UNVEILING THE COSTS OF FUTURE FOSSIL GAS INFRASTRUCTURE AND WHY THEY MATTER FOR THE REVISION OF THE TEN-E REGULATION
The Trans European Energy Infrastructure regulation (TEN-E), defining the criteria and infrastructure categories for Projects of Common Interest (PCIs), is under revision. This briefing looks at both the ongoing revision process and the costs of the current PCI list (the fifth list) still governed by previous TEN-E rules.

It addresses the elephant in the room as it finds that fossil gas candidate projects on the fifth PCI list, up for selection by the end of the year, will cost more than €41billion. This stands in stark contrast with claims made at the highest political level that PCI projects need to support the “European Green Deal”. It is difficult to understand how this “European Green Deal” proofing can happen when billions of heavy fossil gas projects continue to be submitted to the PCI list and current but also future TEN-E criteria, such as sustainability, are not given number one priority.

To provide context to the revision of the TEN-E regulation we investigate the costs of the concurrent fifth PCI list process, as well as using this candidate list to provide real examples of the ways in which the TEN-E revision may, or may not, be able to deliver a stop to continued funding for fossil gas projects in Europe.

Our analysis shows that potential loopholes for fossil gas under the fifth list, and the TEN-E revision, if not done right, could continue to channel millions into unneeded gas infrastructure and the fossil gas sector at large. We therefore urge policy makers to exclude all fossil gas projects from the current PCI list and deliver a TEN-E revision that ensures future PCI lists are fossil gas free - helping achieve a phase out of fossil gas in Europe by 2035\(^1\) and limiting temperature increase to 1.5°C.

The economic data in this briefing has been taken from ENTSOG’s TYNDP assessment,\(^2\) supplemented with information provided by the project promoters during the April 2021 Regional PCI Meetings. The data might be an underestimation of the full impacts of each project.

\(\text{€41billion}\)

Including (OPEX and CAPEX) could be invested into fossil gas infrastructure across Europe according to analysis of the ENTSOG TYNDP 2020. Infrastructure that is neither necessary, economically viable, nor climate-compatible.
UNVEILING THE COSTS OF FUTURE FOSSIL GAS INFRASTRUCTURE
AND WHY THEY MATTER FOR THE REVISION OF THE TEN-E REGULATION

PROJECTS OF COMMON INTEREST (PCIS): THE FIFTH PCI LIST
The European Projects of Common Interest are a list of cross-border energy infrastructure projects which receive the highest political support at the EU level. A project’s inclusion on the list allows it to access faster permitting procedures, streamlined environmental impact assessments, and eligibility for a dedicated line of EU funding (the Connecting Europe Facility), all under the assumption that these projects bring energy security, competition or market integration benefits for two or more member states. Proposals for the fifth list have already been identified in the format of a candidate list, which has been discussed during Regional Group meetings. The draft fifth PCI list will be published in Q4 2021 by the European Commission in the form of a delegated act. EU Parliament and Council have to adopt or reject the draft list in Q1 2022.

TRANS-EUROPEAN ENERGY NETWORK INFRASTRUCTURE (TEN-E)
The PCI list is governed by the TEN-E legislation, which is currently being revised. In recognition of the need to stop EU support for fossil gas projects, the TEN-E revision process was initiated by the Commission with the aim to exclude fossil gas projects from eligibility for the PCI list, starting with the sixth draft PCI list to be published in 2023. Current discussions have seen some calls for a prolongation of PCI status for fossil gas projects under the new TEN-E regulation that risk ripping a dirty fossil fuel hole into a law aimed at helping design a future proof energy system. Furthermore, recent negotiations on the TEN-E revision in Council have settled on loopholes that may allow derogations for Malta and Cyprus and allowances for blending of fossil gas with hydrogen. Future discussions in the Parliament and in Trilogues, likely in Q3 2021, will determine how effective the TEN-E revision will be at helping the transition to 100% renewables. Any significant delays in the negotiations could potentially pose a risk for a sixth list to be submitted in 2022 which could then be drafted under the current TEN-E rules.

