

DEESME

Nacionalne sheme za energetska učinkovitost v MSP

Smernice za izvajanje člena 8 EED v Sloveniji



O projektu DEESME

podpora nacionalnim organom pri spodbujanju uvajanja in izvajanja energetskih pregledov in sistemov upravljanja z energijo.

Cilj projekta DEESME je omogočiti nacionalnim organom izbranih držav članic Evropske unije ali njihovim nacionalnim izvajalskim organom, da v skladu s členom 8 Direktive o energetske učinkovitosti (EED) v podjetjih povečajo uporabo in izvajanje energetskih pregledov in/ali sistemov upravljanja. Ta dokument je zadnji v seriji štirih dokumentov, pripravljenih v okviru 2. naloge projekta DEESME.

#1: popis potreb in zahtev

V prvem dokumentu je bilo podrobno preučeno sedanje izvajanje zahtev iz člena 8. Glavni rezultat je bil seznam potreb in izzivov v zvezi z izvajanjem člena 8 v posameznih državah članicah.

#2: Poročilo o najboljših praksah, ki temelji na zahtevah

Na podlagi tega seznama je bil v drugem dokumentu (št. 2) oblikovan temelj za pripravo predlogov za odzivanje na ugotovljene izzive. V ta namen so bile preučene trenutne prakse v državah članicah in predlogi iz prejšnje faze v zvezi s temi izzivi. Ta pregled je služil kot zbirka praks za premagovanje izzivov.

#3: Splošna smernica o najboljših praksah

Nato je bil oblikovan tretji dokument (#3) kot splošna smernica, ki razvršča različne sklope najboljših praks in predlaga strukturo za razvoj podpornega gradiva za nacionalne nacionalne agencije/IB.

#4: Nabor nacionalnih smernic

Na podlagi tretjega dokumenta je bilo v lokalnem jeziku za ciljne države članice pripravljenih deset podpornih dokumentov (št. 4). Ti dokumenti predlagajo spremembe v primerjavi s trenutno izvajanimi pristopi, tj. skušajo splošne predloge na jedrnat način prenesti v nacionalni kontekst.



#1: popis potreb in zahtev nacionalnih agencij

#2: Na zahtevah temelječe poročilo o najboljših praksah za politike

#3: Splošna smernica o najboljših praksah

#4: Nabor nacionalnih smernic za izvajanje s strani ciljnih nacionalnih organov



O tem dokumentu s smernicami za Slovenijo

Smernice za izvajanje člena 8 EED v Sloveniji

Ta dokument je eden od desetih podpornih dokumentov, ki obravnavajo izzive pri nacionalnem izvajanju člena 2. 8 EED za Slovenijo.

Izhaja iz splošnih smernic (glej dodatek), katerih namen je podpirati nacionalne agencije v državah članicah Evropske unije pri izvajanju člena 8. Splošni dokument je strukturiran na podlagi 11 izzivov: 6 izzivov se osredotoča na zahteve iz člena 8 EED za nemajhna in srednje velika podjetja (nemajhna in srednje velika podjetja), 4 pa na spodbujanje malih in srednje velikih podjetij (MSP), da se vključijo v energetske učinkovitost. Poleg tega so zajete tudi morebitne koristi upoštevanja neenergetskih koristi (NEB) energetske učinkovitosti. Za vsak izziv so bili izpeljani podizzivi, za katere so predstavljene posebne strategije rešitev. Vsaki strategiji rešitve je v splošni smernici namenjena posebna stran, na kateri je kontrolni seznam, ki lahko pomaga pri razmisleku o NA, ter primeri dobre prakse, namenjeni navdihu. Dodatne informacije o praksah v državah so na voljo prek povezav na zunanje vire.

Ta dokument za posamezno državo povzema izzive, ugotovljene za Slovenijo, in na podlagi elementov iz splošne smernice predlaga, kako se lotiti teh izzivov. Tako splošna smernica kot posebni dokumenti so namenjeni izvajalcem v nacionalnih državah članicah (ministrstva in/ali IP) in jim bodo pomagali razmisliti o ustaljenih postopkih izvajanja ter razmisliti o možnih rešitvah, kot so bile izvedene v drugih državah članicah. Vendar ne moreta in ne želita zagotavljati predpisanih rešitev, temveč bosta služila kot spodbuda za razmislek in pomoč pri iskanju možnih rešitev.

Posebna smernica vsebuje naslednje elemente:

- I. Povzetek o izzivih in rešitvah.
 1. Uvodni pregled nacionalnega prenosa v Sloveniji in povzetek specifičnih izzivov, ki so bili ugotovljeni v prejšnjih delih v okviru projekta DEESME. 
 2. Strategije rešitev za posamezne države na podlagi splošne smernice za reševanje izzivov. 
 3. Spodbujanje energetskih pregledov, sistemov upravljanja z energijo in številnih prednosti energetske učinkovitosti. (Za celotno EU, ne za posamezne države.) 
- II. Dodatek: 93 str. Splošne smernice za nacionalne organe o premagovanju izzivov pri izvajanju člena 8 evropskega okoljskega direktive.

Projektni partnerji:



Avtorji:

Ivana Rogulj, IEECP

Oktober 2021



Podjetje DEESME je prejelo sredstva iz programa Evropske unije za raziskave in inovacije Obzorje 2020 v okviru sporazuma o dodelitvi sredstev št. 892235.



Povzetek za Slovenijo

Od izzivov k rešitvam.



Izziv

Predlogi za izboljšave

Povezave do strategij rešitev v Dodatku

Podjetja, ki niso mala in srednje velika podjetja	Zagotavljanje skladnosti in kakovosti revizij <i>zagotavljanje, da vse zavezane družbe opravijo revizijo in da so revizije kakovostne.</i>	<ul style="list-style-type: none"> Uporaba neenergetskih koristi in drugih dodanih vrednosti revizij kot motivacije 	3.1.2. Poudarite dodano vrednost revizij
		<ul style="list-style-type: none"> Opredelitev obveznosti revizorjev spodbujanje/obveznost revizorjev, da predlagane ukrepe povežejo s programi financiranja in primeri najboljše prakse 	4.1.1 Opredelitev zahtev glede izobrazbe in izkušenj 4.1.2. Zagotovite, da revizorji izpolnjujejo zahteve
MSP	Vzpostavitev podpornih mehanizmov <i>MSP se pogosto ne zavedajo koristi, ki jih lahko prinese energetska učinkovitost.</i>	<ul style="list-style-type: none"> Izvajanje stalnega dolgoročnega sistema finančne podpore Ustrezni kazalniki za vrednotenje izvedenih projektov 	10.1.1 Predstavite MSP prednosti energetske učinkovitosti



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Uvodni pregled nacionalnega prenosa
člena 8 direktive EED in povzetek
izzivov za posamezne države



Pregled prenosa člena 8 EED v nacionalno zakonodajo

Vse države članice so izbrale različne pristope za prenos zahtev v nacionalno zakonodajo in podporo podjetjem.

Pravni dokumenti v Sloveniji

Člen 16 Zakona o energetske učinkovitosti (Uradni list RS, št. 158/20) in Uredba o energetskih pregledih (Pravilnik o metodologiji za izdelavo in vsebini energetskega pregleda (Uradni list RS, št. 41/16 in 158/20 - ZURE)) zavezuje velika podjetja, da vsaka štiri leta izvajajo stalne energetske preglede in o opravljenih pregledih poročajo Agenciji za energijo. S to določbo je v nacionalno zakonodajo prenesena zahteva iz 8. člena Direktive 2012/27 in 2018/2002 Evropskega parlamenta in Sveta o energetske učinkovitosti.

Vključeni akterji v Sloveniji

Agencija za energijo (<https://www.agen-rs.si/domov>) skrbi za izvajanje revizij in njihovo kakovost. V skladu z drugim odstavkom 16. člena Zakona o energetske učinkovitosti mora veliko podjetje agenciji poročati o opravljenem energetskem pregledu. Pristojni organ za analizo mehanizma obveznosti je zakonodajalec in ne agencija.

Več podrobnosti o slovenskem prenosu EED v nacionalno zakonodajo

V obvezne preglede je treba zajeti vso porabo energije, razen nekaterih izjem, opredeljenih v 6. členu uredbe o energetskem pregledu. Prav tako je treba opraviti revizijo za vse dele podjetja, ki imajo sedež v Sloveniji. Za podjetje, ki opravlja gospodarsko dejavnost v podružnicah, ki so med seboj primerljive glede na stavbo, vrsto dejavnosti, ki se opravlja v stavbi, ali prevoz, se šteje, da ima opravljen energetski pregled, če je pregledanih vsaj 50 % vseh podružnic, pri čemer se upošteva reprezentativni vzorec podružnic. **Vključeni so vsi sektorji.**

Slovenski Zakon o gospodarskih družbah (ZGD-I) opredeljuje, da so velike družbe tiste, ki izpolnjujejo dva od teh pogojev: i) imajo najmanj 250 zaposlenih; ii) letni prihodek več kot 40 000 000 EUR; iii) vrednost sredstev več kot 20 000 000 EUR. Vsekakor so velike družbe tudi družbe javnega interesa, družbe, ki kotirajo na borzi, in družbe, ki morajo na podlagi 56. člena Zakona o gospodarskih družbah (ZGD-I) pripraviti konsolidirano letno poročilo.

Veliko podjetje, ki izvaja: sistem upravljanja z energijo v skladu s standardom SIST ISO 50001 ali sistem ravnanja z okoljem v skladu s standardom SIST EN ISO 14001 in je opravilo minimalni energetski pregled v skladu s točko A.3 Priloge A standarda SIST ISO 50002, ki je bil opravljen v zadnjih štirih letih, lahko pri agenciji vloži zahtevo za izdajo odločbe o zaključku prijave energetskih pregledov, ki ji priloži fotokopijo pridobljenega potrdila.

V poslovni register, ki ga vodi Agencija Republike Slovenije za javnopravne evidence in storitve (AJPES), so vpisane vse gospodarske družbe v Sloveniji. Na podlagi letnih poročil poslovnih subjektov AJPES razvršča družbe po velikosti v skladu s 55. členom Zakona o gospodarskih družbah (ZGD-I), zato podatke o velikosti družbe posodablja enkrat letno.

Na podlagi 16. člena ZURE je Agencija za energijo dolžna voditi seznam velikih podjetij, ki ga oblikuje na podlagi podatkov AJPES in ga enkrat letno obnavlja na podlagi podatkov, pridobljenih od AJPES.



Pregled izziva

Izzivi, specifični za posamezno državo, pri izvajanju člena 8 direktive o evropskem gospodarskem partnerstvu v Sloveniji

Najpomembnejši izzivi za podjetja, ki niso MSP

V Sloveniji skladnost sicer ni največji izziv, vendar izvajanje ni v skladu s časovnim okvirom, predlaganim v prvi različici zakonodajnega okvira.

Postopek preverjanja kakovosti je v teku, zdaj pa je izziv usklajevanje energetskih pregledov z metodologijo, ki mora biti na podlagi uredbe o energetskih pregledih skladna s smernicami SIST EN ISO 50002 in EN 16247.

Posebej pomembni izzivi iz splošne smernice vključujejo:

Izziv 3: Zagotavljanje skladnosti

Podvprašanje 3.1: Kako zagotoviti, da vsa zavezana podjetja izvedejo revizijo?

Izziv 4: Kakovost revizij

Podizziv 4.1 Kako zagotoviti izobraževanje in izkušnje revizorjev?

Najpomembnejši izzivi v zvezi z MSP

Čeprav v Sloveniji obstajajo sheme finančne podpore, nekatera MSP ne zaprosijo zanje, ker pričakujejo veliko administrativnega bremena. To je povezano z omejenimi kadrovskimi viri in pogosto pomanjkanjem posebne osebe, odgovorne za energetska vprašanja v MSP.

Poleg tega je še en izziv, kako vzpostaviti stik z malimi in srednje velikimi podjetji ter kako jih ozavešiti o prednostih, ki jih lahko prinaša energetska učinkovitost.

Posebej pomembni izzivi iz splošne smernice vključujejo:

Izziv 10: Ozaveščanje o priložnostih

Podvprašanje 10.1 Kako MSP zagotoviti individualne vpogled?



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Strategije rešitev za posamezne države



Izziv: zagotavljanje skladnosti in kakovosti revizij

zagotavljanje, da vse zavezane družbe opravijo revizijo in da so revizije kakovostne.

O čem je izziv v Sloveniji?

Energetski pregledi se ne izvajajo v pričakovanem tempu, čeprav obstajajo globe, saj je bila zakonodaja, ki zagotavlja nadzor nad izvajanjem rednih energetskih pregledov, sprejeta šele v drugi polovici leta 2019.

Za boljše razumevanje izvajanja energetskih pregledov je treba podrobno opredeliti izvedbene predpise za posamezna specifična področja in določiti morebitne izjeme, natančneje opredeliti pogoje za energetske presojevalce, zlasti na področju prometa in procesov.

S preverjanjem obveznosti izvajanja energetskih pregledov v velikih podjetjih v letu 2019 je agencija ugotovila, da ima 15,2 % vseh podjetij certificiran sistem energetskega ali okoljskega upravljanja v skladu z evropskimi ali mednarodnimi standardi. Na podlagi predloženega certifikata je agencija izdala odločbo o izpolnitvi obveznosti energetskega pregleda.

Eden ključnih izzivov je, da velika podjetja prepoznajo pomen obveznih energetskih pregledov za svoje poslovanje, saj izvajanje energetskih pregledov podjetjem prinaša številne koristi: učinkovito porabo energije, nižje stroške energije,...

