "refrigerator 3".

	equipment	location	age	energy class* (if known)
refrigerator 1	☐ without icebox ☐ with icebox ☐ fridge-freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]
refrigerator 2	☐ without icebox ☐ with icebox ☐ fridge-freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]
refrigerator 3	☐ without icebox ☐ with icebox ☐ fridge-freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]

	capacity cooling section	capacity freezing section	inside dimension cooling section	inside dimension freezing section
	(specifications e.g. from instruction manual; if unknown please estimate)			
	in liters	in liters	width / height in cm	width / height in cm
refrigerator 1	[ ] liter	[ ] liter	[/]	[/]
refrigerator 2	[ ] liter	[ ] liter	[/]	[/]
refrigerator 3	[ ] liter	[ ] liter	[/]	[/]

* energy class: the EU energy label splits the energy consumption of refrigerators in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

E2 **How many freezers (chest freezers) are actually in operating state?**
quantity of freezers: [ ]

Please provide further informations on your freezer/chestfreezer in "freezer 1".
If you have more than 1 freezer, please provide the relevant informations in "freezer 2" and "freezer 3".

	equipment	location	age	energy class* (if known)
freezer 1	☐ freezer ☐ chest freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]
freezer2	☐ freezer ☐ chest freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]
freezer 3	☐ freezer ☐ chest freezer	☐ kitchen ☐ pantry ☐ cellar ☐ other	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	A to G [ ]

	capacity in liters	inside dimension
	(please estimate if unknown)	width / height in cm
freezer 1	[ ] liter	[/]
freezer 2	[ ] liter	[/]
freezer 3	[ ] liter	[/]

* energy class: the EU energy label splits the energy consumption of freezers in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

E3 **Please give information on the stove and oven used in your household.**

Please provide information on your stove and oven under "stove 1" and "oven 1". If you have more than one stove/oven, provide information under "stove 2"/"oven 2".

	energy	sort of cooking place	age	stand by (clock timer/ electronic display) available
stove 1	☐ electric ☐ gas ☐ other (e.g. wood)	☐ casting cooking plate ☐ Ceran cooktop ☐ induction hob ☐ gas cooktop	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐
stove 2	☐ electric ☐ gas ☐ other (e.g. wood)	☐ casting cooking plate ☐ Ceran cooktop ☐ induction hob ☐ gas cooktop	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐

	energy	energy class* (if known)	age	stand by (clock timer/ electronic display) available
oven 1	☐ electric ☐ gas ☐ other (e.g. timber)	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐
oven 2	☐ electric ☐ gas ☐ other (e.g. timber)	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐

* energy class: the EU energy label splits the energy consumption of baking ovens in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

E4 **Please provide information on the available machines for washing and drying laundry.**

	capacity (in kg)	energy class* (if known)	age	regulation of drying process with humidity sensor (automatic)
washing machine 1	☐ under 4,5 kg ☐ 4,5 - 5,5 kg ☐ over 6 kg ☐ unknown	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	-
washing machine 2	☐ under 4,5 kg ☐ 4,5 - 5,5 kg ☐ over 6 kg ☐ unknown	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	-
washing dryer**	☐ under 4,5 kg ☐ 4,5 - 5,5 kg ☐ over 6 kg ☐ unknown	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐
tumble-dryer**	☐ under 4,5 kg ☐ 4,5 - 5,5 kg ☐ over 6 kg ☐ unknown	A to G [ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐

* energy class: the EU energy label splits the energy consumption of washing and drying machines in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

** A distinction is made between drying machines: <u>washing dryers:</u> combination of washing machine and tumble dryer; in the drying process only the half-capacity can be used; <u>tumble dryer:</u> only drying function; the whole capacity can be used.

E5 Please provide information on the dishwasher(s) used in your household:

	width	energy class* (if known) A to G	age	separate hot water connection available
dishwasher 1	☐ 45 cm width ☐ 60 cm width	[ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐
dishwasher 2	☐ 45 cm Breite ☐ 60 cm Breite	[ ]	☐ under 5 years ☐ 5 - 10 years ☐ over 10 years ☐ unknown	☐

* energy class: the EU energy label splits the energy consumption of dishwashers in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

section 3: kitchenware, domestic appliance, cooling, air condit., add. heating

E6 **Please provide information on kitchenware and domestic appliance used in your household**

Please record the quantity of available devices, wattage and stand by modus when indicated.

	quantity	maximum power mainframe* watt	stand by (clock timer/ electronic display) available
microwave			☐
bake-/ grill automat / compact oven			☐
steamer			☐
filter coffee machine			☐
coffee pod, espresso mach.; autom. coffee syst.			☐
electric kettle			
electric grill			
electric iron / ironing station / ironing press			
vacuum cleaner			
hairdryer			
extractor hood			
toaster			
deep fat fryer			
kitchen machine			
blender			
immersion blender			
hand-held blender			
other 1** _____			
other 2** _____			

* If you have more than one device in use, please record the primarily used one; information on the wattage can be found in the user manual or on the identification plate directly on the device.
** Other: Record other regularly used electronic equipment, that is not listened above (e.g. flour mill, juicer, egg boiler).

E7 **Information on cooling devices and air conditioning systems*:**

Please record the quantity of available devices and energy classes when indicated.

	quantity	energy class* (if known) A to G
devices without cooling		
humidifier		-
dehumidifier		-
ventilator		-
air conditioning (with cooling)		
mobile air conditioner		
air conditioner, fix installed		
other _____		

* air recirculation system with heat exchanger : please provide information in **E17**!
** energy class: the EU energy label splits the energy consumption of air conditioning systems in energy classes from A+++, A++, A+, and A to G, whereas devices with energy class A+++ have the lowest energy consumption.

E8 Which <u>additional electric heater*</u> do you use? (e.g. auxillary heater in bathroom or WC?)
Please quote the quantity of the available devices and the heated area.

	quantity	heated area in m² (estimation)
radiant heater		
electric radiator with power plug		
electric fan heater		
installed electric heating system		
electric towel dryer		
other _____		

*<u>electric heating systems</u> with a permanently integrated heating element as <u>main heating installation</u> and <u>air recirculation systems with heat exchanger</u>: please provide information in **E17**!

section 4: office equipment and consumer electronics, other relevant current consumers

E9 Informations on your office equipment:
Please record the quantity of office equipments used in your household.

	quantity
PC	
laptop / notebook	
CRT display	
flat Screen (TFT)	
multifunctional device (scanner / printer / copier)	
inkjet printer	
laser printer	
scanner	
external modem, cable modem (e.g. Chello)	
external hard drive	
active loudspeaker boxes	
other 1 _____	
other 2 _____	

Do you have an activated screensaver on your PC or monitor?

☐ yes   ☐ no   ☐ I don`t know

Do you have an activated energy saving feature / sleep mode on your PC or monitor?

☐ yes   ☐ no   ☐ I don`t know

E10 Informations on your communication devices (excl. cell phone)
Please record the quantity of communication devices used in your household.

	quantity
telephone <u>connected to the mains supply*</u> (e.g. cordless basis station)	
answering machine (separate)	
extension with connection for power supply	
fax	
combination devices (e.g. integrated fax, answering machine)	
other 1 _____	
other 2 _____	

* Please provide the information only, when the telephone is connected to the mains supply (e.g. telephone with integrated answering machine, cordless telephone set).

E11 **Informations on consumer electronics used in your household**
Please record the quantity of consumer electronics used in your household.

	quantity
radio / portable device	
clock radio	
HIFI- /audio equipment	
TV - picture tube	
TV - LCD / LED	
plasma TV	
TV- video projector	
DVB-T reciever	
satellite receiver	
antenna amplifier / digital antenna	
videorecorder	
DVD Recorder, DVD Player, CD Player	
Blue Ray Player	
game console (e.g. Playstation)	
other 1 _____	
other 2 _____	

E12 **Informations on charging devices used in your household**
Please record the quantity of charging devices and the normal use.

