Life Is On | Schneider Electric

Overcoming energy poverty in Europe

The need to act at all levels
Concrete actions and financing, innovation and advocacy

White paper by Gilles Vermot Desroches & Patricia Benchenna
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Executive Summary

As the cost of energy rises, the fight against energy poverty has become a major issue in all European countries. To succeed, the multiple symptoms and causes of this precarity need to be addressed, by combining funding, the development of new business models, and advocacy with decision-making authorities.

1. Understanding energy poverty

1.1. A culmination of multiple factors

What is energy poverty? While all countries are engaged in the transition towards greener and more sustainable energy, too many people struggle with their bills and need to make tough choices when balancing budgets. These choices sometimes lead to people not heating their homes in winter, for example.

"We can't make any progress with the energy transition without taking into energy poverty into account." **Patricia Benchenna, Director Corporate Philanthropy and Energy Poverty, Schneider Electric**

11% of Europeans suffer from energy poverty

While there is no official definition of "energy poverty", it can be described as the struggle to afford the ever-increasing cost of heating or lighting in homes, or being able to cook food or heat water, as a result of low income or bills that are too high. Energy poverty leads to suffering from the cold in winter, and from the heat in summer.
According to an August 2018 Report by the European Energy Poverty Observatory (EPOV):

- 44.5 million Europeans are unable to adequately heat their homes.
- 41.5 million Europeans are in arrears on their energy bills.
- 16.3% of European households have abnormally high energy. expenditure compared to income, i.e. two times higher than the national median share (2010).
- 19.2% of European households reported being too hot in their homes during the summer of 2012.
- 11.2% of European households complained of being too cold during the winter of 2016.

According to the "Alleviating Fuel Poverty in the EU" report by BPIE (Buildings Performance Institute Europe), published in May 2014, 11% of Europeans suffer from energy poverty. Anywhere between 50 and 125 million Europeans are affected, above all the elderly, single-parent families with children, unemployed or low-income households, children, the disabled, people with chronic illnesses, and single unemployed people.

- The number of different datasets reflects the challenge of having a 'blanket" definition of energy poverty.

Three main causes of energy poverty

Energy poverty, and the social and health vulnerability that comes with it, is the result of a combination of factors:

- **Low incomes:** according to Eurostat, 17.3 % of Europeans, or 87 million people, lived below the poverty line in 2015 (which is defined as 60% of the median wage). 6.4% of Europeans are at the extreme end of the scale, below 40% of the median income. In France, it is measured by the number of people who are unable to pay their energy bills. According to the French National Institute of Statistics and Economic Studies (INSEE), household energy budgets (housing + transport) averaged of 8.7% between 1959-2016. High energy costs can push households into energy poverty and deepen social inequality. According to the French Environment and Energy Management Agency (ADEME), the poorest 20% of French households spend an average 2.5 more of their household budgets on energy than the richest 20%.
- **The high cost of energy, which will only continue to go up:** although it has stabilized somewhat since 2016, the historic price of electricity has skyrocketed in Europe. According to Eurostat, the average price of kWh for residential electricity in the Euro area went up from an average of 16 euros cents in 2008 to more than 20 euro cents in 2016. It will continue to climb, especially as new energy taxes to support the transition to renewable energy are implemented. The French Energy Regulation Commission (CRE) notes that electricity taxes rose from 9 euros per MWh in 2012 to 19-20 euros in 2016. France also has a carbon tax that has increased the price of heating oil, diesel and petrol. The average household electricity bill could increase by 50% by 2020, according to a French Senate report.
- **Poor household energy efficiency:** according to Eurostat, 15% of EU citizens reported living in homes with leaking roofs, damp walls, floors or foundation, or rot in window frames of floor in 2016. Among the 35 million French households, some 7 million are considered wasteful of energy, obtaining low energy performance ratings of F or G in Energy Performance Diagnoses.

1.2. Eradicating energy poverty is a major challenge for European countries

With many millions of people impacted, energy poverty is a major challenge for European countries, who need to protect the most vulnerable households, and also to protect the environment.