Katere strategije bi lahko pomagale premagati ta izziv?

- #1 Poudarite dodano vrednost revizij (strategija rešitve [3.1.2](#))
- 2 Pomagajte pri kakovosti dela z zagotavljanjem izobraževanja in podpore revizorjem (rešitve [4.1.1](#) in [4.1.2](#)).

Strategija #1 Poudarjanje dodane vrednosti revizij

Če veliko podjetje še ni izvedlo energetskega pregleda v zakonskem roku, agencija v postopku nadzora določi rok za odpravo nepravilnosti (za izvedbo EP).

Mehanizem za nadzor seveda obstaja, vendar bi poudarjanje dodane vrednosti, kot je opisana v ustrezni strategiji, spodbudilo podjetja.

Ker je zakonodajni okvir že povezan s standardi ISO, [bi bile za podjetja koristne](#) informacije o rezultatih projekta DEESME, ki prinašajo [številne koristi sistema EnMS](#).

Strategija št. 2 Kakovost dela pomagajte izboljšati z izobraževanjem in podporo revizorjem.

Uradne zahteve o tem, kako izvesti energetski pregled in kaj mora vsebovati poročilo o pregledu, obstajajo in so zelo dobro opredeljene.

Energetski pregled lahko opravi kdor koli, vendar mora biti opravljen v skladu s standardom SIST EN 16247-5, kot je določeno v členu 7 Uredbe o energetskih pregledih. Center za podporo usposablja strokovnjake za energetske preglede vsaj enkrat na dve leti, da bi vsem končnim odjemalcem zagotovil kakovostne energetske preglede. Center na svoji spletni strani objavlja tudi seznam strokovnjakov, ki so se udeležili teh usposabljanj (drugi odstavek 55. člena Zakona o energetske učinkovitosti).

Vendar Slovenija ni vzpostavila mehanizma za akreditacijo energetskih revizorjev, za razliko od večine držav članic, ki objavljajo uradne zahteve za certificiranje revizorjev ali revizijskih podjetij. V večini primerov te zahteve vključujejo minimalne standarde za izobrazbo in delovne izkušnje na področju energetske učinkovitosti.

Poleg tega je morda treba opraviti teoretične in/ali praktične izpite (npr. Švedska, Hrvaška). Revizorji morajo imeti široko znanje o ukrepih za energetske učinkovitost, da lahko pripravijo ustrezna priporočila. (Madžarska na primer preverja kakovost prvega poročila vseh novih revizorjev, Hrvaška pa izvaja redne naključne preglede kakovosti).

Druga možna strategija je časovno omejiti akreditacijo revizorjev, kot je to na Hrvaškem ali v Nemčiji, in zahtevati njihovo dodatno izobraževanje.

To bi lahko nacionalni agenciji pomagalo pri zagotavljanju kakovosti revizij.



Izziv: Ozaveščanje o priložnostih in vzpostavitev podpornih mehanizmov

MSP se pogosto ne zavedajo koristi, ki jim jih lahko prinese energetska učinkovitost.

O čem je izziv v Sloveniji?

Pogoste ovire, ki MSP preprečujejo izvedbo energetskih pregledov/sistemov upravljanja in izvajanje ukrepov, vključujejo pomanjkanje ozaveščenosti o koristih in razpoložljivih programih podpore, pomanjkanje prednostne obravnave energetske učinkovitosti in pregledov ter pomanjkanje notranjih zmogljivosti.

Tudi če se MSP zavedajo koristi, ki jih prinaša izvajanje ukrepov za energetska učinkovitost, zelo pogosto menijo, da je to administrativno breme, in se bojijo začeti postopek.

Katere strategije bi lahko pomagale premagati ta izziv?

Strategije, ki bi lahko pomagale premagati ta izziv, so:

- #1 Zagotavljanje zelo neposredne pomoči pri prikazovanju ugodnosti in osebne podpore ([10.1.1](#))

Strategija #1 Zagotovite zelo neposredno pomoč pri prikazovanju ugodnosti in osebne podpore

V nacionalnem načrtu za energetska učinkovitost obstaja program za ozaveščanje različnih skupin potrošnikov, vključno z MSP, ki ga izvajajo ministrstvo, pristojno za energijo, Eko sklad in Borzen (ukrep H3). Njegovo nadaljevanje je načrtovano v slovenskem NECP.

NECP vključuje tudi spodbude EEU za MSP, ki se osredotočajo na odpravo ovir za izvajanje ukrepov, povezanih z MSP, in na spodbujanje uvedbe sistema upravljanja z energijo.

Informacije o postopku izvedbe energetskega pregleda, o izvajanju sistemov upravljanja z energijo in o ocenah stroškov prispevajo k večji preglednosti in omogočajo nosilcem odločanja v podjetjih, da bolje ocenijo sredstva, ki so potrebna za izvajanje.

Način zagotavljanja informacij je odvisen od države članice, lahko pa vključuje:

- izvajanje neposrednih komunikacijskih kanalov za svetovanje MSP (npr. Avstrija);
- vzpostavitev informacijskega središča, kjer so vse pomembne informacije lahko dostopne;
- zagotavlja neposredno upravno in tehnično podporo zainteresiranim MSP;
- odprli "vse na enem mestu" za MSP,
- pomoč pri vzpostavitvi mreže sodelovanja in podpore med podobnimi podjetji;
- zagotavljanje podpore v obliki orodij za primerjavo/enotne primerjave itd.



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Spodbujanje energetskih pregledov,
sistemov upravljanja z energijo in številnih
prednosti energetske učinkovitosti.



Številne prednosti energetske učinkovitosti: Povečanje vrednosti za podjetja

Upoštevanje več kot le prihrankov energije lahko poveča privlačnost izvajanja ukrepov za energetske učinkovitost.

Številne prednosti energetske učinkovitosti

Velik delež ukrepov za energetske učinkovitost se ne šteje za stroškovno učinkovitega, če se v analizi kot koristi upoštevajo le prihranki energije. Vendar pa se zaradi projektov energetske učinkovitosti pojavijo številne "večstranske koristi", "dodatne koristi" ali "neenergetske koristi" (NEB). Njihovi učinki so lahko za nosilce odločanja pomembnejši od samih prihrankov energije.

NEB, ki so za podjetja še posebej pomembni, so na primer zmanjšanje onesnaževanja zraka (poleg emisij CO₂), večja varnost in udobje na delovnem mestu ali manjše tveganje za okvare strojev (zanesljivost) (glej spodnjo tabelo). Takšnim koristim se v zadnjih letih posveča vse več pozornosti.

Obveznost energetskega pregleda iz člena 8 EED od podjetij zahteva, da redno izvajajo preglede, tj. ocenjujejo svojo porabo energije in določajo ukrepe za izboljšanje energetske učinkovitosti. NEB lahko dodajo privlačen opis k vprašanju, zakaj je smiselno izvajati ukrepe za energetske učinkovitost.

Čeprav prihranki energije sami po sebi morda niso ključni dejavnik poslovnega modela podjetja, lahko NEB energetske učinkovitosti pomembno pozitivno vplivajo na vrednostno ponudbo ukrepov energetske učinkovitosti za podjetja.

Nacionalne agencije lahko s podpiranjem obravnave nacionalnih interesnih skupin podprejo sprejetje teh ukrepov. Pri tem je bistveno, da se o tem obvestijo ustrezni akterji. Ključno vlogo imajo zlasti energetske menedžerji in energetske presojevalci, saj so oni tisti, ki "prodajajo" opredeljene ukrepe učinkovitosti nosilcem odločanja v podjetjih. Ozaveščanje je zato treba usmeriti zlasti na osebe, ki izvajajo energetske preglede ali sodelujejo pri njih. Zlasti revizorji morajo razumeti, da ekonomska donosnost prihrankov energije pogosto ni odločilni dejavnik za podjetja. Nasprotno, če NEB zagotavljajo jasno dodano vrednost poslovnemu modelu, so lahko dolge dobe vračanja celo sprejemljive.

NA lahko sodelujejo pri različnih dejavnostih, povezanih z NEB. Poleg ozaveščanja o obstoju in pomembnosti nacionalnih energetskega sektorjev bi se lahko nacionalni energetskega sektorji uveljavili tudi kot element v procesu energetskega pregledov ali v sistemih energetskega upravljanja. Pristop DEESME poskuša podati predloge, kako bi to lahko obravnavali v posameznih podjetjih. Ustrezna orodja so na kratko predstavljena na naslednji diapozitivni sliki.

Več informacij o NEB je na voljo v [izzivu 11 splošne smernice](#).



Neenergetske koristi

Odpadki	Emisije	Delovanje / vzdrževanje	Proizvodnja	Delovno okolje	Drugo
Uporaba odpadnih goriv, toplote, plina ↓ Odpadni izdelki ↓ Odpadne vode in nevarni odpadki ↓ Zmanjšanje količine materialov	Emisije prahu ↓ Emisije plinov (CO, CO ₂ , NO _x , SO _x)	↓ Potreba po tehničnem nadzoru ↓ Zahteve za hlajenje ↑ Zanesljivost objekta ↓ Obraba in raztrganost Zahteve glede delovne sile	Proizvodnja/pridelek Uspešnost Zanesljivost ↑ Kakovost/čistota izdelka Čas cikla procesa	Razsvetljava Nadzor temperature ↑ Kakovost zraka ↓ Ravni hrupa ↓ Potreba po osebni zaščitni opremi	↑ Slika ↑ Obveznosti ↓ Zamujeni ali zmanjšani investicijski izdatki ↓ Prostorske zahteve Morala delavcev

Lastna prilagoditev na podlagi Worrell et al. (2003): Produktivne koristi ukrepov za energetske učinkovitost v industriji.



Izboljšanje zaznane vrednosti in primernosti energetskega pregleda/sistemov upravljanja z energijo ter spodbujanje njihove uporabe: Pristop DEESME za podjetja

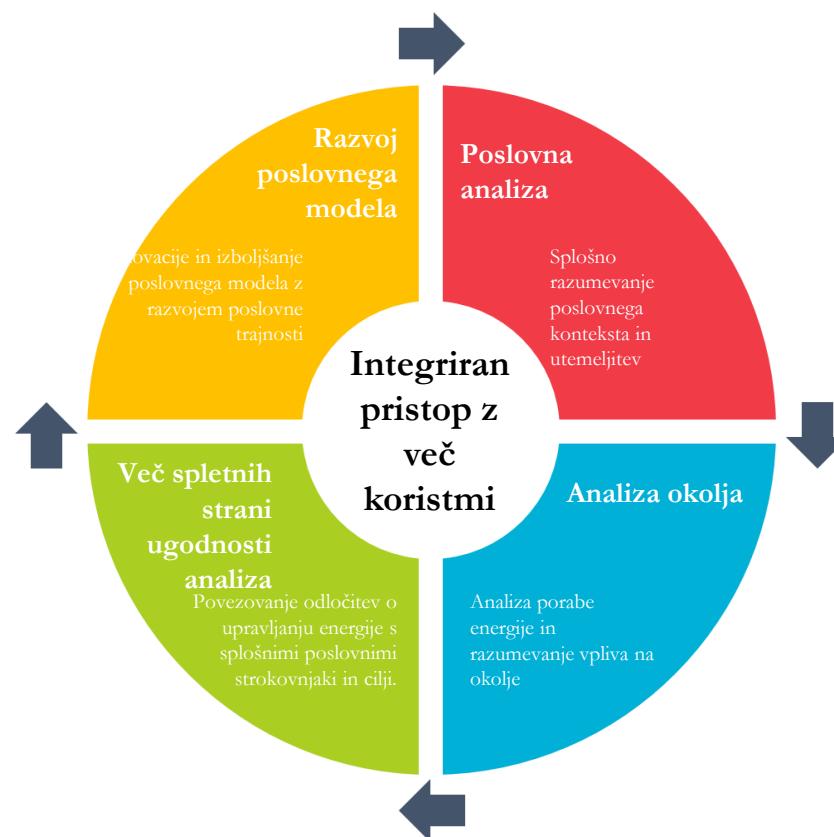
Pristop DEESME za podjetja

Uvod v revizijski pristop DEESME

Del projekta DEESME je razvoj celostnega pristopa k energetskega pregledu z več koristmi. Njegov namen je razširiti zanimanje za energetske učinkovitost (ki se meri z energetskimi pregledi ali spremlja s sistemi upravljanja z energijo) prek tradicionalnih finančnih in tehničnih vprašanj (kot so ukrepi za zmanjšanje porabe energije ali zmanjšanje emisij toplogrednih plinov) ter jo povezati s strateškimi in upravljaljskimi prednostnimi nalogami in cilji gospodarskih družb.

Da bi predstavili številne poslovne in neposlovne koristi, ki lahko dopolnjujejo razvoj energetskih pregledov in sistemov energetskega upravljanja, pristop DEESME uporablja analitični okvir poslovnega modeliranja. Poslovni model služi kot diagnostično orodje za opis in razumevanje trenutnega poslovnega položaja, praks in ciljev ter zagotavlja podlago za analizo večstranskih koristi, ki zajema energetske preglede onkraj energetske učinkovitosti in jih povezuje z doseganjem splošnih poslovnih ciljev.

Metodologija vključuje štiri stopnje: a) začne se z analizo poslovnega modela, ki prikazuje osnovno poslovno logiko in poslovne strokovnjake za ustvarjanje vrednosti in izboljšanje poslovne učinkovitosti; b) nadaljuje se z okoljsko analizo, ki razkriva priložnosti za energetske učinkovitost in zmanjšanje emisij energije; c) zaključuje se z analizo več koristi, ki prepozna in ocenjuje poslovne koristi, ki širijo področje upravljanja energije in povezujejo odločitve o energetske učinkovitosti z razvojem poslovanja; d) zaključuje se z napredovanjem trajnostnega poslovnega modela, ki išče priložnosti za inovacije in izboljšanje poslovnega modela z razvojem poslovne trajnosti.