THE ELEPHANT IN THE ROOM
THE 5TH PCI LIST
To deliver the EU’s energy and climate priorities, we cannot allow public money to go towards fossil gas infrastructure. While the TEN-E regulation revision process looks to rebalance future priority projects in light of the EU’s commitment to reduce greenhouse gas emissions by 55% in 2030, there are currently 74 fossil gas candidate projects applying for a spot on the fifth PCI list, which is governed by old TEN-E rules. This elephant in the room comes at a cost.

If all of the candidate projects on the fifth PCI list were to be built or finalised it could cost over €30billion in capital expenses (CAPEX), with annual operating costs (OPEX) of around €780million. This is a huge investment, partly to be financed by public money, for a fossil fuel energy source that needs to be phased out by 2035.

And this is just the tip of the iceberg. As the upfront costs of these projects are significant, the fossil gas transport industry will operate these projects for several years to ensure a return on investment. Yet, investing in projects with a 60 year lifetime, or longer, makes no sense given the short amount of time the asset can be used without fully blowing our carbon budget.
For example, if we propose that Europe must move away from fossil gas by 2035, then these projects will only - if at all - be operated for 15 years maximum. Making the total investment for just operating these fossil fuel assets (over a 15 year time period) somewhere nearer to €11.7 billion OPEX. Building and operating all fossil gas projects that applied for a spot on the fifth PCI list could therefore cost over €41 billion - at a minimum. These are massive investments going to fossil fuels rather than renewables, creating a significant amount of stranded assets.

This is, however, not the end of the story. Besides the costs for infrastructure alone, billions more euros are handed annually to the fossil gas industry. Europe imports a large majority of the gas it uses from countries like Norway, Russia, Algeria, the USA, Qatar and others. In 2020, the EU’s total gas import bill was €36.5 billion, while in 2019 it amounted to €59.4 billion, according to the EU Commission gas market report Q4 2020.

**STRANDED ASSETS & WASTED MONEY**

A recent report by Artelys showed that projects on the fourth PCI list were “found to be unnecessary to safeguard security of supply in the EU28 and therefore risk to become stranded assets supported by European Union public funds.” A report from Global Witness also showed that €440 million of public funds have been wasted so far on failed PCI projects. The poor economic viability of these fossil gas projects is catching on, with ACER also questioning the validity of some PCI projects, noting that “some PCIs did not advance their status over the past six years.”

The question remains: why are we continuing to fund projects that are not needed, will likely become stranded assets and that, in the meantime, are wasting public money?

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**€30 billion**

The costs to build or finalise all of the candidate fossil gas projects on the fifth PCI list (CAPEX)

**€11.7 billion**

Estimated annual costs (OPEX) for all candidate fossil gas projects on the 5th PCI list for 15 years

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(7) European Commission, Quarterly Report on European Gas Markets 2021
(8) Artelys, Gas Security of Supply: Updated Analysis, 2020
(9) Global Witness, Pipe Down, 2020
(10) ACER, Consolidated Report on the Progress of Electricity and Gas Projects of Common Interest, 2021
A closer look at the 5th PCI list reveals where the majority of gas infrastructure projects would be built, and where the majority of investments lie.

#1 GREECE

Assessment of the fossil gas PCI candidates on the fifth list shows Greece ranking in first place on the list of gas-infrastructure hungry countries. Building and operating for 15 years the 13 projects Greece is hosting could cost over €11.5 billion. The most expensive projects hosted by Greece are the EastMed pipeline as well as the Poseidon pipeline and the expansion of the Trans-Adriatic Pipeline (TAP).

7 of the fossil gas projects, mostly compressor stations or metering and regulating stations, would be built and operated by the Greek Transmission System Operator DESFA, while 2 projects constituting a planned LNG terminal in Alexandroupolis are put forward by the Greek utility Gastrade S.A. Additionally there is a gas storage facility by Hellenic Republic Asset Development Fund and the costly expansion of the TAP pipeline by the Trans Adriatic pipeline AG. Promoter of the costly Poseidon and EastMed pipelines is IGI Poseidon consortium.