Health and social impacts

One of the most serious consequences of energy poverty is the impact on public health. Poorly-insulated homes that are either too hot in summer, or too cold in winter, have a direct impact on residents' health.
In 2013, the Abbé Pierre Foundation, which promotes housing rights for the most vulnerable in French society, launched an inquiry into health consequences of energy poverty. This study included both physical and psychological consequences, including acute illnesses (colds, angina, flu, diarrhea/gastroenteritis...), and chronic health issues (bronchitis, osteoarthritis, anxiety, depression, headaches, cardiovascular and respiratory diseases...). The study was followed up in 2018 by the Abbé Pierre Foundation Bad Housing Report that found: "Energy poverty often involves inadequate heating, with a risk of carbon monoxide poisoning, possibly exacerbated by the lack of adequate ventilation." The report added that "greater levels of condensation and the appearance of mold and rot have multiple health impacts, including the increased risk of lead poisoning coming from old paint."
Health professionals are increasingly recognizing the negative impacts of energy poverty, which they attribute to a range mental health disorders, such as poor sleep, mood swings, stress, anxiety and depression. These are aggravated by a sense of social devaluation and low self-esteem. Children are impacted by both their immediate environment, and an inability to focus, for example, on homework, which in turn undermines their education.
Energy poverty and poor health and safety are inseparable, and can have dramatic consequences:

- **Increased mortality in winter**: a February 2018 study conducted by National Energy Action (NEA) and E3G in the United Kingdom reveals that of all the deaths attributable to cold during the winter months (December to March), 9,700 are a direct result of badly insulated homes, and 3,200 (10% of the total deaths) are due to energy poverty.
- **Domestic accidents:** poor-quality housing, especially where electrical wiring is outdated, carries a greater risk of electrical safety issues, such as fires and even electrocutions. According to the French National Committee for the Safety of Electricity Users (CONSUEL), some 65,000 domestic fires per year have an electrical origin. Fire isn't the only cause of death, for example the death in Greece of a 13-year-old girl by carbon monoxide poisoning from an improvised heater, and the case of a 56-year-old quadriplegic Greek woman who needed 24-hour mechanical breathing assistance, who died within an hour of her electricity being cut off…

Economic and environmental incidents

Homes that are un-heated or under-heated fall rapidly into disrepair. This deterioration accelerates the loss of energy efficiency, creating a vicious circle of degradation that increases energy poverty.
The waste of energy due to bad insulation and poor-quality heating systems in turn leaves a higher carbon footprint, as over-consumption of energy generates ever more greenhouse gases.
In November 2018 the EU parliament adopted ambitious new climate change targets - that by 2030, energy efficiency across the bloc will have to increase by 32.5%, while at the same time the share of renewable energy should reach 32% of the EU's total consumption. These objectives will be reviewed (upwards) in 2023.
For the first time, member states will be obliged to take energy efficiency measures aimed specifically at improving the situation for citizens suffering from energy poverty.
In addition to wasteful energy consumption, energy poverty threatens the immediate natural environment, such as forests. For many people in **south-eastern Europe** (Greece, Bulgaria, Serbia, etc.) the illegal exploitation of forests is their only source of winter fuel. This leads not only to deforestation, but wood burning also contributes to poor air quality.

Energy suppliers are impacted by the energy poverty of their own customers, because they incur costs when recovering arrears on energy bills. In 2016, according to Eurostat, 10.5% of European customers were in arrears for utility services such as heating, electricity, gas, water etc.

In contrast, the fight against energy poverty has positive economic impacts. Firstly, lifting people out of energy poverty reduces the cost of healthcare. Secondly, initiatives aimed at alleviating energy poverty create new jobs and business models, such as energy-efficiency renovations, as well as social care for vulnerable people, social entrepreneurship, advisory services etc.

1.3. Lack of common definition, different situations within the EU, a common will to eradicate energy poverty

In the aftermath of the 1974 and 1978 oil crises, the United Kingdom pioneered social and economic responses to energy poverty. Even today, only France, England and Scotland have legal definitions for energy poverty. Despite this, all European countries are aware of its impact, and each is working according to their own means.

Diverse definitions across Europe

In the UK, households that devote more than 10% of their disposable income to heat their homes fall into the energy poverty category. In 2015, this was the case for 11%, or 2,550,000, of households, a 0.1% on the previous year.