	Quantity	Normal use per week*
mobile charger		WK.
battery charger		WK.
battery charger for notebooks		WK.
charger for camera		WK.
charger for instruments		WK.
charger for hand-held vacuum cleaner		WK.
charger for electrical toothbrush		WK.
charger for electric shaver		WK.
other 1 _____		WK.
other 2 _____		WK.

* Please record the normal use per week (wk.); sum devices of the same kind, e.g. 7* use of mobile charges 1 and 2 per week.

E13 **Informations on other relevant current consumers used in your household**
Which of the following equipment do you use?

	Quantity
waterbed	
aquarium	
indoor fountain	
electric lawn mower	
sauna	
infrared sauna	
swimming pool	
workshop if bigger consumer (e.g. regular use of circular saw or the like)	
hobby if bigger consumer (e.g. regularly practise with electric guitar)	
other 1 _____	
other 2 _____	

section 5: illumination

E14 **Please quote the quantity of available rooms in your accomodation / house (incl. all adjoining rooms:** ☐ rooms

E15 **Do you use motion sensors in your household?**
Please record the quantity. ☐ quantity

E16 **Please quote the quantity and rated power (watts) of lamps per room / per area used in your household.** Sum rarley used rooms and record them under "other rooms".

Due to a wide variety of lamps only the most common wattages are quoted. In case of underlined differing wattage choose the lamp with the underlined most similar wattage (e.g. record a 7 watt energy saving lamp in "8 watt").
Please estimate, if you don`t know the exakt wattage of a lamp!

	light bulb		energy saving lamp		low-voltage halogen lamp		fluorescent tubes or high-voltage halogen spotlights		LEDs: spots or light bulbs	
	watt	quantity	watt	quantity	watt	quantity	watt	quantity	watt	quantity
kitchen	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		
living room	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		
(main) bedroom	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		
further room 1* name: ___	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		
further room 2* name: ___	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		
further room 3* name: ___	25 W	☐	4 W	☐	10 W	☐	18 W	☐	3 W	☐
	40 W	☐	8 W	☐	25 W	☐	36 W	☐	5 W	☐
	60 W	☐	12 W	☐	35 W	☐	58 W	☐	7 W	☐
	75 W	☐	16 W	☐	50 W	☐	150 W	☐	10 W	☐
	100 W	☐	22 W	☐			300 W	☐		

	light bulb		energy saving lamp		low-voltage halogen lamp		fluorescent tubes or high-voltage halogen spotlights		LEDs: spots or light bulbs	
	Watt	Quantity	Watt	Quantity	Watt	Quantity	Watt	Quantity	Watt	Quantity
further room 4* name: _____	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			
bathroom / WC	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			
anterooms	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			
cellar	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			
outdoor area	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			

Sum the illumination of rarley used, not already mentioned rooms and record them here :

	light bulb		energy saving lamp		low-voltage halogen lamp		fluorescent tubes or high-voltage halogen spotlights		LEDs: spots or light bulbs	
other rooms	25 W		4 W		10 W		18 W		3 W	
	40 W		8 W		25 W		36 W		5 W	
	60 W		12 W		35 W		58 W		7 W	
	75 W		16 W		50 W		150 W		10 W	
	100 W		22 W				300 W			

* Please use an unambigous designation for each room to enable comparison with the electricity and gas journal (e.g. nursery, bedroom 2, study, cabinet etc.) and use this designation for completion of the electricity and gas journal!

2. Questionnaire on consumption behavior in winter and summer (here: winter questionnaire; the only difference between winter and summer is, that question V2 about heating is not relevant in the summer questionnaire)

Questionnaire on consumption behaviour
Winter 2011/12

Please return the questionnaire by 2nd March at the latest!

For questions, please contact Ms Manuela Strasser or Mr Walter Frech, workdays from 8:00 to 16:00 under the telephone number (01) 71128-7235 resp. (01) 71128-7254.

section 0: daily measurement of electricity and gas consumption
section 1: space heating and hot water generation
section 2: stove, oven, washing machine, laundry dryer, dishwasher
section 3: kitchenware, domestic appliance, cooling, air conditioning equipment, additional heating
section 4: office equipment, consumer electronics, other relevant current consumers
section 5: illumination

ID:

section 0: daily measurement of electricity and gas consumption

V1 **Please record your daily electricity and - if appropriate - gas consumption according to meter reading.**

* Read the electric/gas meter the night before the first recording day too (initial inventory = meter reading 0). The electric/gas meter must therefore be read 8 times!

Please read the electric/gas meter preferably <u>every evening at the same time</u> (e.g. 20:00) including all decimal points!

		initial inventory meter reading 0*	meter reading 1	meter reading 2	meter reading 3	meter reading 4	meter reading 5	meter reading 6	meter reading 7
		date							
date	DD.MM								
		time							
time	00:00								
		counter reading electric meter 1 (incl. 1 decimal point)**							
electric meter 1**	[kWh]								
		counter reading electric meter 2 (incl. 1 decimal point)**							
electric meter 2**	[kWh]								
		counter reading gas meter (incl. 3 decimal points)							
gas meter	[Bm³]								

** If you have 2 electric meter quoted on your electricity bill (e.g. off-peak current, electricity on interruptible basis), please give information for both meter. If you receive due to an amalgation of flats 2 separate electricity bills, please give data for both of them.

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section 1: space heating and hot water generation

V2 If your <u>main heating system</u> is a central heating/heating system covering one floor*, gas convercor heating**, electric
Please record on a daily basis the <u>time in hours</u>, your main heating installation was in operating state resp. ready to
Sum should be 24 hours.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
main heating system in operating state / ready to operate	h	h	h	h	h	h	h
main heating system off / temperature lowered	h	h	h	h	h	h	h

* central heating/heating system covering one floor: heat supply comes from a central heating boiler (therm) located in the flat, e.g. the bathroom or in the kitchen; in single-family homes or apartment buildings also in the cellar.
** gas convector heating, electric heating and off-peak storage heating: please quote data for the biggest heatet room!

V3 Please record on a daily basis the <u>minutes per day</u>, someone in your household took a shower.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
shower in minutes	min	min	min	min	min	min	min

V4 Please record on a daily basis the <u>minutes per day</u>, someone in your household took a bath.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
bathing (full bath)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

V5 Please record on a daily basis, how often / for how long someone in your household washed the dishes manually. Depending on the procedure record either the <u>quantity</u> of filled basins or the <u>time in minutes</u> washing the dishes under flowing water.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
washing dishes with filled basin	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
washing dishes with flowing water / minutes	min	min	min	min	min	min	min

section 2: stove, oven, washing machine, laundry dryer, dishwasher

V6 Please record on a daily basis the <u>minutes per day</u>, someone in your household cooked with a hotplate/gas flame.
Please estimate the time each hotplate/gas flame was in use and sum.
Example: On day 1 hotplate 1 on stove 1 was <u>45 minutes</u> in use, hotplate 2 was <u>15 minutes</u> in use and hotplate 3 <u>60 minutes</u>, this euqals a sum of <u>120 minutes</u> for cooking with stove 1.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
cooking with stove 1	min	min	min	min	min	min	min
cooking wirh stove 2	min	min	min	min	min	min	min

V7 Please record on a daily basis the <u>minutes per day</u>, someone in your household baked.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
baking with oven 1	min	min	min	min	min	min	min
baking with oven 2	min	min	min	min	min	min	min

V8 Please record on a daily basis the <u>quantity per day</u>, someone in your household washed the laundry with a washing machine.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
wash cycle with washing machine 1	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
wash cycle with washing machine 2	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

V9 Please record on a daily basis the <u>quantity per day</u>, someone in your household washed and/or dried laundry with a washing dryer.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
<u>washing cycles</u> with washing dryer	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
<u>drying cycles</u> with washing dryer	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

V10 Please record on a daily basis the <u>quantity per day</u>, someone in your household dried laundry with a laundry dryer.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
drying cycles with laundry dryer	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

V11 Please record on a daily basis the <u>quantity per day</u>, someone in your household washed the dishes with a dishwasher.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
washing dishes with dishwasher 1	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
washing dishes with dishwasher 2	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

section 3: kitchenware, domestic appliance, cooling, air cond., add. heating

V12 Please record on a daily basis the <u>quantity per day</u>, the following in your household existing devices were in use. Sum the use of equal multiple existing devices.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
filter coffee machine	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
coffee pod, espresso mach.; autom. coffee syst.	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
electric kettle	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
toaster	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
kitchen machine	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
blender	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
immersion mixer	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
hand-held blender	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
other 1* _____	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)
other 2* _____	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)	time (s)

* Please record the use of other kitchen ware and domestic appliance here - please use the same identification as in the questionnaire for equipment!