Uvod v pristop DEESEME EMS

Sistem DEESME EMS, ki podpira pristop več koristi, je smernica za opredelitev učinkovitega in homogenega metodološkega pristopa za razvoj sistema upravljanja z energijo, ki v oceno energetske učinkovitosti vključuje več koristi. Da bi zagotovili enostavno uporabo smernice, je vključevanje več koristi razvito v skladu z načeli in zahtevami standarda ISO 50001.

Pristop DEESME predlaga dodatne vidike, ki jih je treba oceniti; ne le ekonomske, temveč tudi vidike, povezane z več koristmi, kot so zdravje in varnost pri delu ali učinkovitost proizvodnje. Poleg tega predlaga operativne postopke, s katerimi se ti vidiki ohranijo pod nadzorom vodstva in sčasoma celo izboljšajo. S tem želi smernica EMS povečati zaznano vrednost energetske učinkovitosti v podjetju.

Integrirani pristop k reviziji več koristi in sistem EMS, ki podpira več koristi, sta trenutno (avgust 2021) v fazi načrtovanja. V nadaljevanju projekta DEESME bosta uvedena v izbranih podjetjih, objavljena pa bosta na [domači strani projekta DEESME](#).



DEESME

National schemes for energy efficiency in SMEs

Appendix

Guidance for national authorities on
overcoming challenges in the
implementation of Article 8 EED



About this document

The aim of the document is to support the **National Authorities** (NAs) in the Member States of the European Union in the implementation of Article 8 of the European Energy Efficiency Directive (EED). This document is based on information collected from November 2020 to June 2021 in the DEESME project. In the project, NAs were initially asked about their challenges and requirements in the implementation and enforcement of Article 8 EED. Based on their responses, a list of common, generalized challenges was established and potential solutions and good practice from implementations throughout all European Member States was researched. This document provides the results of this process. It is targeted at implementers in the NAs (ministries and/or implementing bodies) and shall help them to reflect upon established implementation processes and to consider potential solutions as realized in other Member States. Yet it cannot and does not claim to provide prescriptive solutions to particular challenges, also due to the considerable differences between the situations in the individual MS. It is rather to guide a reflection on challenges and to help exploring potential solutions.

The document is structured along 11 challenges: 6 with a focus on non-small and medium-sized enterprises (non-SMEs) requirements according to Article 8 EED, and 4 with a focus on encouraging small and medium-sized enterprises (SMEs). In addition, the potential benefits of considering non-energy benefits (NEBs) of energy efficiency are also covered. For each challenge, sub-challenges were derived, for which specific solution strategies are presented. A separate page is dedicated to each solution strategy, in which there is a checklist that may support the reflection of NAs, as well as good practice examples intended as inspiration. Further information on the country practices is provided via links to external sources.

Challenge overview slide



Structure for each challenge

-  1. Challenge introduction slide
-  2. Sub-challenges and overview of solution strategies
-  3. – X. Solution strategy page, with checklist and country examples

Page 6 to 8 provide information on how to navigate through the document and explains which elements are interactive.

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Project partners:



DEESME has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 892235.



About DEESME

Improving energy efficiency is the most cost-effective way to reduce energy-related emissions, improve economic competitiveness, and increase energy security. In the European Union, several pieces of legislation aimed at guiding states and companies, regardless of their size, on ways to improve their energy efficiency: one of them is the EED, establishing a common framework of measures and requirements with the goal to remove market barriers and promote a more efficient use of energy in supply and demand. Article 8 of the Directive offers ways to achieve this, requiring Member States to promote and facilitate the implementation of energy audits and energy management systems. The audits are compulsory for large companies and recommended for small and medium-sized enterprises. National authorities should encourage both to implement the resulting recommendations.

Member States have all chosen different approaches to transpose the requirements into national laws and to support companies (trainings, websites, helplines, and funding support schemes). SMEs have less workforce, technical and financial capacity to perform energy audits, and therefore rarely do so: making them aware of the multiple benefits that can derive from improving their energy efficiency and accompany them in the energy transition, with knowledge and funding from both the public and private sectors, is key. That is what DEESME, a Horizon 2020-funded project (September 2020 – September 2023), aims at.

DEESME enables companies, especially SMEs to manage the energy transition by taking profit of multiple benefits from energy management and audit approaches and provides national authorities with guidelines and recommendations to empower their schemes under Article 8, using the multiple benefits' approach.

The project identifies and shares good practices from national schemes, EU projects, and other initiatives with national authorities and support them in developing more effective schemes dealing with energy audits and energy management systems. It assists SMEs to develop and test the technical DEESME solutions by organizing information and training initiatives, realising energy audits, and implementing energy management systems starting from international standard and adding the multiple benefits energy efficiency approach.

The project is built on a consortium of academics, research organisations, consultancies and government offices from Belgium, Bulgaria, Germany, Italy, the Netherlands and Poland, namely: IEECP (NL, coordinator), FIRE (IT), SOGESCA (IT), Fraunhofer ISI (DE), CLEOPA (DE), SEDA (BG), ECQ (BG), KAPE (PL), EEIP (BE).

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 892235.



[Project Homepage](#)



Abbreviations

ADEME	Agence de l'Environnement et de la Maîtrise de l'Énergie (France environment and energy management agency)	EMS	Energy Management System	KVK	Kamer van Koophandel (Dutch chamber of commerce)
AI	Artificial Intelligence	ENEA	Agenzia Nazionale per le nuove tecnologie, l'Energia e lo sviluppo economico sostenibile (Italian national agency for new technologies, energy and sustainable economic development)	MS	Member State of the European Union
BAFA	Bundesamt für Wirtschaft und Ausfuhrkontrolle (German federal office for economic affairs and export control)	FAQ	Frequently Asked Questions	NA	National Authority
BMK	Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie (Austrian federal ministry for climate protection, environment, energy, mobility, innovation and technology)	FIRE	Federazione Italiana per l'uso Razionale dell'Energia (Italian federation for the rational use of energy)	NEB	Non-Energy Benefit
CAPEX	Capital Expenditures	IEA	International Energy Agency	NEEAP	National Energy Efficiency Action Plan
CSEA	Cassa per i servizi energetici e ambientali (Italian fund for energy and environmental services)	IEECP	Institute for European Energy and Climate Policy	NPV	Net Present Value
ECQ	European Center for Quality	IEEN	Industrial Energy Efficiency Networks	NTUA	National Technical University of Athens
EDL-G	Energiedienstleistungsgesetz (German energy services act)	IB	Implementing Body	SEAI	Sustainable Energy Authority of Ireland
EEIP	Energy efficiency in industrial processes	INSEE	Institut National de la Statistique et des Études Économiques (French national institute of statistics and economic studies)	SEDA	Sustainable Energy Development Agency
EERSF	Bulgarian energy efficiency and renewable sources fund	IQCS	Maltese Independent Quality Control System	SGCIE	Sistema de Gestão dos Consumos Intensivos de Energia (Portuguese intensive energy consumption management system)
EEOS	Energy Efficiency Obligation Scheme	IRR	Internal Rate of Return	SIREN	Système d'Identification du Répertoire des Entreprises (French business directory identification system)
Ekoslad	Slovenian environmental public fund	KAPE	Krajowa Agencja Poszanowania Energii (Polish national energy conservation agency)	SMEs	Small and Medium-sized Enterprises
				UFI	Umweltförderung im Inland (Austrian domestic environmental promotion)
				USP	Unternehmensserviceportal (Austrian business service portal)



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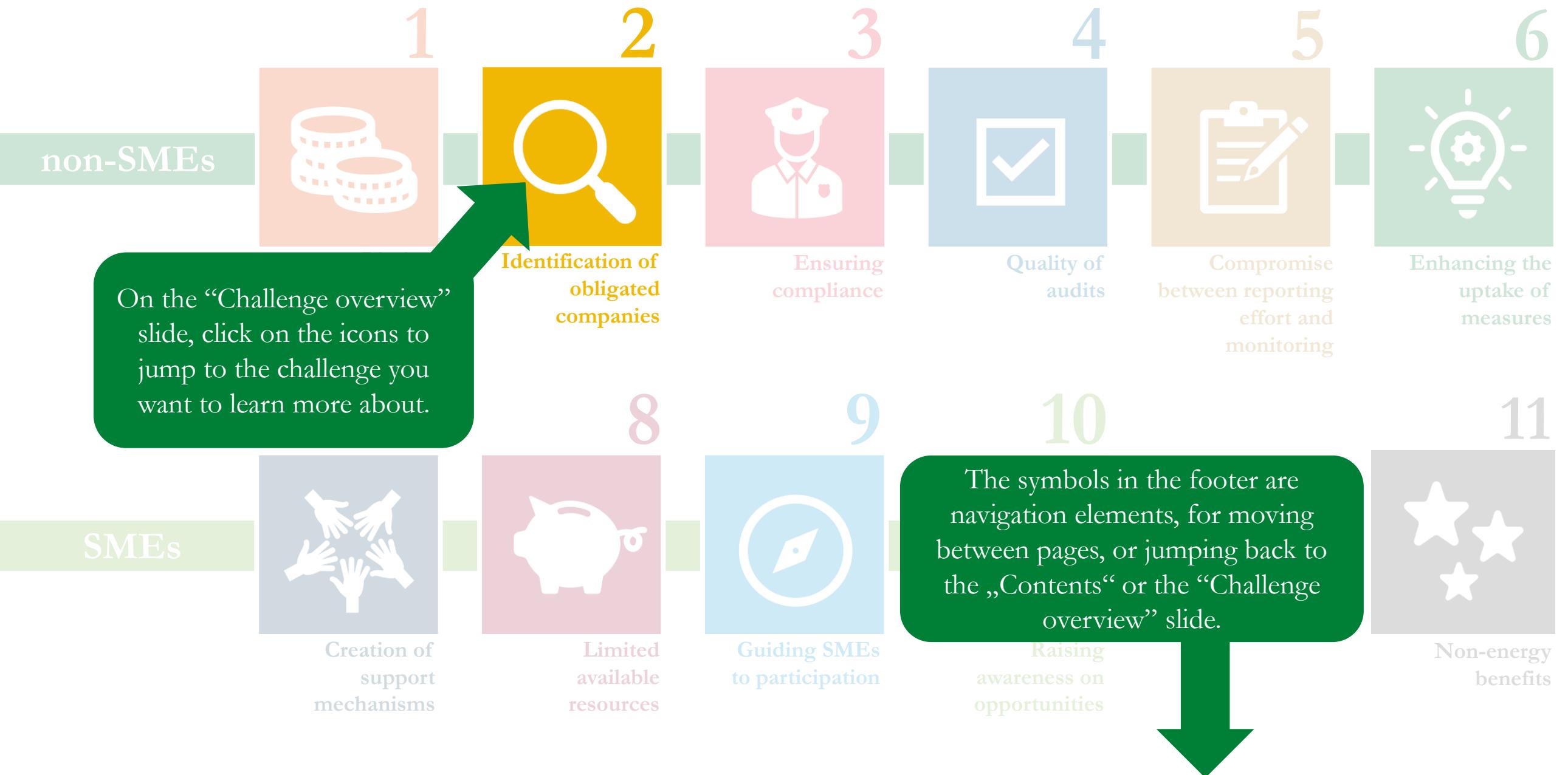
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How to navigate

Ten generalized challenges with regard to the implementation of energy audits and energy management systems based on the requirements of Article 8 of the European Energy Efficiency Directive were identified. These challenges were derived from a literature review, a survey and interviews conducted with National Authorities and their Implementing Bodies Member States of the European Union. Six challenges target non-SMEs, while four challenges are targeted at SMEs.



How to navigate



Limited resources for transposition

Costs for NAs that stem from the transposition of Article 8 of the EED can generally be divided into initialization and reoccurring costs. There tends to be a trade-off between both types of costs, which depends on country-specific factors such as the number of obligated companies.

Symbols in the top right corner of the slides, bring you back to the start page of the respective challenge.

1.1 How to minimize initialization costs?

Initialization costs mainly occur prior or during the first period of the transposition, but they may also occur when the infrastructure is established. The infrastructure to transpose Article 8 of the EED can be “lean”, or low capital intensive, if synergies with existing structures are used or the approaches of other MS are imitated. If one-time costs are expected to be significant or tasks require expertise knowledge, it can be feasible to check whether the outsourcing of tasks to external institutions is possible. Transposition of Article 8 of the EED usually comes along with a trade-off between initialization costs and reoccurring costs in the years to come.

Click on the circles or the text of the solution strategy to move to the respective subsection.

Strategies include

- 1.1.1 Create a lean infrastructure**
The infrastructure to transpose Article 8 of the EED can be “lean”, or low capital intensive, if synergies with existing structures are used or the approaches of other MS are imitated.
- 1.1.2 Check outsourcing options**
If one-time costs are expected to be significant or tasks require expertise knowledge, it can be feasible to check whether the outsourcing of tasks to external institutions is possible.

1.2 How to minimize reoccurring costs?

Closely linked to the initialization costs are those costs that need to be covered regularly after the processes have been established. From an economic perspective, it can make sense to have higher initialization costs if this reduces any re-occurring follow-up costs from day-to-day routine, for example by further elaborating the audit submission process to reduce operational costs for asking companies for re-submissions or additional information.