The French legal definition (Grenelle law of 2010) is that "a person suffers from energy poverty when that person has difficulty obtaining energy necessary for his/her needs due to inadequate resources or because of the condition of the home". Meanwhile, the French Energy Poverty Observatory (ONPE) uses three indicators, including the proportion of income dedicated to

energy spend (any more than 8% to qualify as “energy poor”), and also consumer behavior (using less heating to save money, for example), and how badly the cold is felt. According to these indicators, 5.4 million French households were officially in energy poverty in 2017, compared to 5.6 million in 2016. Looking only at households that spend more than 8% of their income on energy, the figure is 3.3 million households (6.7 million people).

Because energy poverty is not measured uniformly, it is it difficult to have a precise appreciation of the situation across Europe. Three approaches to improve the way energy poverty is measured could improve this situation:

- **Financial approach**: calculating where household energy expenditures exceed a certain percentage of income. However, this is a simplistic approach, as it excludes households that must minimize energy consumption to avoid high bills, and includes high-income households that also consume a large amount of energy.

The United Kingdom has framed energy poverty using the “Hills Indicator”: A household’s income is below the poverty line (taking into account energy costs); and their energy costs are higher than is typical for their household type.” The French have an identical indicator: “Low Revenue High Spend”.

- **Administrative approach**: households that receive public assistance in order to settle their energy bills are considered to be in energy poverty.
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Quality of Life Approach: if members of a household report that they have suffered from the cold in home for at least 24 consecutive hours, they would fall into the energy poverty category. However, this is a difficult indicator to measure objectively.

Diverse approaches in Europe

Across Europe, multiple different solutions have been put in place by NGOs and public authorities in a bid to reduce energy poverty. However, too many of them are reactive, not preventive, and fail to address the underlying causes of the problem.

Social assistance

In **France**, aid is allocated according to social criteria. This is financed through a “Solidarity Fund”, paid for by taxes that are included in all consumers’ energy bills.

- Solidarity Fund: 157,962 households benefited from this aid in 2015.
- The "Energy Cheque" helps low-income households pay their energy bills (electricity, gas, oil, wood, etc.). It will gradually replace the existing preferential social tariffs for low income households. Some 3.6 million households received an energy cheque in 2018.
- Starting 2018, EDF customers equipped with “Linky” smart meters can donate energy to poorer household. This project, in partnership with the Abbé Pierre Foundation, gives donors a 75% tax break on the value of the donation.

In **the UK**:

- The Warm Home Discount is a one-off discount of £140 for the 2018/2019 months, applicable to low-income households.
- The Cold Weather Payment is a £25 weekly payment is given following seven consecutive days of extreme cold.
- An annual Winter Fuel Payment, is paid automatically to all pensioners.

In **Italy**, an annual bonus for electricity and gas is given to households below a certain income threshold, based on the number of people in a household. An energy allowance is also granted for the chronically ill, depending on the medical equipment used.

In **Germany**, help for energy bills is included in unemployment benefits, and is calculated according to the size and financial situation of the household (about €50/month).

In **Sweden**, all consumers are subject to a uniform rate on their energy bills, and all households receive an allowance. Low-income households can receive extra assistance with their energy bills, which are considered on a case-by-case basis.

Consumer protection

Around 80% of EU states have policies to protect consumers who have their energy supply cut off in case of non-payment.

Energy companies also provide consumer protection in the form of published codes of conduct (Belgium, Ireland, Luxembourg, Sweden, United Kingdom), or reports on vulnerable consumers (France, Germany, United Kingdom).

These include:

- Mandatory reminders of late payments, and the obligation to inform consumers before their electricity is cut off.
- A ban on cutting energy supplies during winter months.
- Reduction the volume of electricity to provide a minimum of comfort
- A ban on cutting energy supplies to people suffering chronic illnesses on receiving benefits.

In contrast, a July 2013 Spanish law allows electricity companies to cut electricity from households – and even essential public services such as hospitals – if they do not pay their bills. In 2016, 1.8 million Spanish households were cut off, according to the El Mundo newspaper.