V13 Please record on a daily basis the <u>time in minutes</u>, the following devices were used in your household. Sum the time of equal multiple existing devices.

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
microwave	min	min	min	min	min	min	min
bake-/ grill automat / compact oven	min	min	min	min	min	min	min
electric grill	min	min	min	min	min	min	min
electric iron / ironing station / ironing press	min	min	min	min	min	min	min
vacuum cleaner	min	min	min	min	min	min	min
hairdryer	min	min	min	min	min	min	min
fume hood	min	min	min	min	min	min	min
deep fat fry	min	min	min	min	min	min	min

V14 Please record on a daily basis the <u>time in minutes</u>, the in your household existing cooling devices/air conditioning systems systems were in use. Sum the time for equal multiple existing devices (more than 24 hours are possible).
Example: On day 1 ventilator 1 is running for <u>20 hours</u>, ventilator 2 for <u>10 hours</u>, equates in sum <u>30 hours</u> for day 1.

Devices without cooling	day 1	day 2	day 3	day 4	day 5	day 6	day 7
humidifier	min	min	min	min	min	min	min
dehumidifier	min	min	min	min	min	min	min
ventilator	min	min	min	min	min	min	min

air conditioning (with cooling)	day 1	day 2	day 3	day 4	day 5	day 6	day 7
mobile air conditioner	min	min	min	min	min	min	min
air conditioner, fix installed	min	min	min	min	min	min	min
other _____	min	min	min	min	min	min	min

V15 Please record on a daily basis the <u>time in minutes</u>, the in your household existing additional heating systems were in use. Sum the time for equal multiple existing devices (more than 24 hours are possible).
Example: On day 1 radiant heater 1 is for <u>10 hours</u> in use, radiant heater 2 for <u>20 hours</u>. This equates in sum <u>30 hours</u> for day 1.

	day1	day 2	day 3	day 4	day 5	day 6	day 7
radiant heater	min	min	min	min	min	min	min
electric radiator with power plug	min	min	min	min	min	min	min
electric fan heater	min	min	min	min	min	min	min
installed electric heating system	min	min	min	min	min	min	min
electric towel dryer	min	min	min	min	min	min	min
other _____	min	min	min	min	min	min	min

V16 Please record on a daily basis the <u>time in hours,</u> office aids used in your household were in operating state (active!) or in stand by-mode. Please record the quantity of devices in use too.

Sum the time for equal multiple existing devices (more than 24 hours are possible).

Exaple: 2 PCs are available. On day 1 both PCs are for <u>2 hours</u> active, <u>14 hours</u> in stand-by mode and the remaining <u>8 hours</u> off. This equates for day 1 <u>4 hours "in operation / active"</u> and <u>28 hours "stand by"</u>. The <u>"quantity in use"</u> is <u>2</u>.

		day1	day 2	day 3	day 4	day 5	day 6	day 7
	in operation / active	h	h	h	h	h	h	h
PC	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
laptop / notebook*	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
CRT display	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
flatscreen monitor	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
multifunctional	in operation / active	h	h	h	h	h	h	h
device (scanner/	stand by	h	h	h	h	h	h	h
printer/copier)	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
inkjet printer	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
laser printer	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
scanner	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
external modem	in operation / active	h	h	h	h	h	h	h
cable modem	stand by	h	h	h	h	h	h	h
(e.g. Chello)	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
	in operation / active	h	h	h	h	h	h	h
external hard drive	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
active	in operation / active	h	h	h	h	h	h	h
loudspeaker	stand by	h	h	h	h	h	h	h
boxes	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
other 1	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
other 2	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.

* "In operation / active" means in the case of a laptop mains operation, not battery power supply. Please record the time inclusive potential charging times.

V17 Please record the <u>time in hours</u> consumer electronics used in your household were in operating state (active!) or in stand by-mode. Please record the quantity of devices in use too.

Sum the time for equal multiple existing devices (more than 24 hours are possible).

Example: 2 TVs with television tubes are available. On day 1 TV 1 is for <u>2 hours</u> in use, <u>12 hours</u> in stand-by mode and the remaining <u>10 hours</u> off. TV 2 is for <u>6 hours</u> in use, <u>8 hours</u> in stand-by mode and <u>10 hours</u> off. That equates for day 1 <u>8 hours</u> "in operation / active" and <u>20 hours</u> "stand by". The <u>"quantity in use"</u> is <u>2</u>.

		day 1	day 2	day 3	day 4	day 5	day 6	day 7
radio / portable device	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
clock radio	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
HIFI- / audio equipment	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
TV- picture tube	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
TV LCD / LED	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
plasma TV	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
DVB-T receiver	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
satellite receiver	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
antenna amplifier / digital antenna	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
video recorder	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
DVD recorder, DVD player, CD player	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
Blue Ray Player	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
game console (e.g. Playstation)	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
other 1 _____	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.
other 2 _____	in operation / active	h	h	h	h	h	h	h
	stand by	h	h	h	h	h	h	h
	quantity in use	quant.	quant.	quant.	quant.	quant.	quant.	quant.

V18 Please record on a daily basis, the <u>time in hours</u> used cell phone chargers were connected to the power supply. Sum the time for multiple existing devices (more then 24 hours are possible).

	day1	day 2	day 3	day 4	day 5	day 6	day 7
cell phone charger	h	h	h	h	h	h	h

V19 Please record on a daily basis, the <u>time in hours</u> the following in your household used current consumers were in operating state. Sum the time for equal multiple existing current consumers (more than 24 hours are possible).

	day 1	day 2	day 3	day 4	day 5	day 6	day 7
waterbed	h	h	h	h	h	h	h
aquarium	h	h	h	h	h	h	h
indoor fountain	h	h	h	h	h	h	h
electric lawn mower	h	h	h	h	h	h	h
sauna	h	h	h	h	h	h	h
infrared sauna	h	h	h	h	h	h	h
swimming pool	h	h	h	h	h	h	h
workshop when bigger consumer	h	h	h	h	h	h	h
hobby when bigger consumer	h	h	h	h	h	h	h
other 1	h	h	h	h	h	h	h
other 2 _____	h	h	h	h	h	h	h

section 5: illumination

V20 Please estimate on a daily basis, the time and output (= watt) light burns in your rooms.

Example: On day 1 light burns in the kitchen for <u>1,5 hours</u> in the morning and <u>3,5 hours</u> in the evening; <u>2 light bulbs with 100 watt</u> and <u>1 energy saving lamp with 18 watt</u> were used. This equates for day 1/kitchen a <u>time of 5 hours</u> and an <u>output of 218 watt</u>.

		day 1	day 2	day 3	day 4	day 5	day 6	day 7
kitchen	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
living room	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
(main) bedroom	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
room 1*: _____	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
room 2*: _____	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
room 3*: _____	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
room 4*: _____	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
bathroom / WC	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
anterooms	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
cellar	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt
outdoor area	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt

Please sum the lighting for other rooms quoted in the questionnaire for equiment and record them here:

		day 1	day 2	day 3	day 4	day 5	day 6	day 7
other rooms	time (h)	h	h	h	h	h	h	h
	output (watt)	watt	watt	watt	watt	watt	watt	watt

* Please use the same room allocation and room identification as in the questionnaire for equipment.