#2 ROMANIA

With yet more expensive planned mega gas infrastructure Romania comes in second place, ready to pay over €7 billion to build and operate 8 proposed gas projects. Most expensive infrastructures are the White Stream and Eastring pipeline projects. Putting forward the expensive White Stream subsea pipeline is the White Stream Company Limited, while Transgaz, a state-owned Romanian transmission system operator, is involved in 4 projects, including the Eastring BG-RO-HU-AT mega-pipelines. Engie Romania and Depogaz, Romania’s main gas storage operator, are the promoters putting forward three gas storage projects.
#3 POLAND

Next, the country that received around half of all Connecting Europe Facility (CEF) tax money awarded to fossil gas PCIs on or linked to its territory, wants more. **Poland has put forward exactly 6 costly proposed mega projects channeling another €5.8billion into the fossil gas sector just for building and operating these projects.** The North-South corridor in eastern Poland makes up for a big part of this money.

All of these fossil gas projects are put forward by **GAZSYSTEM**, the Polish gas transmission operator. GAZSYSTEM has already received over €650million of tax money from the Connecting Europe Facility for projects it operates alone or jointly with other Transport System Operators (TSOs).

**Croatia** could see new fossil gas infrastructure worth over €1.6billion on its territory, with operating costs amounting to over €790million over 15 years - summing up to close to **€2.5billion of gas infrastructure money** for the small country with enormous renewable energy potential.

**Italy** seems to invest comparably little given the huge gas import projects planned to carry gas into the country. Following ENTSOG data, **Italy is the hosting country of just 3 projects by the Italian gas system operator Snam worth €1.65billion with €4.5million annual operational costs.** The picture completely changes once costs for projects around the expansion and extension of the **Southern Gas Corridor** (which is mainly built outside the EU territory) are added. The Southern Gas Corridor aims to carry Azeri and Turkmen gas to Europe through Italy, and while the Italian government doesn’t have a say on activities happening beyond its borders, they have embraced this gigantic pipeline which would end in the south of Italy. Total costs for building and operating these pipelines outside EU territory - which could still access EU funds - could amount to **more than €5.8billion.** It’s worthwhile to note that more than €17million of EU funds (Connecting Europe Facility) have already been allocated to the Southern Gas Corridor (i.e. have been invested in Turkmenistan and Azerbaijan), as well as billions more from the European Investment Bank and European Bank for Reconstruction and Development.

Projects in **Bulgaria**, mostly promoted by **Bulgtransgaz**, could amount to total costs of just over €2billion; gas projects applying for the fifth PCI list hosted by **Hungary** and promoted by the Hungarian operator and owner of the gas grid **FGSZ** to over €1.1billion.

See Annex 1 for more information on the figures.

It is crucial to note that a project could not receive the PCI label if the EU country in which it should be built opposes the project. It is therefore ultimately up to member states to accept or reject these PCI candidates, and only after this initial indication from member states can the EU Commission make an assessment as to whether a project gets top EU priority status or not.

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15. Bankwatch, Southern Gas Corridor
16. This is e.g. the case for Austria, as a ministry representative announced in the April 2021 Regional PCI meetings (and reinforced during the June 2021 Regional PCI meetings) that no fossil gas PCI candidate shall be built on Austrian territory.
A BETTER FUTURE, RIGHT? REVISITING THE TEN-E REGULATION

The TEN-E Regulation revision process is ongoing, with the Energy Council recently adopting its position(17) and upcoming deliberations in the European Parliament. While the European Commission excluded the fossil gas category from its proposal in December 2020, Member States recently included allowances for fossil gas infrastructure in future PCI lists that would have significant long-term impacts going forwards. This would mean support for superfluous, climate-wrecking projects which come with high costs. To highlight the cost of constructing and building these projects, we had a closer look at project data on the candidate fifth PCI list to help consider the cost implications for the following potential loopholes:

- Two special projects in Cyprus and Malta backed in the Energy Council position
- The cost of building all “advanced” projects, that have been included in the last PCI list and are applying to become PCIs once again

For further cost details see Annex 2.