Preventive and corrective solutions

Scandinavian countries and the **Netherlands** provide generous social assistance to people in energy poverty.
At the same time, these countries are making a significant effort to improve the energy performance of social housing.
Social assistance is therefore not the main tool for ensuring energy access, but rather a safety net that acts as a transitional measure to a more lasting and sustainable solution.
In **France**, non-profit organization CLER, a network dedicated to energy transition and the promotion of renewable energy, co-ordinates an Energy Management Intervention Program that develops local initiatives to fight energy poverty. The program identifies households that could qualify for state aid, and gives advice to residents through home visits. CLER's long-term aim is to help households adopt greener energy consumption habits that will lower their energy bills while improving the comfort of their homes.
Again, in France, the National Habitat Agency (ANAH) launched a "Better Living" program in 2010 to help low-income households improve their energy efficiency through renovation projects. By 2017, some **52,266 homes had been renovated thanks to the program,** an increase of 28% compared to 2016. A further 2,000 households benefitted from measures aimed at apartment buildings. The number is still well below national the national target of

150,000 renovations per year, and to eradicate the problem of homes that are wasteful of energy, that number needs to rise to a more ambitious 250,000.
In November 2018, the French Parliament voted in favor of an experiment in five "départements" [French administrative regions, of which there are 101], to give tax credits to households who have received help from ANAH. Specifically, the tax credit covers 100% of the cost of the ANAH energy audit, which normally costs around €600.

In **Germany**, the public KfW Förderbank provides third-party financing to homeowners for energy-efficiency retrofit projects.

Across **Europe**, Energy Efficiency Certificates (EECs) in Italy, Denmark, Ireland, France and the UK (where they are called "White Certificates") oblige energy utilities to undertake energy efficiency measures and to encourage energy efficiency retrofits that reduce consumption. The EECs give utilities a score in accumulated kWh savings. Failure to achieve set targets results in a fine.

French EEC Objectives for 2018-2020:

- 1,600 tWh of accumulated savings, of which a quarter must benefit households officially in energy poverty.
- A €10 billion reduction of energy bills per year thanks to energy retrofits.
- 75,000 jobs generated in the energy efficiency renovation sector.

In November 2018, the French government announced an investment of €82 million in ten new EECs:

- The "CUB.E" program, led by the French Institute for Building Performance (IFPEB), aimed at 790 schools.
- The "Apartment Building Renovation Expertise" program, led by the French National Building Federation (FNAIM), to train 1,200 apartment building management committees, and 3,000 individual apartment owners.

A common legislative framework

Beyond the three main causes of energy poverty, and the three primary approaches to resolving it, the European University Institute's "Statistics on Income and Living Conditions" survey, coordinated by Eurostat, has identified three quantifiable indicators:

- Inability to keep a home warm
- Late payment for bills
- The presence of a leaky roof, damp walls, floors or foundations, or mold in window frames or floor.

In addition, the European Commission has established key directives to provide a legislative framework for fighting energy poverty:

- Member countries must define what constitutes a "vulnerable consumer" and what protections are adequate according to the specific situations of each country. Poland endorsed a definition of "vulnerable consumer" in 2013 but has yet to recognize energy poverty as a phenomenon of poverty itself.
- Member countries should consider appropriate measures to address energy poverty at national level, prioritizing long-term solutions (such as energy-efficiency renovations), and not just short-term solutions like social assistance or tax credits.

- Member states should establish national programs to improve energy efficiency in housing.
- The European Regional Development Fund (ERDF) was created to (among other initiatives) facilitate the financing of energy-efficiency projects in social housing.
- The European Energy Poverty Observatory (EPOV) aims to engender transformational change in knowledge about the extent of energy poverty in Europe, as well as innovative policies and practices to address it. The project is funded by the European Commission, established in 2016 by a membership of 13 organizations, including universities, advocacy groups, think tanks and the business sector.

These are short-term solutions, either temporary or in response to emergencies, that fail to address the causes of energy poverty, such as poor energy efficiency, or underlying causes of household poverty.

There is also the difficulty of identifying at-risk households that cannot or do not know how to ask for help. This greatly complicates the task of organizations and associations, who are doing their level best to improve the situation.

Consequently, the struggle of overcoming energy poverty is beset with short term fixes, such as financial aid, small repairs and cash handouts.

Long term solutions are needed: renovations, greater awareness of the problems and possible solutions, a change in energy consumption habits, and political will.

2. Combining action in the field with financing, developing new models for the social economy, advocacy with decision-making authorities

"Energy is a fundamental right for everyone everywhere". **Gilles Vermot Desroches, Chief Sustainabilty Officer, Schneider Electric**

As a leader of the digital transformation of energy management, Schneider Electric is determined to bring safe, affordable energy to everyone, including the billion people who have no access at all.