THANK YOU FOR YOUR COOPERATION

3. Questionnaire on specific consumption of relevant appliances

Directorate Spatial Statistics
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STATISTIK AUSTRIA
Die Informationsmanager

Questionnaire on specific consumption of relevant appliances 2012

Please return the questionnaire until April 30th 2012!

For questions, please contact Ms Manuela Strasser or Mr Walter Frech, workdays from 8:00 to 16:00 under the telephone number (01) 71128-7235 resp. (01) 71128-7254.

section 1: refrigerators, freezers
section 2: washing machine, laundry dryer, dishwasher
section 3: kitchenware, domestic appliance, cooling, air conditioning equipment, additional heating
section 4: office equipment, consumer electronics, other relevant current consumers
section 5: stand-by power consumption
section 6: other freely selectable current consumers

ID:

Measurment process of electric energy consumption

Devices shall either be measured for at least 1 hour (e.g. television), or for at least 24 hours (e.g. refrigerator, aquarium), or for one programm sequence (e.g. washing machine). To some extent there is also information on the wattage necessary (e.g. vacuum cleaner).

Equipment, permanently connected to the electrical power supply (e.g. electric cooker) cannot be measured! Not easily accessible devices (e.g. built-in units) are excluded!

Please load the current measurement device 8 hours before using it the first time!

1. Toggle the measurement device between your household appliance and the socket.
Not easily accessible devices (e.g. integrated kitchen appliances) do not have to be measured!

2. Reset the display after the measurement.
Press and hold in one of the features 4, 5 or 6 the SET-key for 5 secondes.

3. Activate your household appliance.

4. Meter-reading of the wattage.
Skip with the FUNCTION button to function 3, watt display (W).

5. Meter-reading of the measurement time.
Skip with the FUNCTION button to function 4, operating time.
PLEASE NOTE: Only correct, if your device remains nonstop on the power network.
UNSUITABLE FOR THE FRIDGE!

6. Meter-reading of energy consumption (kilowatt hours, KWh).
Skip with the FUNCTION button to function 5, kilowatt hours (KWh).

7. Fill in the requested values in the equipment measurement sheet.
Please record measurement time, wattage and energy consumption (kWh) depending on your device.
Register energy consumption (kWh) according to the measurement device with two digits after the decimal point.

Use the FUNCTION button to skip between functions.

Press the CHANGE button to skip the display back to the clock function.

Reset measured values in one of the functions 4 to 6 by pressing and holding the SET button for 5 seconds.

section 1 : refrigerators, freezers

M1 **Measure the available refrigerators (with or without icebox, fridge-freezer as well)**
Measure throughout at least 24 hours and specify _measurment time_ and _energy consumption_.
Use the same device assignment as in the questionnaire for equipment!

QUANTIFY THE MEASUREMENT TIME WITH A CLOCK AND NOT WITH THE MEASUREMENT DEVICE!

Please note: Not easily accessible devices (e.g. built-in units) do not have to be measured.

	measurement time minimum 24 hours	energy consumption in kWh
refrigerator 1	:	.
refrigerator 2	:	.
refrigerator 3	:	.

M2 **Measure the available refrigerating appliances (freezer or chest freezer)**
Measure throughout at least 24 hours and specify _measurment time_ and _energy consumption_.
Use the same device assignment as in the questionnaire for equipment!

QUANTIFY THE MEASUREMENT TIME WITH A CLOCK AND NOT WITH THE MEASUREMENT DEVICE!

Please note: Not easily accessible devices (e.g. built-in units) do not have to be measured.

	measurement time minimum 24 hours	energy consumption in KWh
freezer 1	:	.
freezer 2	:	.
freezer 3	:	.

If the device is in deactivation phase, wattage can be temporarily zero; that does not influence the 24 hour measurement.

section 2: washing machine, laundry dryer, dishwasher

M3 **Measure the primarily used washing machine for washing laundry**
Please measure the _programm sequence_ with 30/40°C, 60°C and, if used, 95°C - always without prewashing!
Please mark in addition the most frequently used washing programme with a cross.

	programme	measurement time programme sequence	most frequently used programme	energy consumption in kWh
washing machine	30/40°C without prewash	:	☐	.
	60°C without prewash	:	☐	.
	95°C without prewash - if used	:	☐	.
laundry dryer	30/40°C without prewash	:	☐	.
	60°C without prewash	:	☐	.
	95°C without prewash - if used	:	☐	.

M4 **Please measure the primarily used machine for tumble drying**
Please measure the _programme sequence_ for the most frequently used programme.

		measurement time programme sequence	energy consumption in kWh
washer/dryer	most frequently used programme	:	.
laundry dryer	most frequently used programme	:	.

M5 **Please measure the primarily used dishwasher**
Please measure the _programme sequence_ for the most frequently used programme.

		measurement time programme sequence	energy consumption in kWh
dishwasher	most frequently used programme	:	.

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section 3: kitchenware, domestic appliance, cooling, air cond., add. heating

M6 **Please measure the kitchen- and domestic appliances used in your household**
Please measure one <u>programme sequene</u>.

		measurement time **programme sequence**	energy consumption in kWh
filter coffee machine	usual quantity	:	.
coffee machines	1 coffee	:	.
electric kettle	1 liter	:	.

Please record the <u>wattage</u> for devices in use.

	wattage
microwave	. watt
electric iron / ironing station / ironing press	. watt
vacuum cleaner	. watt
hairdryer	. watt

M7 **Please measure the cooling- and air conditioning units used in your household.**
Please measure for at least throughout 1 hour and record <u>measurement time</u>, <u>wattage</u> and <u>energy consumption</u>.

	measurement time **minimum 24 hours**	wattage	energy consumption in kWh
Devices without cooling			
ventilator	:	. watt	.
dehumidifier	:	. watt	.
air humidifier	:	. watt	.
Climate control unit (with cooling, "Air Condition")			
mobile air conditioner	:	. watt	.

section 4: office equipment, consumer electronics, other relevant current consumers

M8 **Please measure the primarily used office equipments in your household - please measure devices in operating state!**
Please measure for at least throughout 1 hour and record <u>measurement time</u> and <u>energy consumption</u>.

Please note: measure PC inclusive monitor (if energy supply comes directly from the PC), otherwise measure both separately!

	screen size	easurement tin **minimum 1 hour**	energy consumption in kWh
PC inclusive monitor (energy supply monitor from PC)	cm	:	.
PC without monitor		:	.
monitor, if energy supply directly from the grid	cm	:	.
laptop / notebook	cm	:	.

Please record the <u>wattage</u> for devices in operating state.

	wattage
multifunctional device (scanner / printer / copier)	. watt
inkjet printer	. watt
laser printer	. watt
scanner	. watt
external modem, cable modem (e.g. Chello)	. watt
external hard drive	. watt
active loud speaker box	. watt

if available:

office equipment set, connected to one plug board *)   quantity of devices: [ ]   . watt

*) If several office aids are attached with one plug board to the grid, please measure the complete set too.

M9 **Please measure the primarily used consumer electronics in your household - please measure devices in operating state!**
Please measure for at least throughout 1 hour and record <u>measurment time</u>, <u>wattage</u> and <u>energy consumption</u>.

	screen size	measurement time **minimun 1 hour**	wattage	energy consumption in KWh
TV - picture tube	cm	:	. watt	.
TV - LCD / LED	cm	:	. watt	.
plasma TV	cm	:	. watt	.

Please record the <u>wattage</u> for following regularly used consumer electronics in your household.

Please note: You do can forgo the measurement, if individual equipments loose their programming by disconnecting.

	wattage
radio / portable device	. watt
clock radio	. watt
HIFI- / audio equipment	. watt
DVB-T receiver	. watt
satellite receiver	. watt
antenna amplifier / digital antenna	. watt
videorecorder	. watt
DVD Recorder, DVD Player, CD Player	. watt
Blue Ray Player	. watt
game console (e.g. Playstation)	. watt

M11 **Please measure following devices, if available in your household:**
Please measure for at least throughout 24 hourw and record <u>measurment time</u> and <u>energy consumption</u>.

	measurment time minimum 24 hours	energy consumption in KWh
waterbed	:	.
aquarium - please measure the total system incl. light	:	.

section 5: stand-by power consumption

Several electronical devices can cause permanent power consumption, if constantly in stand-by mode. <u>Informations for stand-by power consumption</u>: disconnect with remote control ("red dot"); clock timer, electronic display available.