Strategies include

- 1.2.1 Automate repetitive processes**
Reoccurring costs can be reduced by automating repetitive tasks.
- 1.2.2 Provide clear guidelines and support materials**
Reoccurring costs can be reduced by making it clear to companies and auditors what is expected from them.
- 1.2.3 Check outsourcing options**
If reoccurring costs are expected to be significant or tasks require expertise knowledge, it can be feasible to check whether the outsourcing of tasks to external institutions is possible.



How to navigate



Limited resources for transposition

Reoccurring costs can be reduced by automating repetitive tasks.

Reoccurring costs are mainly related to day-to-day operation of the energy audit obligations in the NAs, such as updating the list of obligated companies, reaching out to companies, monitoring the energy audits, or serve as contact for questions related to the audits. Many of those tasks can be simplified by automation and/or digitalization.

Several MS implemented digital forms that are used for the audit report submission process. This approach takes administrative burden of the NA since data is pre-structured. Furthermore, if specific key data is asked for (i.e. total energy consumption or recommended energy efficiency measures), this can significantly reduce the monitoring effort and allow to even atomize further steps that rely on data processing such as the internal and external reporting and the impacts of Article 8 implementation.

Another approach to reduce reoccurring costs is to provide clear information materials, that make it clear of companies what is expected of them (1.2.2).

To learn more on the country practices, a click on this icon brings you to an external source with further information (for example a legal document, or the website of the national agency).

Checklist

- Day-to-day implementation of the list of obligated companies
- Required resources
- Susceptibility to errors
- Level of digitalization
- Opportunities for improvement through automatization
- (If significant resources are spent on tasks that could be automated →) The process of automating repetitive tasks was initiated
 - Develop an in-house solution
 - Commission the automatization process to an external service provider

Reducing costs by automating the audit submission

Several MS implemented a digital form for the purpose of submitting energy audits. The form can be found on the website of the NA and includes besides general information, also specific information about the audit results.

Digital energy audit declaration

Reducing costs by utilizing existing business platform for automated submission

In Austria, companies or auditors have to report the fulfilment of the audit obligation via the business service portal (USP). The USP comprises over 50 e-government services. For the energy audit obligation, a dedicated section was included in the USP called “Application to the Energy Efficiency Act”. Access to this section is granted by the national monitoring agency.

Business service portal Austria

Country practices



Challenge overview

Eleven generalized challenges with regard to the implementation of energy audits and energy management systems based on the requirements of Article 8 of the EED were identified. These challenges were derived from a literature review, a survey, and interviews conducted with NAs and their implementing bodies in the 27 Member States (MS) of the EU. Six challenges target non-SMEs, four challenges are targeted at SMEs, and one challenge deals explicitly with NEBs across both company types.

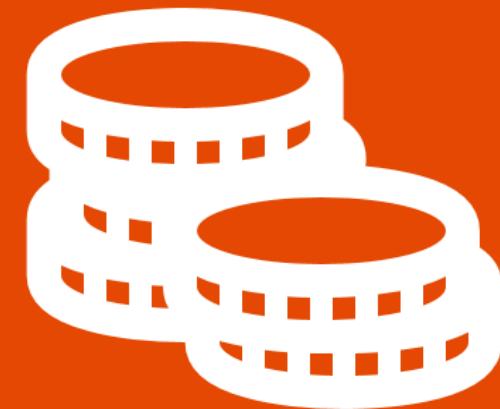


DEESME

National schemes for energy efficiency in SMEs

Challenge #01

Limited resources for transposition



“Limitations of the MS with regard to the staff and financial resources for an effective implementation, enforcement, monitoring and verification of the energy-audit obligation are a challenge.”



Challenge #01 Limited resources for transposition

Costs for NAs due to the transposition of Article 8 of the EED can generally include initialization and reoccurring costs and effort. There tends to be a trade-off between both types of costs that, among others, depends on country-specific factors such as the number of obligated companies.

1.1 How to minimize initialization costs and effort?

Initialization costs mainly occur prior or during the first period of the transposition, but they may also occur when larger modifications of the national transposition take place. They include any resources needed for establishing the procedures for the transposition within the NA, for setting up data exchange and follow-up processes for the audit obligation and for creating awareness and guidance of the targeted companies. This action may claim a substantial share of the overall transposition resources and usually comes along with a trade-off to the costs in the years to come.

Strategies include

- 1.1.1 Create a lean infrastructure**
Costs are reduced by using existing infrastructures like data bases or digital platforms, and by learning from successful approaches of other MS.
- 1.1.2 Check outsourcing options**
If one-time costs are expected to be substantial or tasks require specialized knowledge, outsourcing of tasks to third parties can be taken into consideration.

1.2 How to minimize reoccurring costs and effort?

Closely linked to the initialization costs are those costs that need to be covered regularly after the processes have been established. From an economic perspective, it can make sense to have higher initialization costs if this reduces any re-occurring follow-up costs from day-to-day routine, for example by further elaborating the audit submission process to reduce operational costs for asking companies for re-submissions or additional information.

Strategies include

- 1.2.1 Automate repetitive processes**
Automating repetitive day-to-day tasks such as audit submission reduces reoccurring costs.
- 1.2.2 Provide clear guidelines and support materials**
Clear communication of audit requirements reduces reoccurring costs caused by errors made by companies and auditors.
- 1.2.3 Check outsourcing options**
If reoccurring costs are expected to be substantial or tasks require expertise knowledge, it is feasible to check whether the outsourcing of tasks to external institutions is possible.



1.1.1 Create a lean infrastructure

Costs are reduced by using existing infrastructures like data bases or digital platforms, and by learning from successful approaches of other MS.

Initialization costs occur for preparing documents and interfaces related to the audit obligation, such as guidelines, templates, or frequently asked questions (FAQ) sections. They might also include costs for setting up a company register or adapt lists from existing sources, as well as costs for internal processes.

MS should strive for a balance between keeping initial costs low, while nevertheless providing clear guidance and support for companies and auditors.

To achieve this, MS can use synergies with existing infrastructure. For example, existing governmental company registers can serve as a base for identifying obliged companies, as well as for keeping the database of companies updated. Similarly, if an online business platform already exists, it can be resource efficient to integrate the audit submission process into the existing infrastructure.

In addition, initialization costs caused by the production of information and support materials such as guidelines, templates or FAQ sections, can be reduced by collaborating with other MS. While there are different conditions in each MS, the overall requirements defined in the EED are identical, and information materials could thus be harmonized to some extent to benefit from shared knowledge and reduce the overall required resources.

An important factor with regard to one-time costs can also be the implementation of a digital infrastructure, especially for the submission and information management process. Outsourcing might be an option to reduce operational costs (1.1.2).

Checklist

Synergies with existing infrastructure

- Existing governmental databases or business platforms have been checked and evaluated for potential utilisation, considering e.g.
 - Missing attributes in the dataset (number of employees, revenue data, contact information)
 - Incorrect data format
 - Data protection rules
 - Missing entries / coverage
- The synchronization process was initiated

Provide guidance

- Check where information materials are incomplete or unclear
 - Evaluate common questions that are asked by companies and common mistakes in the audit process that could be based on insufficient information
 - Reach out to other MS and learn whether their approaches could be adaptable to you (see for example [Ireland's guideline on conducting audits](#) or [Germany's FAQ section](#))
- Existing information materials have been checked concerning their effectiveness
 - Contradictory information or double entries have been checked for
 - Additional material and/or extending documents has been considered

Reducing one-time costs by utilising existing business platform

In Austria, companies or auditors have to report the fulfilment of the audit obligation via the business service portal (USP). The USP comprises over 50 E-government services. For the energy audit obligation, a dedicated section was included in the USP called “Application to the Energy Efficiency Act”. Access to this section is granted by the national monitoring agency.



Business service portal Austria



Country practices

Reducing one-time costs by utilising existing company register

To identify obliged companies, France relies on its national statistical code. Every French business is registered by the National Institute of Statistics and Economic Studies (INSEE) with a unique SIREN code, a 9-digit numerical identifier. To evaluate the non-SME status, all the entities on SIREN level are considered, independent from the company group structure. Thus, all separately registered companies potentially fall under the energy audit obligation, as long as they exceed the employee and revenue thresholds.



Further information



1.1.2 Check outsourcing options

If one-time costs are expected to be substantial or tasks require specialized knowledge, outsourcing of tasks to third parties can be taken into consideration.

Cases may occur where the effort for the NA to implement part of the Article 8 EED requirements on their own (e.g. setting up websites) appears disproportionate. Reasons may for example include a lack of IT infrastructure or expertise to use it since it is otherwise hardly used. In these cases, it can be practical to consider outsourcing such tasks to specialists.

For example, if no governmental company database exists and information is difficult to collect, it can be more efficient to rely on an external service provider with proven knowledge on national corporate statistics. Similarly, if personnel are missing for conducting the targeted frequency and depth of quality checks, it can be considered to outsource this process provided the quality of the external institution is ensured. This can alleviate burden from the NA, while the aggregated results that are provided by the external partner allows to fulfil the other tasks that are part of the Article 8 implementation.

Another approach to reduce costs is to automate repetitive processes ([1.2.1](#)).

Checklist

- The implementation process of Article 8 was checked with regard to its effectiveness
 - Checking time effort required for each implementation step (i.e. company identification, creation of information materials, auditor certification, monitoring)
- For particularly time or resource consuming steps, outsourcing to external service provider was evaluated
 - Invite tenders or ask a specific institution for an offer
 - Compare offer(s) with own costs for completing the task
- The process was outsourced or it is decided to keep it in house

Reducing one-time costs by outsourcing monitoring

In Austria, the evaluation of federal energy efficiency measures was awarded by tender (Article 25 of the national energy efficiency act) to the Austrian Energy Agency.



Austrian Energy Efficiency Act



Country practices

Reducing one-time costs by outsourcing monitoring

The Energy and Water Agency in Malta implemented an Independent Quality Control System (IQCS), in which a private company is checking the submitted energy audit reports.



Malta's National En. Eff. Action Plan



1.2.1 Automate repetitive processes

Automating repetitive day-to-day tasks such as audit submission reduces reoccurring costs.

Reoccurring costs are mainly related to day-to-day operation of the energy audit obligations in the NAs, such as updating the list of obligated companies, reaching out to companies, following-up on energy audits, or serve as contact for questions related to the audits. Many of those tasks can be simplified by automation and/or digitalisation.

Several MS implemented digital forms that are used for the audit report submission process. This approach takes administrative burden of the NA since data is pre-structured. Furthermore, if specific key data is asked for (i.e. total energy consumption or recommended energy efficiency measures), this can significantly reduce the monitoring effort and allow to even atomize further steps that rely on data processing such as the internal and external reporting and the impacts of Article 8 implementation.

Another approach to reduce reoccurring costs is to provide clear information materials that make it clear of companies what is expected of them (1.2.2).

Checklist

- ❑ Day-to-day tasks in the operational process of implementing Art. 8 have been analysed (i.e. updating the list of obligated companies, monitoring activities) with regard to
 - ❑ Required effort/ resources
 - ❑ Susceptibility to errors
 - ❑ Level of digitalisation
 - ❑ Opportunities for improvement through automation
- ❑ (If significant resources are spent on tasks that could be automated →) The process of automating repetitive tasks has been initiated
 - ❑ Develop an in-house solution
 - ❑ Commission the automation process to an external service provider

Reducing reoccurring costs by automating the audit submission process

Germany implemented a digital form specifically for submitting energy audits. The form can be found on the website of the NA. Besides company information, it also includes specific information about the audit results.



Digital energy audit declaration



Country practices

Reducing reoccurring costs by automating the audit submission process

In Austria, companies or auditors have to report the fulfilment of the audit obligation via the business service portal (USP). The USP comprises over 50 E-government services. For the energy audit obligation, a dedicated section was included in the USP called “Application to the Energy Efficiency Act”. Access to this section is granted by the national monitoring agency.



Business service portal Austria



1.2.2 Provide clear guidelines and support materials

Clear communication of audit requirements reduces reoccurring costs caused by errors made by companies and auditors.

When a lot of day-to-day work is due to “errors” made by companies, auditors, or poor quality audits, it can be worthwhile to improve information documents and their accessibility.

A comprehensible and visually attractive guideline on how to conduct energy audits (in addition to the requirements stated in the national legislation) can reduce the number of mistakes that are made during the audit. This can also increase the quality of the audit and reduce costs associated with quality controls like asking for improvements.

In addition to a guideline, templates for energy audits can be provided to make sure that the structure of the report is uniform (to allow easier processing), and to avoid that reports lack certain sections.

Finally, a detailed FAQ section can answer questions that arise from companies or auditors and thus it can significantly reduce the need for time-consuming personal communication.

All information materials should be easily accessible on the homepage of the NA.

To reduce reoccurring costs, it can be worthwhile to analyse whether outsourcing is a feasible option (1.2.3).

- ❑ Existing information materials have been scanned for completeness, and include e.g.
 - ❑ Concise explanation of who is an obliged company
 - ❑ Unambiguous definition of deadlines and requirements
 - ❑ FAQ section
 - ❑ Guideline on how to conduct energy audits
 - ❑ Template for energy audit reports (text based or spreadsheets)
- ❑ Accessibility of information materials was checked
 - ❑ Central storage of information materials (information hub)
 - ❑ Barrier free access
 - ❑ Relevant cross-links and keywords

Checklist

Reducing reoccurring costs by **providing a detailed guideline on how to conduct audits**

Ireland created an elaborate 64 pg. interactive PDF document that guides auditors and companies step by step through the process of conducting the energy audit and reporting the results.