DEROGATIONS FOR MALTA & CYPRUS

The PCI list is meant to help fund better connected energy infrastructure projects across Europe. Under the previous regulation, PCI projects were meant to indicate mutual benefit for two or more member states, and were supposed to address security of supply issues. With this premise in mind, the Council negotiations saw a push for derogations that would allow Cyprus and Malta to continue to access PCI status for their relevant projects so that these island states could become fully connected to the European gas network. This could mean giving the following two projects priority under the fifth PCI list and future PCI lists.

GREECE

Project: EastMed pipeline
Operator: IGI Poseidon S.A.
Project Status: less-advanced, 2025-2025, on time
Exit Capacity: 20GWh/d
Cost: minimum CAPEX €5.2billion, OPEX per year €90million  
*This project is considered a derogation for Cyprus, but it is listed as a Greece-hosted project in the TYNDP and has “benefits” for both countries.

MALTA

Project: Melita TransGas Pipeline, TRA-A-31
Operator: Melita TransGas Co. Ltd.
Project Status: Advanced, 2024-2025
Exit Capacity: 56GWh/d
Cost: CAPEX €409.8million, OPEX per year €3.60million

Together, these derogations would sum up to at least €7billion for constructing and operating for just 15 years, either locking Malta and Cyprus into a fossil fuel future, or generating significant stranded assets which take them further from an 100% renewable energy future.
GRANDFATHERING ADVANCED PROJECTS
A grandfather clause is a provision in which an old rule continues to apply to some existing situations while a new rule will apply to all future cases. This has come up in discussions on the TEN-E Regulation revision. Beyond the specific derogations given to Malta and Cyprus, there is an additional risk that certain advanced projects could receive grandfathering clauses and also remain on future PCI lists. There are a few projects which could be classified as “advanced” and therefore could likely be included in the next PCI list.

We have identified eighteen projects which were included on the fourth PCI list, and are candidates for the fifth list, which have been marked as advanced or with a final investment decision (FID) in the ENTSO-G assessment (shown in dark blue in Annex 3).

Nine of these candidate projects have operational dates of 2021 or 2022 and therefore may also be applicable for grandfathering unless they have finalised the construction phase already (shown in light blue in Annex 3).

Building all of these advanced projects and operating them for a duration of 15 years could cost over €10.3 billion.

BLENDING
The Council’s position on TEN-E includes the notion of “blending” – the possibility of mixing hydrogen with fossil gas. Also during the discussions of the fifth PCI list, several project promoters mention the use of fossil gas infrastructure for hydrogen. This avenue only creates further loopholes for the continued use of fossil gas, and is not in any way as forward thinking as it may sound. In fact, industry has warned about the negative impacts that blending may have on its activities, and there are concerns about the costs that could fall on gas consumers given the high expense and inefficiency of blending with hydrogen. With negligible climate benefits (blending a 5% volume of hydrogen would only displace 1.6% of fossil gas demand) blending appears to be an expensive gateway for supporting the continued use of fossil gas and fossil gas infrastructure across Europe with limited usefulness for gas consumers and little or even negative climate impact.

YOU SAID SUSTAINABILITY?
The European Commission’s TEN-E proposal has raised the profile of the “sustainability” criterion, one criteria among four that PCI projects need to apply to. However, the recent draft methodology for assessing the fifth PCI candidate projects considered the “sustainability” criterion optional, despite the Commission promising to act on this. Candidate projects on the list are expected to contribute to “at least one” of the following specific criteria: market integration, security of supply, competition or sustainability. This means that the climate impact of a fossil fuel project can bear no weight on the selection process as long as it fulfils at least one of the other criteria. Furthermore, the sustainability criterion itself is weak. Methane emissions are not taken into account, while automatic CO2 emissions savings are assumed when fossil gas leads to a “fuel switch” from dirtier fuels. The fact that fossil gas use can block the use of much cleaner alternatives like renewables and better energy efficiency is not considered. Despite slight improvements (e.g. existing infrastructure is prioritised over new pipes and terminals) this optional criterion is clearly not enough.
The revision of the TEN-E Regulation and the fifth PCI List process present an opportunity to fast-track Europe towards a 100% renewable future. Saving time, money, and the planet in the process.