M12 **Please measure the stand-by consumption of following in your household used equipment/s (sets).**
Please measure for at least throughout 1 hour and record <u>measurement time</u>, <u>wattage</u> and <u>energy consumption</u>.

Please note: If the wattage is below 5 watts, measurement is not possible (current measurement device shows 0)!

	measurement time minimum 1 hour	wattage	energy consumption in KWh
coffee machines	:	. watt	.
TV - picture tube	:	. watt	.
TV - LCD / LED	:	. watt	.
plasma TV	:	. watt	.
PC incl. Monitor (energy supply monitor from PC)	:	. watt	.
alternative: PC without monitor	:	. watt	.
laptop / notebook	:	. watt	.

If available: measure several devices connected to one power strip

	quantitiy devices	measurement time	wattage	energy consumption
office equipment set	quantitiy devices:	:	. watt	.
consumer electron. set	quantitiy devices:	:	. watt	.

section 6: other freely selectable current consumers

This section offers the possibility to record further equipment, to get an overview of the electricity consumption of other measurable, in your household used equipment.

M13 Additional available devices are e.g. additional TVs, PCs, additional heating systems, hobby appliances etc.

equipment	measurement time	wattage	energy consumption in KWh
_____	:	. watt	.
_____	:	. watt	.
_____	:	. watt	.
_____	:	. watt	.

THANK YOU FOR YOUR COOPERATION

Example of publication tables

Include an example of a typical table published for the statistics. Include web addresses if available online.

Average electricity consumption of households 2008 by categories of consumption

	All households[1]		Contributing households[2]		
	Mean in kWh	Median in kWh	Quantity	Mean in kWh	Median in kWh
Overall consumption (based on daily meter readings)	**4 417**	**3 765**	**3 548 352**	**4 417**	**3 765**
Fridges and freezers					
Refrigerator	310	263	3 548 352	310	263
Freezer	232	162	2 104 174	391	329
Large domestic appliances					
Stove, oven	341	271	3 287 639	368	291
Washing machine	179	163	3 144 140	202	175
Tumble dryer	71	0	840 484	301	178
Dishwasher	176	141	2 457 191	254	222
Other kitchen- and domestic appliances	**157**	**135**	**3 548 352**	**157**	**135**
Cooling- and air conditioning systems, auxiliary heating					
Ventilators, de-/humidifier, air handling unit	4	0	397 422	33	7
Auxiliary heating (radiant heater etc.)	58	0	729 627	280	41
Office, entertainment and communication devices					
Office appliances (PC, laptop & Co)	97	39	2 680 159	128	68
Entertainment electronics (television etc.)	184	153	3 514 068	186	154
Communication devices	28	35	1 942 356	51	35
Other relevant appliances					
Recharger	17	3	3 303 368	19	4
Other relevant appliances	100	30	2 870 881	124	42
Stand-by consumption					
Office appliances (PC, laptop & Co)	13	0	1 679 900	27	10
Entertainment electronics (television etc.)	128	78	3 036 530	150	109
Stove, oven	15	0	1 308 080	41	52
Kitchen- and domestic appliances	31	29	1 845 658	60	35
Lighting	**380**	**298**	**3 548 352**	**380**	**298**
Water heating	**756**	**0**	**1 423 228**	**1 884**	**1 612**
Heating					
Circulation pump (for the heating system)	237	216	2 092 954	402	347
Heating incl. supporting electricity	670	160	1 992 424	1 194	220
Unspecified consumption[3]	231	-	-	-	-

S: STATISTICS AUSTRIA, Energy statistics: Energy- and gas journal 2008. Compiled on: 11 February 2009. 1) „All households" include all responding households, whether they had actual records in the according category or not. 2) "Contributing housholds" include households, which - in survery - have done an actual record at the regarding category 3) Unspecified energy consumption: energy consumption which is not classifiable as category of consumption.

Available on:

http://www.statistik.at/web_en/statistics/energy_environment/energy/energy_consumption_of_households/index.html

Standard documentation
Meta information
(definitions, explanations, methods, quality)

on

Electricity and natural gas
consumption of households 2008

This documentation is valid as of the reporting period:

2008

Status: **March 2010**

STATISTICS AUSTRIA
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Contents

1. Summary and important hints

1.1 Preliminary remarks

The voluntary sample survey "Electricity and natural gas consumption of households 2008" is a comprehensive data collection on electricity and gas consumption in households broken down by consumption purpose. It was conducted on behalf of the Austrian energy regulator E-Control Ltd. and the Federal Ministry of Agriculture, Forestry, Environment and Water Management.

1.2 Objective and purpose

The main purpose of the present survey was to get a comprehensive overview concerning the electricity consumption of private households, especially for electric appliances. On the one hand the information on households for energy statistics in general should be improved and on the other hand additional data for analysing electricity saving potentials in the private sector should be obtained. For natural gas, the overall consumption was broken down to space heating, water heating and cooking.

1.3 Subject of the statistics

The statistics cover the consumption of electricity and natural gas in private households. With five questionnaires the equipment of households with electric appliances as well as data on space heating, water heating and illumination were surveyed. In a further step, the respondents had to record the use of their appliances for one week in winter and for one week in summer. Additionally, they had to read out their electricity and natural gas meters in 24h periods during these two weeks. Last but not least, the specific electricity consumption of relevant appliances had to be metered with a portable electricity measurement system provided by Statistics Austria.

1.4 Data sources, coverage

The gross sample size of the voluntary sample survey was 500 households. The respondent rate was almost 51% (254 households). The source for defining the overall population was the micro census data set.

1.5 Data preparation

Data preparation consists of manual data input with MS Excel and plausibility checks in Excel and the statistical software SPSS. The sample was grossed up to the overall population of main residences. As criteria for representativeness, the size of households and buildings (single-/double-family houses versus apartment buildings) as well as the highest degree of education were applied.

1.6 Quality

The quality of the results was checked with the results of the Sample Survey on Energy Consumption of Households (Statistics Austria). Despite the small sample size, the data quality was found to be surprisingly good.

1.7 Publication

The report (available in German only) is published on the website of Statistics Austria: http://www.statistik.at/web_de/statistiken/energie_und_umwelt/energie/energieeinsatz_der_haushalte/index.html

2. General Information

2.1 Type of statistics

Random sample survey

2.2 Subject area

Energy statistics

2.3 Responsible organisational unit and contact details

Energy and Environment Division; Directorate Spatial Statistics

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2.4 Objective and purpose, history

The present survey offers a comprehensive data collection concerning electricity and natural gas consumption in households for the first time. The main focus of the survey and the report is electricity. The main reasons for the survey were the increasing electricity consumption on the one hand and the directive 2006/32 EC on energy efficiency and energy services on the other hand. Electricity consumption for water heating and space heating is well documented since 1977, whereas no information about the consumption of electric appliances and for illumination was available. The present survey significantly improved the information not only on the equipment of households with such appliances but also on the user behaviour. Based on this information the consumption patterns for cooking, laundry washing or entertainment electronics could be calculated. All households connected to the natural gas grid were additionally surveyed on their natural gas consumption for space and water heating as well as for cooking.

The data give an exact picture of the electricity consumption in households by purpose. Furthermore, the database enables the recognition of electricity saving potentials with regard to appliances used and changes in user behaviour.

To make the results international comparable, an additional questionnaire was implemented based on the EU-Project „REMODECE" (Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe) financed by the EU program „Intelligent Energy for Europe" (Nr. EIE/05/124/S12.419657).

2.5 Periodicity

The survey was conducted the first time in 2008 and a follow up survey is fixed for 2011. Further surveys depend on respective contracts.