SEAI Energy Audit Handbook



Country practices

Reducing reoccurring costs by **implementing an elaborate FAQ section**

Several countries created detailed FAQ sections. One example is France, which answers 22 of the most commonly asked questions on the website of the NA. Austria provides information on 23 general questions and 25 regarding energy audits in companies, while Germany covers an even wider range with a total of 86 questions.



1.2.3 Check outsourcing options

If reoccurring costs are expected to be substantial or tasks require expertise knowledge, it can be feasible to check whether the outsourcing of tasks to external institutions is possible.

In cases where disproportionate effort is required from the NA for one part of the implementation process of Article 8 of the EED, due to for example a lack of existing information or knowledge to rely on, it can be practicable to consider outsourcing certain tasks to specialists.

For example, if no governmental company database exists and information is difficult to collect and keep up to date, it can be more efficient to rely on an external service provider with proven knowledge on national corporate statistics.

Similarly, if enough personnel is missing for conducting the targeted frequency and depth of quality checks, it can be considered to outsource this process if the quality of the external institution is deemed sufficient. This can alleviate burden from the NA, while the aggregated results that are provided by the external partner allows to fulfil the other tasks that are part of the Article 8 implementation.

Checklist

- The implementation process of Article 8 was checked with regard to its effectiveness
 - Checking time effort required for each implementation step (i.e. company identification, creation of information materials, auditor certification, monitoring)
- For particularly time or resource consuming steps, outsourcing to external service provider was evaluated
 - Invite tenders or ask a specific institution for an offer
 - Compare offer(s) with own costs for completing the task
- The process was outsourced or it is decided to keep it in house

Reducing one-time costs by outsourcing monitoring

In Austria, the evaluation of federal energy efficiency measures was awarded by tender (Article 25 of the national energy efficiency act) to the Austrian Energy Agency.



Austrian Energy Efficiency Act



Country practices

Reducing one-time costs by outsourcing monitoring

The Energy and Water Agency in Malta implemented an Independent Quality Control System (IQCS), in which a private company is checking the submitted energy audit reports.



Malta's National En. Eff. Action Plan



DEESME

National schemes for energy efficiency in SMEs

Challenge #02

Identification of obligated companies



“The energy-audit obligation applies to "non-SMEs" only. The distinction between SMEs and non-SMEs is clear from a theoretical perspective. However, the challenge is that in practice, determining the actual values of criteria that determine the status of particular companies is challenging due to unavailable and/or distributed information.”



Challenge #02 Identification of obligated companies

The identification of obliged companies can be challenging. Commonly, either existing or self-established databases are used to identify companies. Energy thresholds can also be introduced to either alleviate the effort on non-SMEs with a low energy consumption or to reversely also include SMEs with high energy consumption.

2.1 How to identify companies using existing or self-established databases or self-declarations?

Several MS rely on several existing databases to identify obliged companies. These databases may partly or fully be acquired from external sources, or they may rely on existing governmental sources as a starting point. While the approach of using existing databases can often be very resource-efficient, suitable databases are not available in every MS. If no appropriate internal data is available, various public sources can (partially) provide the required data.

Strategies include

- 2.1.1 Identify companies based on existing registers**
Existing governmental databases can be an efficient way to identify obliged companies.
- 2.1.2 Identify companies based on own data collection**
Different public data sources can be utilised to create a database from scratch.
- 2.1.3 Assist the self-declaration of companies**
Self-declarations are a passive approach and require raising awareness about the obligation and conducting spot checks.

2.2 How to use energy thresholds to allow simplified audits for certain companies?

The goal of the audit obligation is to increase awareness within companies about energy efficiency and initiate the implementation of measures. However, most impact is achieved in companies with high energy consumption. Thus, to alleviate burden on non-SMEs with a particularly low energy consumption, several MS defined energy thresholds that allow companies to carry out a simplified energy audit if they can verify that their energy consumption is below this threshold.

Strategies include

- 2.2.1 Define who would be targeted by the simplification**
An essential step for implementing energy thresholds is to define to whom the simplification may apply.
- 2.2.2 Define simplified requirements to fulfil Art. 8**
When implementing energy thresholds it must be decided what the simplified audit should look like.
- 2.2.3 Implement the simplified approach**
Offering simplified audits entails that the submission process is adjusted accordingly, and changes are communicated to companies.

2.3 How to use energy thresholds to include additional companies in the obligation?

To increase the impact of the energy audit obligation, coverage of companies can be extended to include SMEs with a particularly high energy consumption. For this purpose, energy thresholds must be defined and it must be ensured that companies are aware of their obligation.

Strategies include

- 2.3.1 Collect energy consumption data, define energy thresholds and inform companies**
Knowledge on energy consumption of non-SMEs can serve as a basis to define energy thresholds for inclusion of additional companies.





2.1.1 Identify companies based on existing registers

Existing governmental databases can be an efficient way to identify obliged companies.

To facilitate the identification of non-SMEs, several countries rely on existing governmental business registers. This practise can partly alleviate the difficulty to identify partner, linked or public companies. In an easy case where the boundary between obliged and non-obliged companies can be drawn along the lines of the register, i.e. it is a register of non-SMEs, legal entities who are part of the register can be considered as obliged.

Especially for MS with a large number of companies this practise can save considerable costs. For MS with a very low number of companies (for example less than 100), a manual identification of companies can also be a reasonable.

However, appropriate registers must be available and the NA needs to have access. If necessary, missing information such as number of employees or turnover/ balance sheet data must be extracted from different sources, or various databases have to be combined. Even if only the contact data is available in governmental registers, this can considerably facilitate the identification process, and help with spot checks in the quality control phase of the audit implementation.

If no existing registers can be identified, then an own database can be created based on data collection from different public sources (2.1.2).

Checklist

- A clear view on the required company data is available
- Potential data sources have been checked, e.g.:
 - Tax register
 - Commercial register
 - Databases on import/ export
 - Statistical office
- Gaps to the required company data have been identified and were closed (more information in [2.1.2](#))
- The list of potential companies has been validated (e.g. by asking for company validation or objection)
- The list of companies is regularly updated

Identifying companies by utilising data from the trade register

The Dutch Chamber of Commerce (KVK) publishes a list of all companies in the Netherlands based on data from the national trade register. The list indicates per company information such as in which municipality and province it is located, or which associations exist. Competent authorities use this list as a starting point to approach the groups and companies within their area of activity.



Dutch trade register



Country practices

Facilitating company identification by utilising existing company register

To identify obliged companies, France relies on its national statistical code. Every French business is registered by the National Institute of Statistics and Economic Studies (INSEE) with a unique SIREN code, a 9-digit numerical identifier. To evaluate the non-SME status, all the entities on SIREN level are considered, independent from the companies group structure. Thus, all separately registered companies potentially fall under the energy audit obligation, as long as they exceed the employee and revenue thresholds.



Further information





2.1.2 Identify companies based on data collection

Different public data sources can be utilised to create a database from scratch.

If there are no governmental registers that can be utilised for the identification of obliged companies, or if these registers miss substantial information, creating a database from the beginning can be a promising approach.

Especially for MS with a lower number of companies (less than a few hundred) it can be relatively easy to create their own register. Several data sources can be utilised for this purpose. Free sources include lists of the largest companies or national stock markets. Corporate websites or annual reports can supplement data on employees and turnover. Smaller companies can be identified by using for example participant information from funding programmes, or data from associations such as member lists. If available, data from utilities can be another efficient way to collect the required information.

Once a provisional list was created, identified companies can be contacted and given the chance to object their classification as non-SMEs. Some MS require companies to report their non-SME status on an annual basis.

Instead of creating own databases of obliged companies, another approach is to rely on company self-declarations (2.1.3).

Checklist

- The required company data has been clearly defined
- Potential data sources to collect the necessary information have been checked, e.g.:
 - List of EMS certificates
 - Participant information from funding programmes
 - List of largest companies
 - Data from utilities
 - Data from associations (e.g. member lists)
 - Corporate websites (e.g. annual reports)
 - Stock market information
- Information from different data sources has been considered for combination
- The list has been validated (e.g. by contacting companies)
- The process is institutionalized as a repetitive method to keep the list updated

Identifying companies by utilising funding scheme data

Italy uses data from the Ministry of Economic Development and complements it with a list of energy-intensive companies produced by the Fund for Energy and Environmental Services (CSEA). Furthermore, the NA collaborates with trade and supporting associations for the identification of obliged companies.



Website of Italian research agency (ENEA)



Country practices





2.1.3 Assist the self-declaration of companies

Self-declarations are a passive approach, and require raising awareness about the obligation and conducting spot checks.

Using self-declarations of companies can be a cost effective way to create company databases or extend existing ones. However, it entails the risk that some obliged companies do not self-declare, e.g. due to a lack of awareness. Thus, it must be ensured that the definition of who is obliged is available in a concise manner and communicated to companies potentially falling under the obligation. Most MS publish the definition of non-SMEs on their NA's website, however the depth of detail varies from only citing EU recommendation 2003/361/EG, to providing visual guidelines and practical examples about who is obliged. Support material in the form of detailed FAQ sections, or information documents can support companies in the self-identification process.

In addition to publishing the requirements, the information about the audit obligation must be communicated to companies that potentially fall under the obligation. This can be done by, for example, asking regional institutions to forward the information, or approaching industry associations. Auditors have a vested interest in ensuring that all companies are aware of their obligation, and serve as multipliers to spread information.

If the entire identification process relies on self-declarations, it can be necessary to verify the level of company coverage. This can, for example, be achieved by approaching companies that are involved in programmes typically designed for non-SMEs, verifying whether they self-declared themselves.

To reduce the burden on especially smaller companies, energy thresholds can be an effective approach (2.2.1).

Checklist

- The requirements on who is an obligated company have been published in a comprehensible manner, e.g. through
 - Offering an FAQ section
 - Providing a detailed identification guideline
- Awareness on the obligation has been raised, e.g. via
 - Regional institutions or other multipliers
 - Industry associations
 - Energy auditors as multipliers
- Compliance was spot-checked
 - Creating a sample to check, e.g. by using lists of companies involved in programmes typically designed for non-SMEs (e.g. VA)
 - The number of companies has been compared to other MS under consideration of differences in company structures

Reducing company identification effort by relying on self-declarations

In Bulgaria, the identification of the companies is based on self-declaration. Each year before 31st January, all companies who are subject to the mandatory audits shall submit to the agency a declaration according to a template determined in the national legislation.



Energy Efficiency Act. (Art. 57 (5))



Country practices

Increasing clarity of non-SME definition by implementing an elaborate FAQ section

Several countries created detailed FAQ sections. One example is France, which answers 22 of the most commonly asked questions on the website of the NA. Austria provides information on 23 general questions and 25 regarding energy audits in companies, while Germany covers an even wider range with a total of 86 questions.





2.2.1 Define who would be targeted by the simplification

An essential step for implementing energy thresholds is to define to whom the simplification may apply.

Simplified audits are a mean to reduce the burden on non-SMEs with a very low energy consumption who nonetheless are obliged to conduct time and cost consuming energy audits. Several MS started to allow such companies to conduct a simplified audit if they can verify that their energy consumption lies below a certain threshold.

To define such a threshold, MS can analyse submitted data from previous auditing periods, and analyse it according to the energy consumption data. For example, the aim could be to only require those non-SMEs to conduct the full audit that are responsible for e.g. 95% of total non-SME energy consumption in a reference year. Energy thresholds that are already in place vary between countries, and are for example defined at 50 MWh per year in Malta and at 1 000 MWh per year in Denmark.

After defining the size of the threshold, the requirements for the simplified audit can be set (2.2.2).

Checklist

- The energy consumption data of companies who already conducted the energy has been considered for analysed
- The introduction of an energy threshold has been taken into consideration, by e.g.
 - Analysing the thresholds that other MS have applied
 - Calculating the threshold based on aspired coverage of total energy consumption

Reducing burden on companies by allowing simplified energy audits

Since December 2020, non-SMEs in Italy with an annual energy consumption of less than 50 toe (approximately 582 MWh) are exempt from conducting the full energy audit (Art. 8 (3) of Legislative Decree 102/2014.)

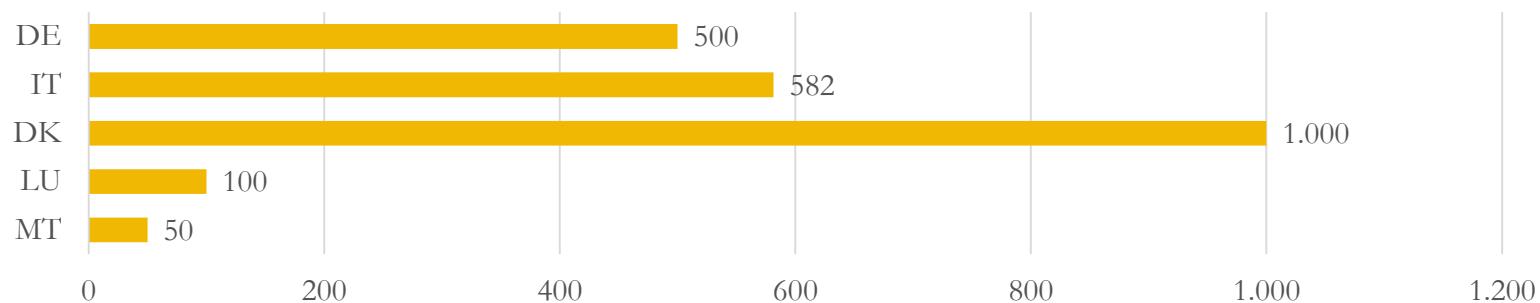
However, to comply with the decree, companies must register on the online portal of the NA in the category "Large companies with consumption below 50 toe" and upload a self-declaration, signed by the legal representative, certifying that the company consumes less than 50 toe.