Schneider Electric provides a range of solutions for improving energy efficiency, as well as automation solutions that vastly energy management, in homes, buildings and factories. These solutions improve management of high-consuming functions or appliances, while giving homeowners, residents and building managers tools to see their consumption in real time.

But energy poverty cannot be solved with technology alone. All stakeholders, including homeowners, tenants, professionals, energy suppliers, social services, NGOs and elected officials, among many others, need to work together. They need a deep, shared and common understanding of how people live, how they use energy, and how technological solutions can realistically address the problem. It is essential to combine an understanding of the social fabric, with social innovation and technical solutions.
Schneider Electric works to resolve this through the **Schneider Electric Foundation**, and through its partnerships with associations, NGOs and communities. The aim is the creation of an ecosystem that can be adapted to all situations, combining technological and support solutions, financing and philanthropy with these diverse groups.

2.1. Schneider Electric supports social innovation

Through the Schneider Electric Foundation

The **Schneider Electric Foundation**, under the aegis of Fondation de France, supports projects through funding, innovation and skills, including incubation, project follow-up, and coaching.
The Schneider Electric Foundation is also actively involved in projects to create a structured professional sector, to fight energy poverty in the long term.

Participatory funding: The "Petites Pierres" crowdfunding platform
In France, in partnership with Somfy, the Schneider Electric Foundation support crowdfunding platform "Petites Pierres" [which translates as "Little Stones"], which raises money for small projects through voluntary donations.
Schneider Electric's engagement with "Petites Pierres" strengthens the company's relationship with Somfy, enables collaboration with other companies dedicated to relieving energy poverty, and gives Schneider Electric employees a platform to make personal contributions and provide technical skills on specific projects via the VolunteerIn program.

Established by Somfy, "Petites Pierres" raises money for viable local projects (up to €20,000 per project) that improve poor housing. For each donation made via the platform, the Schneider Electric foundation makes its own contribution.

Skills development

MOOC: "Act to reduce energy poverty"

In 2016, the French Environment and Energy Management Agency (ADEME) launched a MOOC (Massive Online Training Course) for Sustainable Buildings with partner associations ASDER (Savoyard Association for the development of Renewable Energy) and the RAPPEL network of associations fighting to end energy poverty.
The MOOC training program helps participants understand the implications of energy issues (social, health, economic, environmental), how to identify households in energy poverty, how to deal with the various private and state actors involved, and the regulatory and legislative solutions available. The Schneider Electric Foundation and other partners, such as the Abbé Pierre Foundation or AG2R La Mondiale, participate in supporting the project financially.

Helping people into work with Logiscité

In order to promote employment and training as a principal means of lifting people out of energy poverty, the Schneider Electric Foundation partners with the Red Cross in the "Logiscité" initiative that helps disadvantaged people into employment. Founded in 2016, "Logiscité" offers training on identifying homes suffering from energy poverty, how to improve energy and water efficiency, and communication skills to advise households on how to improve energy management.

The creation of a network of professionals dedicated to fighting energy poverty, with the French National Agency of Active Solidarity

In the summer of 2018, the French National Agency for Active Solidarity (ANSA) launched a professional lab to centralize and share the challenges and opportunities of fight against the energy poverty, bringing together diverse new functions in the sector, from "volunteer mediator", to "energy consultant" and "energy efficiency renovator". The objective is to create coherence between these roles, speed up the execution of renovation projects, and identify the barriers to employment. The Schneider Electric Foundation co-finances the project with social insurance company Malakoff Médéric.

At a European level, the Schneider Electric Foundation is part of the Agency for Innovation, Development and Education (ASIFOR) which relies on European, national and regional funding opportunities.

Innovation through the HOPE a higher education research chair

Leading French engineering university the Institut Polytechnique de Grenoble in 2018 created the HOPE research chair of educational excellence, which is supported by the French Ministry for the Ecological and Inclusive Transition. The chair combines technological innovation with social awareness in the fight against energy poverty. The Schneider Electric Foundation is a partner in the chair, alongside the Rexel Foundation, EDF and the Banque des Territoires, an investment subsidiary of French public bank Caisse des Dépôts.