2.6 Contracting entity

- Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW)
- E-Control Ltd.

2.7 Main users

- Federal Ministry of Agriculture, Forestry, Environment and Water Management
- E-Control Ltd.
- Austrian Environment Agency
- Austrian Energy Agency
- Austrian Institute of Economic Research
- Eurostat
- Various institutes for scientific research, universities, media etc.

2.8 Legal basis

Federal Statistics Act 2000 in the current version, private contracts with Federal Ministry of Agriculture, Forestry, Environment and Water Management and E-Control Ltd.

3. Statistical concepts and methodology

3.1 Subject of the statistics

The subject of the statistics is the consumption of electricity and natural gas in private households. In a first step the equipment with electric and natural gas appliances as well as data on space and water heating systems and illumination were surveyed. In two further steps the respondents had to record data on their consumption behaviour for one week in summer and one week in winter. During these two weeks the electricity and natural gas meters had to be read in 24h intervals. In a fourth step the specific electricity consumption of relevant appliances had to be metered with a portable electricity measurement system provided by Statistics Austria. To make the results international comparable, an additional questionnaire based on the EU-Project „REMODECE" (Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe) financed by the EU program „Intelligent Energy for Europe" (Nr. EIE/05/124/S12.419657) had to be filled in.

3.2 Observed unit / reporting unit / presentation unit

Households on their main residence.

3.3 Data sources

The gross sample size of the voluntary sample survey was 500 households. The data source to define the overall population was the Labour force survey (micro-zensus).

3.4 Reporting unit and respondents

Households in their dwellings with main residence

3.5 Survey format

Sample survey

3.6 Sample characteristics

During the micro-census in the fourth quarter 2007 the respondents were asked to volunteer the sample survey "Electricity and natural gas consumption of households 2008". The 1,494 volunteers were broken down to classes depending on the household size, building type (single-/double-family houses versus apartments), regional distribution and highest degree of education. Out of these classes a representative gross sample of 500 households was drawn.

Although an allowance of 100 € was paid to every household which filled in the 5 questionnaires, the dropout rate was rather high 49%), probably due to the complexity of the survey.

3.7 Survey techniques / data transmission

Survey techniques

Paper and electronic questionnaires

Data transmission

One third per e-mail and two third per regular mail.

3.8 Survey questionnaire (including explanatory notes)

Between February 2008 and August 2008 all volunteers received 5 harmonised questionnaires in 3 survey cycles.

1. Questionnaire on electricity and natural gas devices (February/March 2008)

   ➢ Type of space and water heating appliances, circulation pump for the heating system

   ➢ Overall annual electricity and natural gas consumption (from the last annual statement)

   ➢ Equipment with electric appliances e.g. cooler, freezer, washing machine, dish washer, computer, TV and small appliances like coffee machine, mixer or hair drier

   ➢ Additional information like age, power rating and capacity of the appliances

   ➢ Illumination (number of lamps by type and power)

2. Questionnaire on user behaviour in winter (February/March 2008)

   ➢ Daily readings of electricity and natural gas meters (24h periods)

   ➢ Records on heating behaviour and hot water consumption

   ➢ Records on activities like dish washing, cooking, laundry washing, vacuum cleaning

   ➢ Records on use of IT (information technology) and consumer electronics and illumination

3. Questionnaire on specific consumption of relevant appliances (April to August 2008)

4. Questionnaire on user behaviour in summer (June to August 2008)

   ➢ See point 2.

5. REMODECE Questionnaire (June to August 2008) to make the results comparable on EU level

Survey process
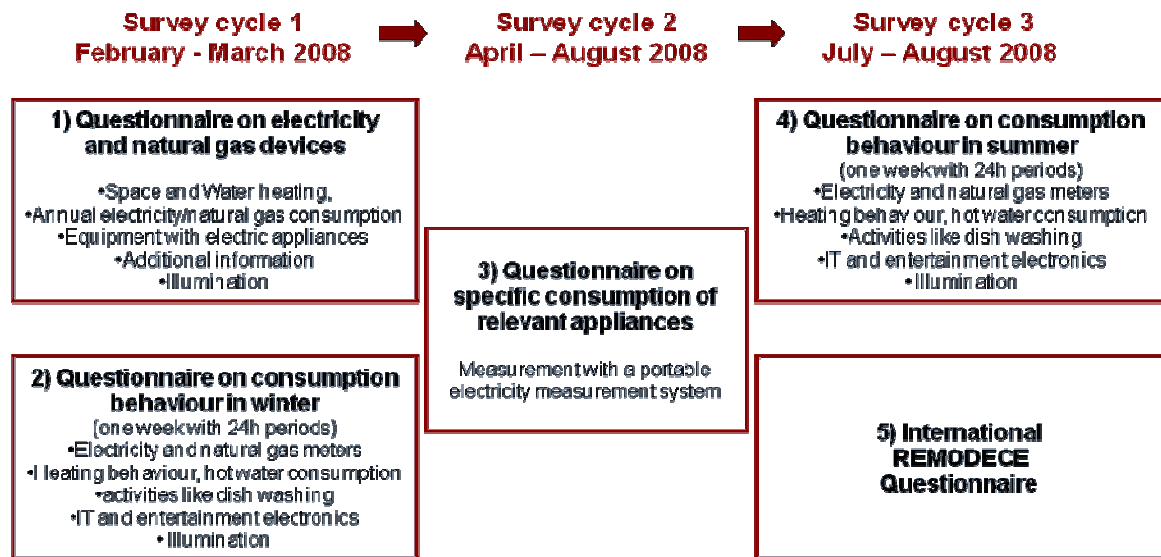
3.9 Survey participation (mandatory or voluntary)

Voluntary; the respondent rate was 51 % or 254 households which returned all 5 questionnaires filled in completely.

3.10 Variables surveyed and derived, indicators (including definitions)

1. Electricity and if relevant, natural gas consumption and the related expenditures based on the last annual statement (2007)

2. Number and type of appliances including data on age, power and power rating

3. Number and power of lamps broken down by type and rooms

4. Electricity and natural gas consumption by 24h periods within one week in summer and one week in winter

5. The use of relevant appliances by 24h periods (user behaviour) within one week in Summer and one week in Winter differentiated by type e.g. in minutes (taking a shower), hours (watching TV) or number of uses (dish washer)

6. Stand-by power consumption for relevant appliances

7. The use of illumination by 24h periods (user behaviour) within one week in Summer and one week in Winter

8. Device specific electricity consumption of relevant appliances with a relatively high consumption, metered with a portable electricity measurement system provided by Statistics Austria

Overview of the consumption categories used

Categories of electricity consumption:

Refrigerators, freezers
  Refrigerator
  Freezer
Large domestic appliances
  Stove, oven
  Washing machine
  Laundry dryer
  Dishwasher
Other kitchen and household appliances
Cooling, air conditioning equipment, additional heating
  Dehumidifiers and humidifiers, air conditioners
  Additional heating
PC, entertainment electronics, communication
  Office equipment (PC, Laptop)
  Entertainment electronics (TV etc.)
  Communication electronics
Other relevant domestic appliances
  Chargers
  Other relevant domestic appliances
Stand-by use
  Office appliances (PC, printer etc.)
  Entertainment electronics (TV etc.)
  Stove, oven
  Other household appliances
Illumination
Hot water generation
Space heating
  Circulation pump of the heating system
  Space heating

∑ Total electricity consumption (2008)

Categories of natural gas consumption:

Space heating
Hot water generation
Cooking
Baking

∑ Total natural gas consumption (2008)

3.11 Classifications used

Not relevant

3.12 Regional breakdown of the results

 NUTS 1-regions

4. Production of Statistics, Processing, Quality assurance measures

4.1 Data capture

Manual data capture via MS Excel by IT division in case of paper questionnaires (two third). One third was submitted as Excel workbooks.

4.2 Coding

Not relevant

4.3 Editing and verification of data sources used

In a first step the questionnaires were checked concerning typing errors and implausible entries. These errors could be mostly avoided with internal checks in case of data submission as Excel workbooks.

