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Reviewing the design of natural gas network charges considering regulatory principles as guiding criteria in the context of the increasing interrelation of energy carriers

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Abstract— This paper reviews the existing approaches to allocate natural gas network costs at an international level, comparing them to the conceptual framework based on the regulatory principles to be followed according to Economic theory.

Even though some good practices in establishing network charges have been detected in some regions, such as Portugal and the United Kingdom, where long-term incremental cost approaches apply, traditional gas charging methods are mainly focused on cost recovery, disregarding economic efficiency as the fundamental criterion to ensure efficient network use and a reduction in long-term network costs. In general, a lack of economic efficiency, among others flaws in natural gas network cost allocation, has been identified.

Moreover, due to the new challenges detected stemming from the interrelation among gas and substitute energy carriers such as electricity, it is decisive to recognise that price signals established in one sector strongly affect other sectors.

These concerns make it imperative to allocate natural gas network costs to infrastructure users by following economically efficient charges and trying to maximise social welfare.

Index Terms— Natural gas regulation; Network charges design; Economic efficiency

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