It’s clear that fossil gas has no place in the future of our energy mix. It is therefore high time Europe stops investing further into costly gas pipelines and terminals. This means the revised TEN-E must be fossil gas free. In this context, the EU Parliament must adopt a strong position on the TEN-E revision ensuring that no fossil gas infrastructure remains prioritised in Europe.

Fossil gas candidate projects put forward on the fifth PCI list could amount to over €41 billion channeled into the fossil gas sector, and many billions more into paying the gas bill. Fossil gas infrastructure is built to last, and very expensive - delivering a phase out of fossil fuels means deciding to stop wasting money on gas pipes and terminals, immediately. Member states have the first and last word, we need them to take a stand against these fossil gas infrastructure projects.

The current EU gas grid is resilient to a range of supply disruptions already today, also in countries like Greece, Romania and Poland. The huge gas infrastructure investments planned in these countries make up for almost 60% of the cost of all fossil gas PCI candidates. Instead of a continued reliance on fossil fuels, support should be provided to ensure a just and fair transition for these countries while avoiding wasted money for fossil gas.

We are looking to the European Parliament to adopt a strong position and ensure that the negotiations with the European Council deliver a TEN-E revision that fast tracks us to a 100% renewable energy future.

And we are looking to Member States to reject fossil gas projects on the fifth PCI list and protect their citizens from further pollution.
ANNEX 1: PROJECT COST BREAKDOWN

<table>
<thead>
<tr>
<th>Project Selection</th>
<th>CAPEX</th>
<th>Annual OPEX</th>
<th>TOTAL costs building &amp; operating for 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>All fifth PCI list candidate projects</td>
<td>€30billion</td>
<td>€780million</td>
<td>€41billion</td>
</tr>
<tr>
<td>Most advanced projects on the fifth PCI list of candidate projects</td>
<td>€7.5billion</td>
<td>€188.25million</td>
<td>€10.3billion</td>
</tr>
<tr>
<td>Derogations for Malta &amp; Cyprus</td>
<td>€5.61billion</td>
<td>€93.6million</td>
<td>€7billion</td>
</tr>
<tr>
<td>Member states with the most projects on the fifth candidate PCI list (PL, GR, RO)</td>
<td>€18.46billion</td>
<td>€399.7million</td>
<td>€24.47billion</td>
</tr>
</tbody>
</table>

ANNEX 2: TOP COUNTRIES
Countries currently asking for the most PCI projects on the fifth candidate PCI list, and costing the most.

<table>
<thead>
<tr>
<th>Country</th>
<th>Projects</th>
<th>CAPEX</th>
<th>Annual OPEX</th>
<th>TOTAL costs building &amp; operating for 15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>13</td>
<td>€8.19billion</td>
<td>€223.2million</td>
<td>€11.54billion</td>
</tr>
<tr>
<td>Romania</td>
<td>8</td>
<td>€6.56billion</td>
<td>€33.5million</td>
<td>€7.07billion</td>
</tr>
<tr>
<td>Poland</td>
<td>6</td>
<td>€3.71billion</td>
<td>€143million</td>
<td>€5.86billion</td>
</tr>
<tr>
<td>Croatia</td>
<td>9</td>
<td>€1.676billion</td>
<td>€52.8million</td>
<td>€2.47billion</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>5</td>
<td>€1.49billion</td>
<td>€34.9million</td>
<td>€2.01billion</td>
</tr>
<tr>
<td>Italy</td>
<td>3</td>
<td>€1.63billion</td>
<td>€4.5million</td>
<td>€1.7billion</td>
</tr>
<tr>
<td>Hungary</td>
<td>4</td>
<td>€808million</td>
<td>€22.1million</td>
<td>€1.14billion</td>
</tr>
</tbody>
</table>
ANNEX 3: ADVANCED PROJECTS

Dark Blue = projects included on the fourth PCI list, who are also candidates for the fifth PCI list and were marked as advanced or with a final investment decision (FID).