Afterwards plausibility checks were operated partially in excel and partially in SPSS. Although the number of surveyed features is high (around 4000 characteristics) each of them was checked separately and the internal consistency of each questionnaire was verified. The consistency between the questionnaires was only verified partially because changes within the surveyed period (e.g. equipment with electric devices) were possible .

By running the plausibility checks, e.g. in case of consumption quantities, household characteristics like household size or floor area were taken into account.

4.4 Imputation (where responses are missing or data incomplete)

Item-Non Response imputation only

Annual consumption 2007 (based on annual statement 2007)

The questionnaire on electricity and natural gas devices included questions on quantities and expenditures from the most recent annual statement. Missing expenditures were calculated with average prices from reported quantities and missing quantities in the same way from reported expenditures.

In case of completely missing data the following procedure was applied to calculate the quantities:

The difference between the meter readings reported in the questionnaires on consumption behaviour in winter and in summer was broken by the number of days between these two meter readings and multiplied with 365. The expenditures were calculated with average prices.

The imputation rates are 4.7% for the first and 6.9% for the second electricity meter and 4.9% for the natural gas meter.

Annual and daily electricity consumption quantities (calculated from meter readings in summer and winter 2008)

In case of missing meter readings the daily and annual quantities were added from the calculated quantities of appliance groups (derived from the average device specific consumption quantities). The imputation rate is 2.8%.

4.5 Grossing up procedures (Weighting)

The sample was grossed up to the overall population of main residences in Austria.

The grossing up criteria was:

> ➢ Size of households (number of household members)
> ➢ One- and two-family houses versus apartment buildings
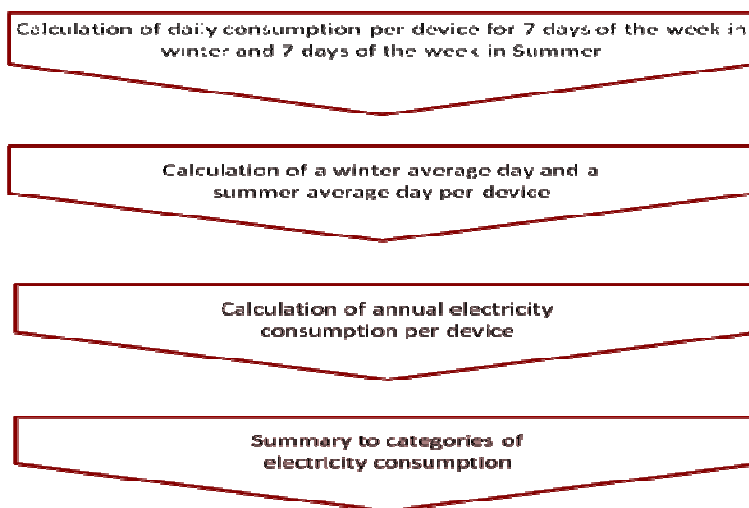> ➢ Highest degree of education

The household size was limited to 4 characteristics (4+ = 4), the degree of education was condensed to 3 categories.

Due to the small sample the grossing up to the level of federal states was not possible.

4.6 Compilation of the final data set, (other) models and statistical estimation techniques used

By combining user behaviour with metered device-specific consumption, or in case non metered devices with default values, the average consumptions for all surveyed appliances were calculated. The quantities for space and water heating were estimated based on daily meter readings corrected by the daily appliance consumptions.

Overview of the procedure of data calculation

With the questionnaires on consumption behaviour exact information on daily use of devices were surveyed for a week in summer and winter, respectively.

The questionnaire on specific consumption of relevant appliances provides device-specific consumption figures, which were metered in different manners depending on the device type e.g. 1h for constant consumers (TV, PC etc.), 24h for non constant consumers (freezer, cooler, aquarium) or for one use (washing machine, dish washer, tumble drier). For devices which are used shortly (e.g. micro wave, hair drier, vacuum cleaner), the power consumption in Watt had to be reported, which also was possible to meter with the portable electricity measurement system provided by Statistics Austria. A manual assisted the respondents to fill in the right values.

When metering was impossible (built-in appliances) or in case of problems using the measurement system, the median of the existing values was used. The median also was used for plausibility checks. All deviations from the median higher than 75% were replaced by it.

For all devices which were not asked to be metered default values were used.

Default values for use	Average power		Additional assumptions
Electric barbecue	1800 Watt	per h	
Small baking / grill machine	450 Watt	per h	
Additional boilerplate	500 Watt	per h	
Ironing press	700 Watt	per h	
Fume hood	150 Watt	per h	without light
Bread maker	300 Watt	per use	
Deep fryer	500 Watt	per h	
Food processor	400 Watt	per h	Average use: 10 min
Blender	150 Watt	per h	Average use: 10 min

Mixing rod	150 Watt	per h	Average use: 10 min
Handheld blender	150 Watt	per h	Average use: 10 min
Fix installed air condition	300 Watt	per h	
Electric heater	1200 Watt	per h	
Electric radiator (with plug)	900 Watt	per h	
Electric fan heater	900 Watt	per h	
Fix installed electric oven	900 Watt	per h	
Electric towel-heater	1200 Watt	per h	
Telephone with power connection	35 kWh	per annum	
Answering machine	25 kWh	per annum	
Substitutions with power connection	35 kWh	per annum	
Fax	50 kWh	per annum	
Multiple-device (scanner/printer/photocopier)	60 kWh	per annum	
Handy charger	2 Watt	per h	
Battery charger	10 Watt	per h	
Camera charger	10 Watt	per h	
Tool charger	20 Watt	per h	
Charger for upright vacuum cleaners	10 Watt	per h	
Torch charger	3 Watt	per h	
Charger for electric shavers	3 Watt	per h	
Room fountains	4 Watt	per h	
Electric mower	1600 Watt	per h	
Sauna	6000 Watt	per h	
Solarium	2000 Watt	per h	
Infrared cabin	1500 Watt	per h	
Steam cabin	3000 Watt	per h	
Swimming pool	80 Watt	per h	

Default values for stand by	Average power	
Stove	2 Watt	pro h
Oven	2 Watt	pro h
Microwave	3,5 Watt	pro h
Electric barbecue	3,5 Watt	pro h
Coffee machine	3,5 Watt	pro h
Portable radio	3,8 Watt	pro h
Clock radio	5 Watt	pro h
HIFI / Stereo	12 Watt	pro h
TV-beamer	2,5 Watt	pro h
DVB-T Box	15 Watt	pro h
Satellite receiver	20 Watt	pro h
Antenna amplifier / digital antenna	4 Watt	pro h
Video recorder	8 Watt	pro h
DVD Recorder, DVD Player	4 Watt	pro h

CD Player	6 Watt	pro h
Play station	1 Watt	pro h
CRT monitor	2 Watt	pro h
Flat Screen (TPF)	2 Watt	pro h
Multiple device (scanner / printer / photocopier)	8,6 Watt	pro h
Ink-jet-printer	5,3 Watt	pro h
Laser printer	8,6 Watt	pro h
Scanner	6,9 Watt	pro h
External modem	3 Watt	pro h
Cable modem	5,7 Watt	pro h
Active speakers	3,7 Watt	pro h

By multiplying the daily usage (time or frequency) with its specific consumption, a characteristic consumption for each device and household can be calculated for every day.

Procedures for calculating daily electricity consumption on device level (3 varieties)

1. Measurement was asked and reported correctly:

> use * measured value = daily electricity consumption of the device

2. Measurement was asked but not reported at all or not reported correctly (deviation > 75% of the median):

> use * median = daily electricity consumption of the device

3. Measurement was not asked:

> use * default value = daily electricity consumption of the device

As far as it makes sense these consumption patterns were calculated for summer and winter season separately.

The annual consumption by device or meter was derived from the daily seasonal consumptions as follows:

> Average summer day * 175 + average winter day* 175

350 days for device use were chosen because the average holiday period is two weeks (Statistics Austria 2002).