Website of the NA



Country practices



Examples of energy thresholds for simplified audit [MWh/year]



2.2.2 Define simplified requirements to fulfil Art. 8 and implement the approach

When implementing energy thresholds it must be decided what the simplified audit should look like.

Simplified energy audits are offered to alleviate the burden on non-SMEs with a particularly low energy consumption. Thus, the requirements for the simplified energy audit should clearly reduce the work that is required to conduct the energy audit. However, at least the energy consumption data must be assessed and reported in a verifiable manner.

In addition to the consumption data, other information can provide valuable insights to the MS without significantly increasing the workload for companies. For example, energy costs can be reported without much effort since the data often is stored together with the consumption data. Furthermore, a breakdown by energy source can provide MS insights about the overall state of the industry sector individual sectors and provide indications on what funding programmes might aim at.

Companies can also be asked to self-identify areas of potential improvements and measures which they intend to implement. This can enhance self-commitment and serve as a motivation to improve energy efficiency. Furthermore, available technical solutions for different consumption areas that have been proven effective can be listed to provide ideas on measures that could be implemented. This data can be based on the available information from the full audit report.

With the simplified requirements defined, the submission process must be adjusted accordingly, and companies must be informed about the changed regulation (2.2.3).

Checklist

- Simplified requirements in other MS have been considered
- Elements that will be included in the simplified energy audits have been identified, e.g.
 - Energy consumption
 - Energy costs
 - Areas of potential improvements
 - Planned energy efficiency measures
- It has been decided whether information about the industry and potential measures will be provided to the company, e.g.
 - Average consumption of industry sector
 - Examples of technical solutions for different consumption areas

Reducing burden on companies by **allowing simplified energy audits**

To reduce the burden on companies with a low energy consumption who nonetheless would legally be required to conduct a full energy audit complying to the national standards, Denmark allows obliged companies with a total energy consumption of less than 1 000 MWh per year to carry out simplified energy audits. If a company consumes less than 100 MWh, the simplified audit can even be done without an official energy auditor.



Executive order on mandatory energy audits in large companies (Art. 5)



Country practices

Reducing burden on companies by **allowing simplified energy audits**

Germany introduced a threshold for simplified energy audits at 500 MWh per year across all energy sources. Information on how to exactly determine the total energy consumption of an obligated company is provided by the NA in form of an information leaflet. The simplified audit contains information on energy consumption and energy costs.



Leaflet of the NA for the determination of the total energy consumption





2.2.3 Implement the simplified approach

Offering simplified audits entails that the submission process is adjusted accordingly, and changes are communicated to companies.

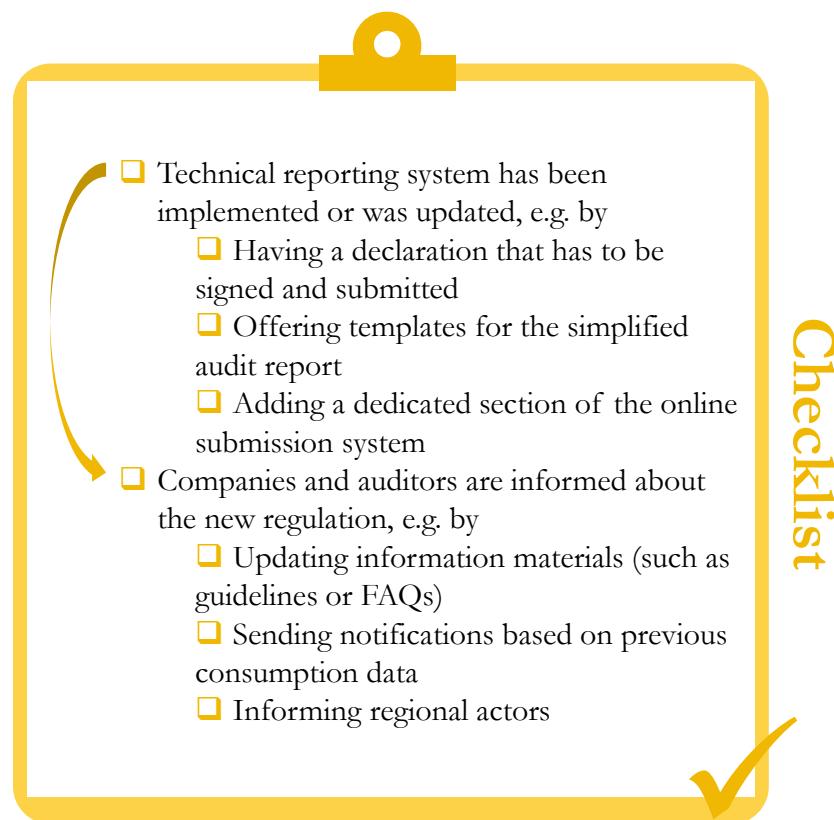
Once an energy threshold for simplified audits are set and the scope of the simplified audit is defined, the submission process must be adjusted and changes must be communicated to the companies.

Changes to the submission system depend on the approach that the MS is taking. A simple approach is to ask companies to sign a declaration, stating that their energy consumption is below the threshold. The NA then might check some of the companies by asking for more information.

If a text-based or spreadsheet-based template is offered for the submission process, then another way is to offer the companies a simplified version of this template that contains all relevant aspects of the simplified audit. MS that implemented a digital submission system can allow companies to indicate that they are eligible for the simplified audit, and then reduce the number of entries which normally would have to be entered.

Once a concept for a technical solution for the submission process has been established, existing information materials need to be updated to reflect the changes in the process. If consumption data from previous audits exist, it is also conceivable to use this to inform companies with an energy consumption below the threshold about the new implementation.

Instead of reducing the scope of the obligation, the number of obliged companies can be increased by using reverse energy thresholds to include SMEs with a particularly high energy consumption into the obligation (2.3.1).



Checklist

- Technical reporting system has been implemented or was updated, e.g. by
 - Having a declaration that has to be signed and submitted
 - Offering templates for the simplified audit report
 - Adding a dedicated section of the online submission system
- Companies and auditors are informed about the new regulation, e.g. by
 - Updating information materials (such as guidelines or FAQs)
 - Sending notifications based on previous consumption data
 - Informing regional actors

Reducing burden on companies by allowing simplified energy audits

Non-SMEs in Luxembourg whose annual energy consumption does not exceed 100 MWh can conduct a simplified audit as long as it complies with the minimum criteria provided in the national legislation.



Amending law of 5 July 2016



Country practices





2.3.1 Collect energy consumption data, define energy thresholds and inform companies

Knowledge on energy consumption of non-SMEs can serve as a basis to define energy thresholds for inclusion of additional companies.

The impact of the energy audit obligation can be increased by extending the number of companies that fall under the requirement. This might particularly concern SMEs with a high energy consumption. The motivation for this can be that companies that are responsible for a larger contribution to the total energy consumption are not covered by the existing obligation.

When implementing a mandatory mechanism to such SMEs, a particular challenge is to obtain an overview about the actual energy consumption of SMEs. Thus, well-founded decision whether and how high the energy threshold should be are difficult. Sometimes, existing data from governmental sources such as funding schemes or the national statistical office can be used for this purpose. A threshold could also be set based on the aspired coverage of total energy consumption.

Instead of using a mandatory mechanism, another approach is to use voluntary schemes. If incentives such as tax reductions are granted, SMEs can be attracted to join voluntary agreements on energy efficiency as seen in many MS.

Once the extended obligation is defined and the scope of the simplified audit is defined, changes must be communicated to the companies, by e.g. updating existing information materials to clarify the change in legislation for companies.

Checklist

- ☐ The energy consumption of SMEs has been collected and analysed, for example by using
 - ☐ Data from utilities
 - ☐ Directly approaching companies
 - ☐ Data collected within other energy efficiency programmes (e.g. subsidies, funding schemes)
 - ☐ National statistical office
- ☐ An energy threshold is defined, by e.g.
 - ☐ Calculating the threshold based on aspired coverage of total energy consumption
- ☐ The updated requirements have been communicated to the companies, e.g. through
 - ☐ Utilities informing their clients
 - ☐ Regional institutions

Increase energy audit coverage by **using energy thresholds to include additional companies**

In Art. 57 of its national energy efficiency act, Bulgaria specifies that in addition to all non-SMEs, also industrial systems with an annual energy consumption exceeding 3 000 MWh are subject to mandatory energy efficiency audits.



Bulgarian Energy Efficiency Act (Art. 57)



Country practices

Improve industrial energy efficiency by **using energy thresholds to mandate companies to implement measures**

Under the Environmental Management Activities Decree, the Netherlands obliges companies which consume more than 50 000 kWh of electricity or 25 000 m³ of natural gas to take energy-saving measures with a payback period of 5 years or less. The regulation was implemented independent from the energy audit obligation.



Website of the Dutch NA



DEESME

National schemes for energy efficiency in SMEs

Challenge #03 Ensuring compliance



“All non-SMEs are required to carry out energy audits or to implement energy management systems. However, also due to lacking information on company status, a challenge concerning the implementation of Article 8 is that there are companies that do not comply with the audit requirement or that only fulfil the requirement late.”



Challenge #03 Ensuring compliance

To ensure compliance with the energy audit obligation, MS must ensure that all obligated companies carry out an energy audit, and that submitted audits meet the requirements. Sanctions can be an instrument to increase compliance.

3.1 How to ensure that all obligated companies carry out an audit?

To achieve a high compliance rate, obligated companies must be aware of the regulation and know whether they are covered by the obligation or not. This can be achieved by publishing information material and using different channels to reach companies. The likelihood of companies to comply with the regulation and meet the quality standards can be increased by pull factors, such as underlining the added value of conducting an energy audit, as well as push factors, such as imposing sanctions on non-compliance.

Strategies include

- **3.1.1 Ensure target group is aware of obligation**
Information about who is included in the obligation should be clearly communicated to the companies.
- **3.1.2 Underline the added value of audits**
The intrinsic motivation of companies to comply with the regulation can be increased if the added value of the energy audit is underlined.
- **3.1.3 Establish sanctions in case of non-compliance**
Sanctions can act as a deterrent for companies to not comply with the regulation.

3.2 How to verify that submitted audits meet the requirements?

To ensure that energy audits meet the requirements, the quality of audits must be verified. The quality of audits can be increased by guaranteeing well qualified energy auditors, by providing guidance documents on how to conduct the energy audit and the reporting, as well as by performing randomized quality checks.

Strategies include (link to challenge #04)

- **Challenge #04 Quality of audits**
Further information on strategies to verify that submitted audits meet the requirements by improving the quality of energy audits can be found in Challenge #04.





3.1.1 Ensure target group is aware of obligation

Information about who is included in the obligation should be clearly communicated to the companies.

After the publication of the EU Energy Efficiency Directive in 2012 (2012/27/EU), MS transposed the requirements into national legislation. For many MS, the concept of an energy audit obligation was new and it needed to be introduced to the appropriate target group. There are various ways to do so as shown by experience.

Along with the audit obligation, the classification of non-SMEs needs to be made transparent to the companies to provide a clear picture who has to carry out the audit. It seems therefore a good practice to offer information that describes obliged companies in a non-ambiguous manner and that clearly states all exceptions. Common queries can be covered by FAQ section, and general information can be provided in graphical leaflets.

All necessary information to learn about the obligation and changes to the obligation could be made available on a central information hub, preferably on the website of the national agency or any external institution that serves as a central hub for companies. Relevant keywords can make it easy to find the information, and links to external sources can provide further information. The dissemination of information could also be increased by collaborations with regional institutions and cross-linking websites.

As an additional strategy, the intrinsic motivation can also be increased by underlining the added value of energy audits for the companies (3.1.2).



- The availability of clear information materials has been verified, including e.g.
 - an easy to use, non-ambiguous target group definition
 - an FAQ sections to answer the most common queries
- The availability of information material to companies has been ensured, e.g. via
 - Homepage of the NA
 - Dedicated workshops or information events
 - Regional institutions
 - Hotline service

Checklist



Informing target group by implementing an elaborate FAQ section

Several countries created detailed FAQ sections. One example is France, which answers 22 of the most commonly asked questions on the website of the NA. Austria provides information on 23 general questions and 25 regarding energy audits in companies, while Germany covers an even wider range with a total of 86 questions.



Country practices



Informing target group by installing a hotline service

Besides implementing an FAQ section to answer the most common questions, the monitoring agency in Austria installed a hotline service to give companies a direct communication channel. For two hours on two weekdays, the hotline service is active and can serve as a valuable information instrument.





3.1.2 Underline the added value of audits

The intrinsic motivation of companies to comply with the regulation can be increased if the added value of the energy audit is underlined.

The intrinsic motivation to conduct energy audits can be increased if the audits are not only seen as an obligation, but also as an opportunity to reduce operational costs and risks, as well as improving the value proposition of the company.

Economic savings due to lower energy consumption can reach significant amounts, and should be stressed when informing companies about the energy audit obligation. Furthermore, the public perception of a company can be positively influenced by showing engagement in energy efficiency by conducting energy audits or implementing an EMS.

When energy efficiency measures are not considered cost-effective when only accounting for energy savings as benefits, several NEBs (also: co-benefits, ancillary benefits) can be emphasized. NEBs such as reduction of emissions, health and macro and micro-economic benefits can be substantially higher than the cost of energy measures.

When viewed at a company level, NEBs primarily include aspects such as improved product quality, higher flexibility, reduced production time, reduced production loss, and reduced risks. Other observations include reductions of maintenance costs, increases in workplace comfort and safety (for instance, when an old oven is replaced by a new, better insulated one) or increases in industrial productivity (due to lower production time or a reduction of the rejection rate).