The Schneider Electric Energy Access (SEEA) solidarity fund

The SEEA fund was created in 2010 in response to a French law obliging private companies to establish funds that facilitate employees' investments in solidarity projects. Turning a constraint into an opportunity, a core focus of the SEEA is investment in social housing with the specific aim of fighting energy poverty.

The SEEA fund's first investment, in 2011, was in Foncière Chênelet, which provides professional opportunities for disadvantaged people, that designs and builds housing using environmentally-friendly materials that are made to last, are healthy and well-insulated, and use local suppliers. These homes are destined for low-income families, and have the lowest rents on the social housing ladder.

In November 2018, the SEEA fund finalized an agreement for the creation of two housing projects. The first with Emmaüs: Le Relais, which manages a small project upgrading poor quality housing ready for rent, mostly for Emmaüs employees. Schneider Electric's property experts helped draw up the Le Relay's legal statutes. A second, similar, housing project was carried out with the SOLIHA (Housing Solidarity) charity in the Pays de la Loire region of western France.

In 2018, the SEEA fund invested in the DORéMI project created by the négaWatt **Institute**. DORéMI is an energy retrofit initiative aimed at individual homes for houses built before 1975. The initiative provides training in energy retrofit skills, and how to coordinate activities to avoid the expense of a construction project manager. The Foundation also helped DORéMI scale up its activity by developing a strong business plan, establishing partnerships, raising funds, and getting access to the most relevant equipment.
In 2014, the SEEA fund supported the "Homes for all" innovative housing project for vulnerable people, in particular Roma and migrants. This project, thanks to the work of 10 recruits with disadvantaged backgrounds, converts shipping containers into comfortable, modular, transportable, inexpensive and energy-efficient homes. Schneider Electric contributed its Wiser solution for smart-home energy management. The shipping containers were built by workers trained by La Varappe, a charity that helps disadvantaged people into employment.

2.2. Schneider Electric accelerates experiments in social innovation at a European level

To identify innovative and social initiatives that have the biggest impact on energy poverty in Europe, the Schneider Electric Foundation launched, together with Ashoka, an NGO that promotes social entrepreneurship, the "Social Innovation to Tackle Energy poverty" appeal. Selected projects benefit from personalized coaching from volunteer experts, financial support and investment.
Now in its third year, the initiative is helping with selected social innovation projects in 10 European countries, namely Germany, Belgium, Spain, France, Greece, the UK, Italy, Poland, Portugal and the Czech Republic. Some 28 projects have been chosen, and benefit from personalized via the Foundation. The VolunteerIn program gives these projects access to volunteers, who provide active support in securing financing.
A notable example is Belgian project Samenlevingsopbouw [which translates as "Community Development"], supported in 2016, which could be replicated in France. The project helps households suffering from energy poverty rent energy-efficient equipment to replace obsolete and inefficient household devices. These households have the option to use their energy savings to buy the equipment outright. It is the first initiative of its kind in Europe.
Finally, the Schneider Electric Foundation partners with consulting firm KIMSO, a specialist in impact evaluation. Together, they have a pool of three associations that help households with social and technical projects, and measure their impact thanks to a questionnaire following each visit. These questionnaires help fine-tune future projects.

2.3. Schneider Electric advocates in fight against energy poverty

"Rénovons" [which translates as "Let's Renovate"] is a broad alliance of NGOs, associations such as CLER Network for Energy Transition, charities such as the Abbé Pierre Foundation and Secours Catholique [Catholic Aid] and private companies like Effy, with the common goal of reducing energy poverty by improving the energy performance in households that are energy sinks. Schneider Electric and its Foundation are on the steering committee, with the mission of convincing local authorities that investment is needed if they are to achieve their energy efficiency targets.

At the European level, the Schneider Electric Foundation partnered with the King Baudouin Foundation and the European Policy Centre, an independent non-profit think tank, on the "Energy Poverty Task Force", which researches the impact of energy poverty in the European Union.

Launched in 2016, the "Energy Poverty Task Force" helped establish and coordinate working groups (regulation, training, financing, social entrepreneurship, etc.) with NGOs, interest groups, MEPs and the European Commission, to promote the fight against energy poverty, and to harmonize approaches to the issue at a European level.

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