Additionally following assumptions were made:

Cooler: for calculating the overall consumption, the volumes of freezing and cooling compartments were taken into account separately. The consumption by 100l was calculated and used for plausibility checks. In cases of missing measurements, the median by 100l was used and converted to the reported size.

Freezer: for calculating the overall consumption, the volume was taken into account. The consumption by 100l was calculated and used for plausibility checks. In cases of missing measurements, the median by 100l was used and converted to the reported size.

Washing machine: the consumption reported for different washing temperatures were taken into account by calculating the average consumption.

Iron: after the sixth minute, only 50% of the operating period is classified as heating phase.

Food processor: operating period 10 minutes by use

Blender, mixing rod: operating period 1 minute by use

Handheld blender: operating period 5 minutes by use

TV: in case of missing measurements screen diagonals were used for calculating the specific consumption.

4.7 Other quality insurance measures

An intensive respondent assistance by telephone was necessary due to the complexity of the survey.

5. Publication (accessibility)

5.1 Preliminary results

Not relevant

5.2 Final results

February 2009

5.3 Revisions

Not planned

5.4 Published in:

The report (available in German only) is published on the website of Statistics Austria:
http://www.statistik.at/web_de/statistiken/energie_und_umwelt/energie/energieeinsatz_der_haushalte/index.html

5.5 Treatment of confidential data

The publication and data supply to third parties follow strictly the Federal Statistics Act 2000 in the current version. That means data are only supplied in anonymised form, thereforeno conclusions to single households are possible.

6. Quality

6.1. Relevance

The representational survey gives a comprehensive overview of the electricity and natural gas consumption by purposes and devices.

The main reasons for the survey were the increasing electricity consumption on the one hand and the directive 2006/32 EC on energy efficiency and energy services on the other hand. Electricity consumption for water heating and space heating is well documented since 1977, whereas no information about the consumption of electric appliances and for illumination was available. The

present survey significantly improved the information not only on the equipment of households with such appliances but also on the user behaviour. Based on this information the consumption patterns for cooking, laundry washing or entertainment electronics could be calculated. All households connected to the natural gas grid data were additionally surveyed on their natural gas consumption for space and water heating as well as for cooking .

The data give an exact picture of the electricity consumption in households by purpose. Furthermore, the database enables the recognition of electricity saving potentials with regard to appliances used and changes in user behaviour.

6.2. Accuracy

Generally seen, a moderate underestimation of the overall electricity and natural gas consumption 2008 is likely due to the following reasons:

➢ February 2008 was clearly and March 2008 moderately warmer than the long term average of these two months. The two months with the highest space heating shares, December and January, were out of the survey period. Therefore the heating shares tend to be underestimated.

➢ The months with the shortest daylight periods, November till January, were out of the survey period too. Therefore the electricity consumption for illumination is underestimated for sure.

The following tables show the observed sampling errors. The higher values in single categories are caused by lower sample numbers.

Sampling errors for annual electricity and natural gas consumption 2007 (last annual statement)			Sampling errors in %
			95%
	Cases (non-weighted)	Mean (non-weighted)	confidence level
Total annual electricity consumption in kWh	254	4.518	9,1
Total annual electricity costs in €	254	611	8,1
Total electricity price in euro per kWh	254	0,14	2,8
Meter 1, annual electricity consumption in kWh	254	3.725	8,1
Meter 1, annual electricity costs in €	254	535	7,7
Meter 1, electricity price in euro per kWh	254	0,15	2,6
Meter 2, annual electricity consumption in kWh	72	2.621	26,4
Meter 2, annual electricity costs in €	72	258	25,6
Meter 2, electricity price in euro per kWh	72	0,10	7,0
Total annual natural gas consumption in kWh	82	13.696	17,1
Total annual natural gas costs in €	82	716	16,0
Total natural gas price in euro per kWh	82	0,06	18,6

Annual electricity consumption 2008 in kWh	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Total annual electricity consumption 2008 in kWh	254	4.518	9,1
Refrigerator	254	316	6,8
Freezer	155	398	10,4
Stove, oven	237	376	9,5
Washing machine	228	206	8,5
Laundry dryer	65	313	22,7
Dishwasher	185	259	9,4
Other kitchen and household appliances	254	163	8,3
Office equipment (PC, Laptop)	194	128	17,6
Entertainment electronics (TV etc.)	252	186	8,9
Communication electronics	143	52	9,4
Chargers	238	20	29,4
Other relevant domestic appliances	221	192	29,0
Stand by: Office appliances (PC, printer etc.)	123	27	24,3
Stand by: Entertainment electronics (TV etc.)	218	151	12,5
Stand by: Stove, oven	100	42	6,6
Stand by: Other household appliances	134	61	10,0
Illumination	254	387	9,6
Hot water generation	95	1.861	13,9
Circulation pump of the heating system	159	407	9,4
Space heating	150	1.181	39,7

Daily electricity consumption in kWh	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Total daily electricity consumption, Winter	254	14,9	11,7
Total daily electricity consumption, Summer	254	9,9	7,6
Refrigerator	254	0,9	6,8
Freezer	155	1,1	10,4
Stove, oven , Winter	235	1,2	9,5
Stove, oven , Summer	223	1,1	11,2
Washing machine, Winter	219	0,6	8,8
Washing machine, Summer	216	0,6	9,0
Laundry dryer, Winter	63	1,2	23,4
Laundry dryer, Summer	49	0,9	23,8
Dishwasher, Winter	176	0,8	9,1
Dishwasher, Summer	175	0,8	9,6
Other kitchen and household appliances, Winter	251	0,5	8,6
Other kitchen and household appliances, Summer	251	0,5	9,2
Ventilator, dehumidifiers and humidifiers, Winter	22	0,2	69,6
Ventilator, dehumidifiers and humidifiers, Summer	19	0,1	59,9
Office equipment, Winter	189	0,4	17,8
Office equipment, Summer	179	0,4	19,0
Entertainment electronics, Winter	250	0,6	8,9
Entertainment electronics, Summer	249	0,5	9,9
Communication electronics	143	0,1	9,4
Chargers, Winter	224	0,1	31,3
Chargers, Summer	225	0,1	29,4
Other relevant domestic appliances (incl. air conditioners, additional heating), Winter	202	0,8	38,0
Other relevant domestic appliances (incl. air conditioners, additional heating), Summer	185	0,4	22,5
Stand by: Office appliances, Winter	96	0,1	26,5
Stand by: Office appliances, Summer	92	0,1	27,0
Stand by: Entertainment electronics, Winter	204	0,5	12,1
Stand by: Entertainment electronics, Summer	177	0,5	12,8
Stand by: Stove, oven	100	0,1	6,6
Stand by: Other household appliances	134	0,2	10,0
Illumination, Winter	254	1,5	10,3
Illumination, Summer	250	0,7	11,2
Hot water generation	95	5,3	13,9
Circulation pump of the heating system, Winter	157	1,8	10,4
Circulation pump of the heating system, Summer	156	0,4	12,6
Space heating, Winter	150	6,7	39,7

	Cases (non-weighted)	Mean (non-weighted)	Sampling errors in % 95% confidence level
Natural Gas, Winter in Bm³	80	6,7	17,1
Natural Gas, Summer in Bm³	65	0,9	20,9

6.2.1. Sampling effects

None observed.

6.2.2. Non-sampling effects

None observed.

Quality of data sources used

Not relevant

Coverage (misclassifications, undercoverage/overcoverage)

Not relevant

Missing responses (unit non-response, item non-response)

Unit non response: 49%

Item non response: only in single cases and then around 5%

Measurement errors (entry errors)

Not relevant

Processing errors

Not relevant

Model assumption effects

None observed

6.3. Timeliness and punctuality

The final data for 2008 were available in February 2009.

6.4. Comparability

Pilot survey and therefore not relevant

6.5. Coherence

The results of the present survey were compared with the "Household energy consumption survey 2008" and were fitting very well.