MS can emphasize these added values of energy audits by organizing awareness campaigns or workshops to educate stakeholders. Furthermore, information materials can be tailored to stress the added value for companies. Auditors play a crucial role to identify added values of energy efficiency measures, and thus it can be feasible to require auditors to conduct trainings on the NEBs of energy efficiency.

In addition to increasing the intrinsic motivation of companies, sanctions can be another approach to avoid non-compliance (3.1.3).



Checklist

- The illustration of the added value of energy audits to companies is available, by e.g. via
 - Demonstrating energy savings as an influenceable parameter and lever to save money
 - ISO 50001 as a sales argument
 - The added value of NEBs
 - As a marketing instrument to attract talent
- Available channels were used to disseminate benefits of conducting energy audits
- The possibility to include energy audits as a requirement to certain funding programmes was considered



Underline the added value by **informing about non-energy benefits of energy efficiency**

As part of the Horizon2020 Multiple Benefits project, several workshops were held to educate stakeholders about the variety of competitive advantages that energy efficiency measures can bring to companies beyond greenhouse gas (GHG) savings. One of the workshops was held by the National Technical University of Athens (NTUA) in February 2020.



Webinar on non-energy benefits at NTUA



Engaging SMEs by **arranging awareness campaigns**

From 2015 to 2020, Estonia used the “Support for awareness campaigns for energy and resource management” to reach out to companies and increase knowledge and awareness on energy efficiency.



Decree of the Minister of the Environment No 672 (Measure 4.3.3)



Country practices





3.1.3 Establish sanctions in case of non-compliance

Sanctions can act as a deterrent for companies to not comply with the regulation.

If non-compliant companies come to the attention of the NA, many NAs first send a reminder and give the companies time to meet the requirement with a delay. Only if this fails, sanctions are imposed, often in the form of fines.

The size of the fines varies and can achieve substantial amounts if fully applied. For example, Slovenia imposes maximum fines of up to 125 000 Euro on legal entities who fail to comply with the audit requirement, as defined in Article 16 of the national Act on Energy Efficiency (Uradni list RS, št. 158/20). Additionally, a fine between 2 000 Euro and 10 000 Euro can be imposed on the responsible person of the legal entity (e.g. director of the company).

In theory, the penalty can even go as far as prison in some countries, such as Luxembourg, where the law stipulates a prison sentence of 8 days to 2 months and/or a fine of 251 to 25 000 euros.

Several MS adjust the size of the fines to the financial capabilities of the companies by capping the maximum fine based on the company revenue. In Poland, fines are capped to 5% of the company's revenue from the last fiscal period. When deciding the penalty, officials are encouraged to consider the scope and reoccurrence of the violation, as well as the financial capabilities of the companies. In case the violation is deemed as insignificant and the company fulfilled the obligation before the violation was identified, officials can decide not to apply the penalty.

Checklist

- The process of exhorting companies is established, including
 - Drafting a reminder notification
 - Defining time for companies to make improvements
 - If necessary, developing the procedure for several exhorting rounds before fines are imposed
- The process of sanctioning companies was established, including
 - Establishing type and size of the sanctions
 - Including gradations of the sanctions depending on the severity of the offence and financial capabilities of the companies

Appropriate fines by capping the sanction based on company revenue

In Poland, fines are capped to 5% of the company's revenue from the last fiscal period. When deciding the penalty, officials are encouraged to consider the scope and reoccurrence of the violation, as well as the financial capabilities of the companies.



Polish Energy Efficiency Act (Art. 40)



Country practices



DEESME

National schemes for energy efficiency in SMEs

Challenge #04 Quality of audits



“While the EED requires high quality energy-auditors and energy audits, a practical challenge is that there remain many audit reports with low quality and that auditors tend to focus on areas they know well.”



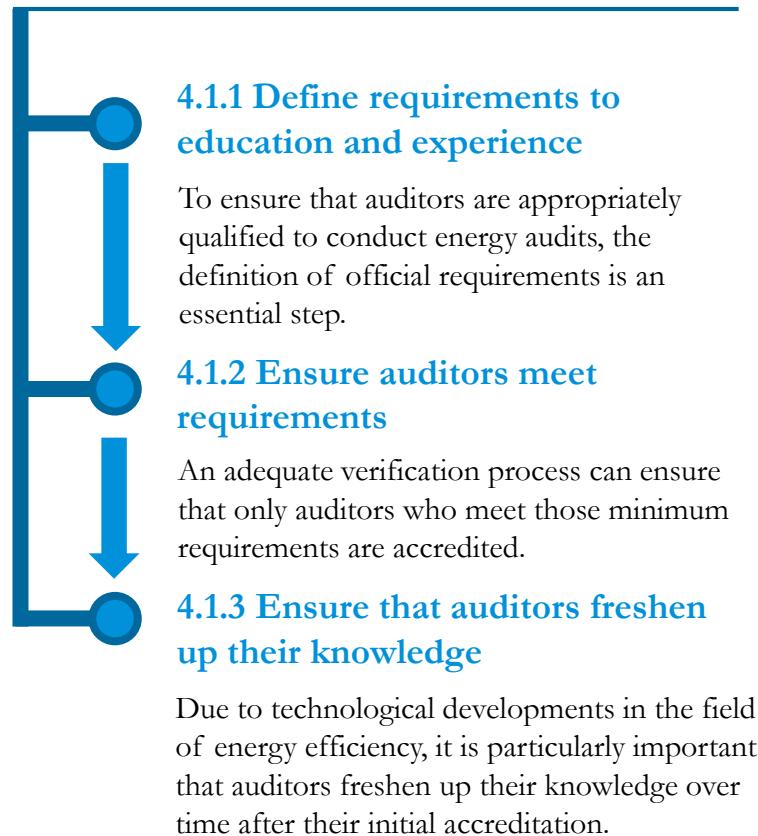
Challenge #04 Quality of audits

Factors with influence on the quality of energy audits include the qualification of auditors, the requirements to both content and structure of the audit reports as well as the regularity and depth of audit quality checks.

4.1 How to ensure education and experience of auditors?

One essential element to achieve high quality energy audits is to have qualified auditors, who demonstrate both expertise and work experience in the field of energy efficiency, and are able to conduct a sound audit and to provide adequate recommendations.

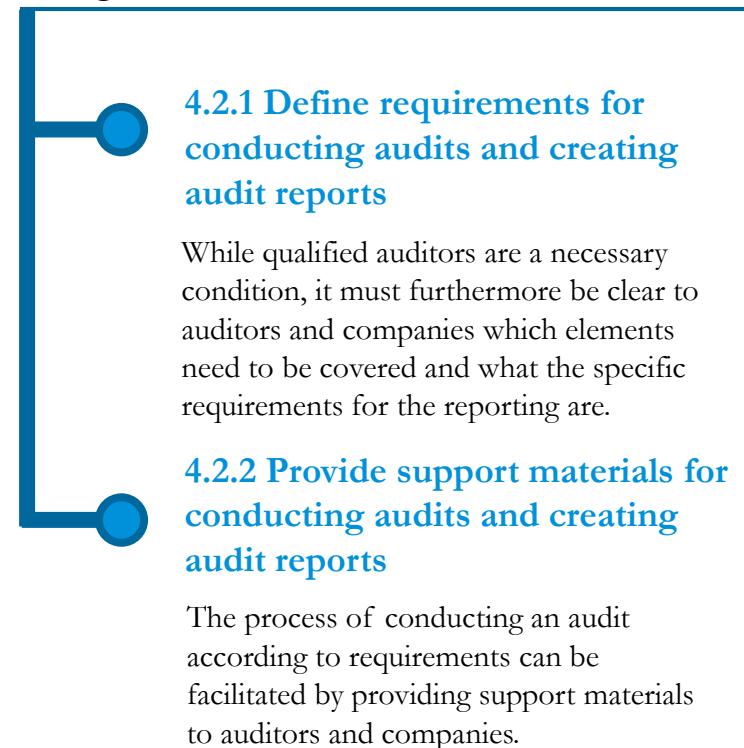
Strategies include



4.2 How to ensure that audit reports are of high quality?

While qualified personnel conducting the audit is necessary, it is not sufficient on its own. The audit itself must be conducted in an appropriate manner and the audit reports must meet certain standards of structure and content to allow companies to utilise the findings and MS to monitor the results.

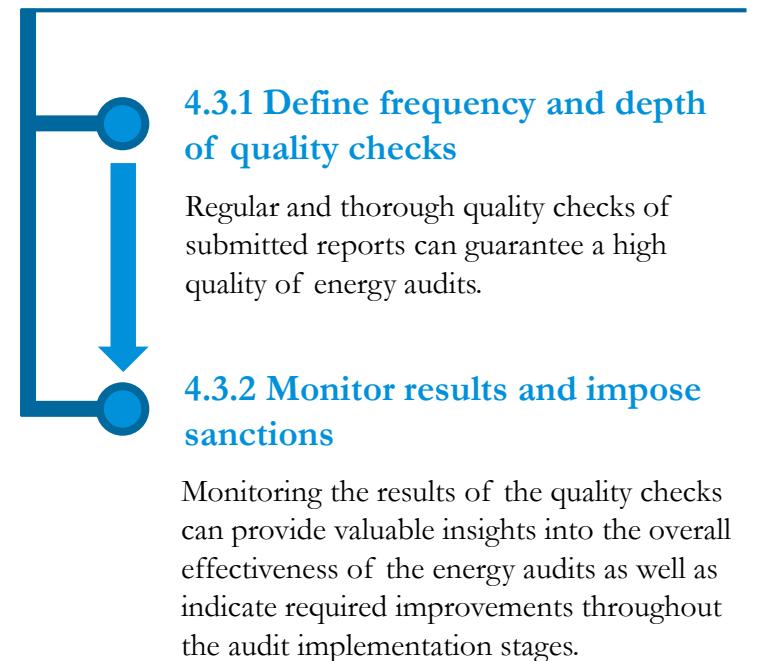
Strategies include



4.3 How to carry out quality checks of audits?

Quality checks are the means to verify whether the quality standards are met. They are essential to assess the effectiveness of having qualified personnel and clear audit reporting requirements and making adjustments if necessary.

Strategies include





4.1.1 Define requirements to education and experience

To ensure that auditors are appropriately qualified to conduct energy audits, the definition of official requirements is an essential step.

Most MS publish official requirements for the certification of auditors or auditing companies. In most cases, those requirements include minimum standards for both educational background and work experience in the field of energy efficiency. Furthermore, theoretical and/or practical exams might have to be passed.

Auditors must have a broad knowledge of energy efficiency measures to provide adequate recommendations. While most countries certify auditors to conduct the entire energy audit, another approach is to divide the audit into different specialization areas and require a separate qualification and certification for each of those areas. Thus, the overall quality of the audits can be improved. However, this approach might require companies to collaborate with more than one auditor to conduct the energy audit.

One way to ensure that the auditor has a broad knowledge is to make sure that during the accreditation process, all relevant topics are covered, and/or trainings are incorporated into the qualification procedure.

A few countries take a different approach and do not use a certification system for the auditor, but instead focus on quality checks of the audit report to verify whether the audits met the required standards. This approach may save resources for education, but may also increase the effort for companies, since there is no official list of accredited auditors, and it can become more difficult for companies to identify auditors that meet minimum standards.

Once requirements are set it must be ensured that auditors meet those standards (4.1.2),

Checklist

- A catalogue of criteria for the educational background of auditors is established, including
 - Required degree (bachelor, master, technician, etc.)
 - List of fields of study (e.g. energy technology, electrical engineering, environmental engineering)
- A catalogue of criteria for the work experience of auditors is available, including
 - Minimum number of years of experience
 - List of accepted fields of work (e.g. energy consultant)
- Requirements to education and experience of auditors have been published in official documents (e.g. legislation)

Increasing breadth of auditors by **qualifying auditors separately in different audit areas**

To ensure a good knowledge of auditors, Austria developed a system to separately verify qualification of auditors in three audit areas: Building, Processes, and Transport. Their publicly available list (as of December 2020) includes 608 approved auditors; thereof 110 are qualified for all three areas (523 for buildings, 383 for processes, 153 for transport).



Website of Austrian Energy Agency



Country practices

Increasing the number of auditors by **cross-border accreditation**

In addition to nationally accredited auditors, Denmark also accepts auditors who are accredited in neighbouring countries to perform audits. On its website, the Danish Energy Agency publishes links to certified auditors from Sweden, Germany and the UK.



Website of Danish Energy Agency





4.1.2 Ensure auditors meet requirements

An adequate verification process can ensure that only auditors who meet those minimum requirements are accredited.

To be accredited as an energy auditor, applicants must prove that they fulfill the requirements such as work and practical experience. Several MS also request applicants to pass a written and/or practical examination.

For those MS certifying their auditors, it is usually a common practice to publish a list of certified auditors on the website of the NA, to make it easy for companies to find a suitable candidate to conduct the audit.

In addition to nationally accredited auditors, some MS also accept auditors who are accredited in neighbouring countries to perform audits. This is the case for Denmark, for example, which publishes links to certified auditors from Sweden, Germany and the UK on its website.

Accreditation is one part of the implementation, ensuring a continuous update of their skills is another [\(4.1.3\)](#).

Checklist

- ❑ There is an established process for the registration of auditors
 - ❑ It has been defined how auditors have to verify their educational background and work experience (e.g. by submitting copies of diplomas, reference letters)
- ❑ A testing/examination process has been established
 - ❑ If a written and/or practical test is part of the verification process, define scope and implementing institution
- ❑ A list of certified auditors is easily accessible to the companies, e.g. via the homepage of the NA

Ensuring high qualifications by **requiring auditors to pass a test with both written and practical part**

For achieving certification in Sweden, auditors have to prove their competence based on certain training and/or demonstrated experience, and in addition must pass a written examination and a practical test.