Light Blue = additional projects on the fifth PCI list which have operational dates of 2021 or 2022 and therefore may also be applicable for grandfathering unless they have finalised the construction phase already.

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Name</th>
<th>Country</th>
<th>Status</th>
<th>CAPEX EUR (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRA-F-378</td>
<td>Interconnector Greece-Bulgaria (IGB Project)</td>
<td>BG</td>
<td>FID 2020-2025</td>
<td>240.00</td>
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<tr>
<td>TRA-F-298</td>
<td>Modernization and rehabilitation of the Bulgarian GTS</td>
<td>BG</td>
<td>FID 2021-2024</td>
<td>339.59</td>
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<tr>
<td>LNG-A-1146</td>
<td>Cyprus LNG Import Terminal (Former CyprusGas2EU)</td>
<td>CY</td>
<td>Advanced 2022-2022</td>
<td>312.00</td>
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<tr>
<td>TRA-A-780</td>
<td>Baltic Pipe project – onshore section in Denmark</td>
<td>DK</td>
<td>Advanced 2022-2022</td>
<td>629.00</td>
</tr>
<tr>
<td>TRA-A-10</td>
<td>Poseidon Pipeline (Off-shore section only)</td>
<td>GR</td>
<td>Advanced, 2022-2025</td>
<td>1,103.50</td>
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<tr>
<td>TRA-A-377</td>
<td>Romanian-Hungarian reverse flow Hungarian section 2nd stage</td>
<td>HU</td>
<td>Advanced 2022-2025</td>
<td>14.40</td>
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<tr>
<td>TRA-A-339</td>
<td>Trans-Caspian</td>
<td>TM</td>
<td>Advanced 2022-2023</td>
<td>1,500.00</td>
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<td>TRA-F-341</td>
<td>Gas Interconnection Poland-Lithuania (GIPL) (Lithuania's section)</td>
<td>LT</td>
<td>FID 2021-2021</td>
<td>136.00</td>
</tr>
<tr>
<td>UGS-F-374</td>
<td>Enhancement of incutains UGS</td>
<td>LV</td>
<td>Advanced 2019-2025</td>
<td>88.00</td>
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<tr>
<td>TRA-A-31</td>
<td>Melita TransGas Pipeline</td>
<td>MT</td>
<td>Advanced 2024-2024</td>
<td>409.80</td>
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<tr>
<td>TRA-F-212</td>
<td>Gas Interconnection Poland-Lithuania (GIPL) - PL section</td>
<td>PL</td>
<td>FID 2021-2021</td>
<td>430.00</td>
</tr>
<tr>
<td>TRA-A-1173</td>
<td>Poland - Denmark interconnection (Baltic Pipe) - onshore section in Poland</td>
<td>PL</td>
<td>Advanced 2022-2022</td>
<td>340.00</td>
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<tr>
<td>TRA-A-271</td>
<td>Poland - Denmark interconnection (Baltic Pipe) - offshore section</td>
<td>PL</td>
<td>Advanced 2022-2022</td>
<td>620.00</td>
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<tr>
<td>TRA-F-275</td>
<td>Poland - Slovakia Gas Interconnection (PL section)</td>
<td>PL</td>
<td>FID 2021-2021</td>
<td>680.00</td>
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<tr>
<td>UGS-A-233</td>
<td>Depomures</td>
<td>RO</td>
<td>Advanced 2021-2024</td>
<td>87.00</td>
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<td>TRA-F-190</td>
<td>Poland - Slovakia interconnection</td>
<td>SK</td>
<td>FID 2021-2021</td>
<td>143.40</td>
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