Swedish law on energy audits (Art. 9, Art. 10)



Country practices

Increasing the number of auditors by **cross-border accreditation**

In addition to nationally accredited auditors, Denmark also accepts auditors who are accredited in neighbouring countries to perform audits. On its website, the Danish Energy Agency publishes links to certified auditors from Sweden, Germany and the UK.



Website of Danish Energy Agency





4.1.3 Ensure that auditors freshen up their knowledge

Due to technological developments in the field of energy efficiency, it is particularly important that auditors freshen up their knowledge over time after their initial accreditation.

Energy audits are complex procedures which cover a variety of different domains in which expertise is required. To avoid having specialists in only one aspect of audits and to encourage auditors to stay highly qualified and keep pace with new technological advances, several countries have established mechanisms to ensure that auditors have up-to-date knowledge.

This can be achieved by requiring auditors to participate in regular in-service trainings, where knowledge is refreshed and additional expertise can be gained. The level of detail in which both content and frequency of those trainings is predefined can vary. Some MS require and/or offer classes with a fixed content, while others instead let auditors choose their trainings and only require proof that the trainings were completed and that they relate to the field of energy efficiency.

A different approach is to only grant an accreditation to auditors for a limited period of time. The duration varies among MS, including three, four or seven years. While longer periods reduce the effort for auditors and the NA, shorter accreditation periods can ensure more up to date knowledge of auditors. Limited accreditation furthermore allows to dynamically adapt testing criteria to recent developments in the sector.

Besides auditor qualification, the clarity of the requirements (4.2.1), and availability of support documents (4.2.2) are other essential factors that influence the quality of audits.

Checklist

- There are requirements for regular trainings of auditors, in particular on
 - the scope and frequency of trainings (e.g. hours / year)
 - the types of accepted trainings
 - the implementation of training, i.e. whether they are supervised/established by the NA or independently by external service providers
- A concept for limited accreditation in time was taken into consideration
- Requirements were integrated into official documents
- Information on the requirements is also available to companies

Ensuring up-to-date qualification by requiring auditors to do regular trainings

In Germany, requirements were recently updated and auditors are now obligated to participate in regular trainings, on which they have to inform the national agency BAFA (EDL-G Article 8). It is expected that auditors will have to complete 16 units of training (each 45 minutes) with relevance to energy audits every 2 years.



Defined in draft legislation



Country practices

Ensuring up-to-date qualification by limiting accreditation in time

In Croatia, energy auditors and energy consultants accreditation ceases to be valid after a period of seven years. After this period, it can be reissued for the same period if the national requirements are met.



Croatian Rulebook on Energy Inspection for Large Enterprises (Art. 9)





4.2.1 Define requirements for conducting audits and creating audit reports

While qualified auditors are a necessary condition, it must furthermore be clear to auditors and companies which elements need to be covered and what the specific requirements for the reporting are.

Official requirements can be made on how to conduct the energy audit and what the audit report should include. Minimum criteria can cover specific measures that the auditor has to carry out during the audit or requirements on the cost calculations for the proposed measures.

Normally, the mandatory percentage of total energy consumption that must be covered by the energy audit is stated. A common value for minimum coverage is 90% (e.g. Denmark, Greece, and Germany). However, also progressive approaches exist, for example making the minimum coverage dependent on the energy consumption of the companies, thus making it easier for companies with a lower energy consumption.

A common practice in many countries is to allow to sample of similar processes or locations to facilitate the auditing process for companies.

When the requirements to the audit process have been established, support materials can be helpful to facilitate and guide the energy audit process (4.2.2).

Checklist

- The essential requirements for energy audits have been identified, for example
 - Minimum percentage of coverage
 - Allowed measurement methods
 - Requirements on the granularity of data measurements
 - Permitted simplifications such as sampling similar processes or sites
 - Cost calculation requirements
- Requirements for conducting energy audits are clearly stated in the legislation and communicated to auditors

Clear requirements within national legislation on conducting audits and reporting

Austria defines detailed minimum criteria in the Annex 3 of its Energy Efficiency Act. Therein, it is stated what elements must be included when conducting the audit, as well as how to perform required calculations. Furthermore, Austria defined the distinct energy consumption areas (building, processes, transport). If a single area consumes less than 10% of total energy consumption, it can be excluded from the energy audit.



Austrian Energy Efficiency Act



Country practices

Reducing burdens on smaller companies by decreasing coverage level based on energy consumption

For industrial sites with a total consumption of less than 10,000 toe/year, a decreasing coverage level when conducting energy audits is proposed by Italy, ranging from 80% for companies with a high energy consumption down to 40% for companies consuming less than 100 toe/year.



Italian Guideline for Energy Audits





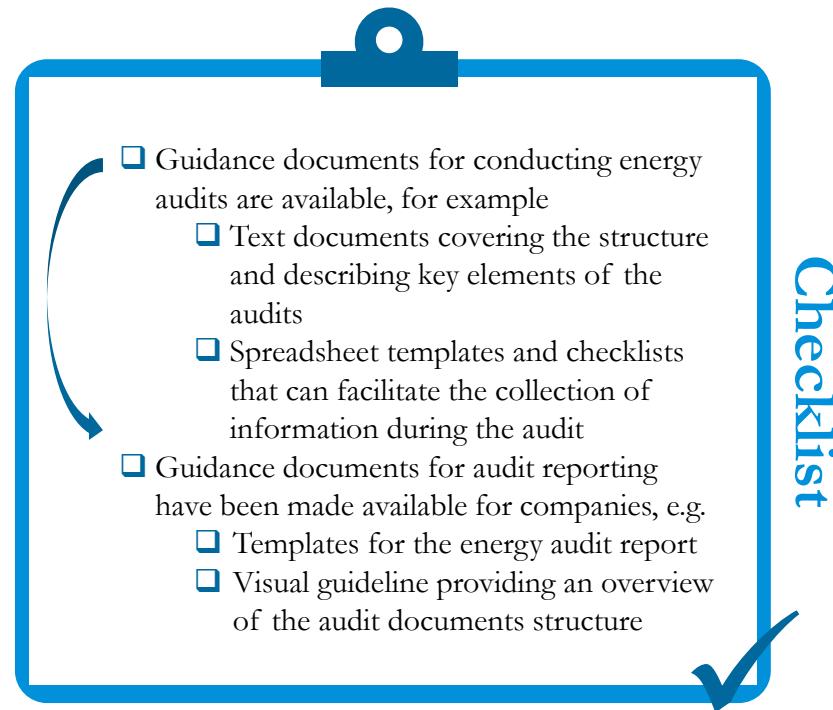
4.2.2 Provide support materials for conducting audits and creating audit reports

The process of conducting an audit according to requirements can be facilitated by providing support materials to auditors and companies.

Besides specifying the requirements in the official legal documents, several MS offer elaborated guideline documents that provide further insights into how the energy audit should be realized and what criteria must be met. Such documents can contain the required structure of the energy audit and provide details on the mandatory points that must be included, such as the analysis of energy sources and the overview of energy saving potentials. Another approach is to design a step-by-step guideline that walks the reader through all parts of the energy audit process.

To facilitate and standardize the reporting process, MS offer templates that companies or auditors can use to fill in the audit results. By doing so, work is reduced for both the auditors who can follow the given structure, as well as for the NA who receives standardized documents that are easier to process.

After the audits have been completed, quality checks can verify whether the quality expectations are met (4.3.1).



Improving audits by providing a detailed guideline on how to conduct audits

Ireland created an elaborate 64 page interactive PDF document that guides auditors and companies step by step through the process of conducting the energy audit and reporting the results.

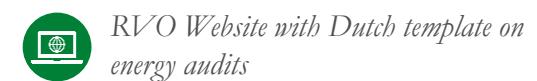


SEAI Energy Audit Handbook



Improving reports by providing a template for energy audits

The NA in Netherlands offers a MS Word template that contains all necessary elements of the energy audit. Using the template is not mandatory, but it can be an efficient way to facilitate the reporting for auditors and companies, as well as facilitating the processing of documents for the NA.



RVO Website with Dutch template on energy audits



Country practices





4.3.1 Define frequency and depth of quality checks

Regular and thorough quality checks of submitted reports can guarantee a high quality of energy audits.

Quality checks of audit reports can ensure that they are helpful documents to the companies. There are various practices to implement such checks.

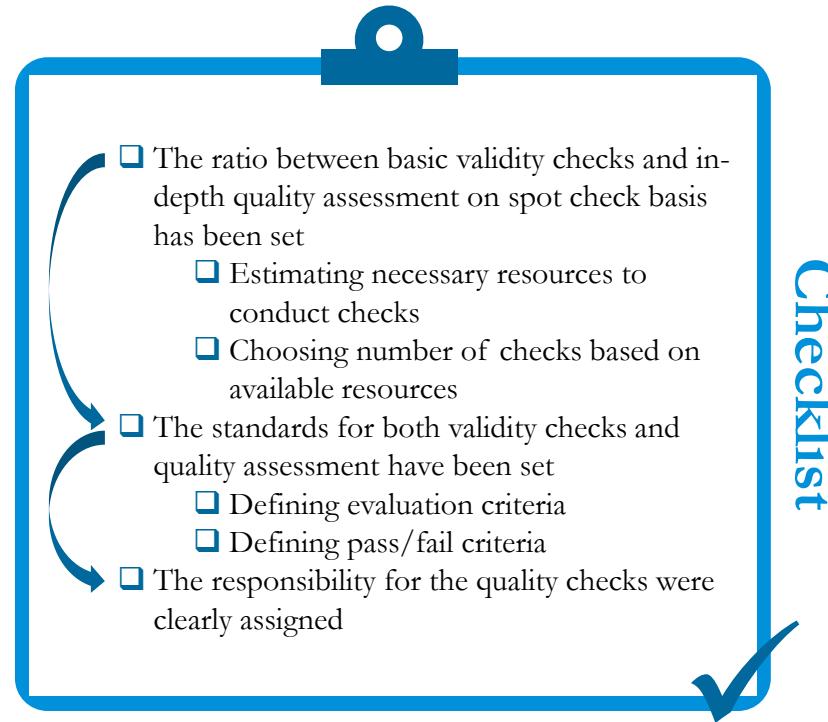
A common practice is to perform basic validity checks on all collected energy audits, and in-depth quality checks on a smaller sample on spot check basis. The quantity of the in-depth quality checks varies, and can be for example 1% or up to 5% of all obliged companies. Germany performs around 2 000 detailed quality checks in a 4-year period, which corresponds to around 4% of the obliged companies.

While many NAs perform the quality checks themselves, some MS also subcontract the quality checks to external institutions.

Another good practice approach seems to be realizing a quality check one of the first report of every new energy auditor to verify that he or she is fully aware of all requirements.

A different practice is impact oriented. Here, the reports of the companies with the largest energy consumers in the country are checked.

With the process of quality checks defined, NAs can monitor the results and draw conclusions on where improvements can be made (4.3.2).



Improving audit quality by **checking highest consumers**

Portugal covers part of its monitoring with the existing SGCIE scheme, which obliges all companies with an energy consumption of more than 500 toe to be monitored.



Portugal Decree Law No. 71/2008



Country practices

Reducing one-time costs by **outsourcing monitoring**

The Energy and Water Agency in Malta implemented an Independent Quality Control System (IQCS), in which a private company is checking the submitted energy audit reports.



Malta's National En. Eff. Action Plan





4.3.2 Monitor results and impose sanctions

Monitoring the results of the quality checks can provide valuable insights into the overall effectiveness of the energy audits as well as indicate required improvements throughout the audit implementation stages.

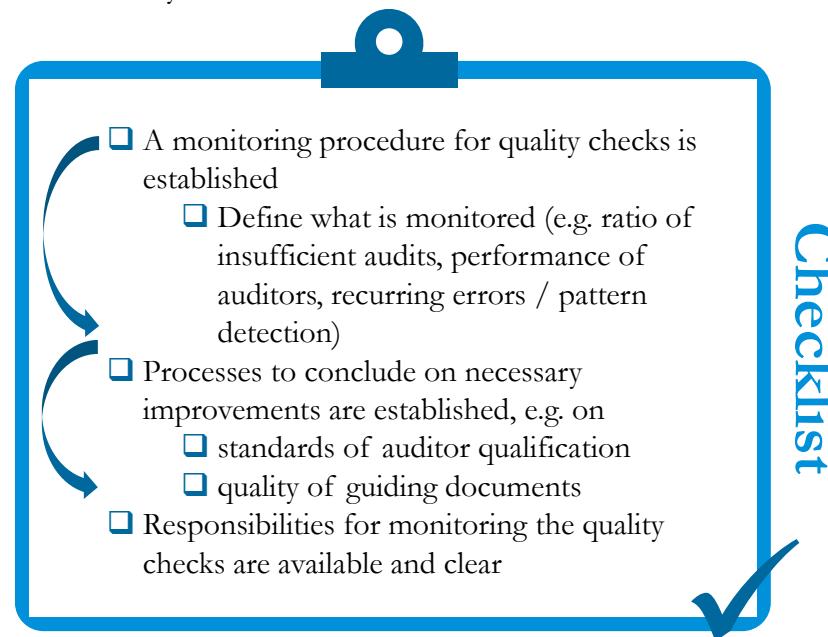
Monitoring the results of quality checks helps to detect faulty or missing energy audits and to ask companies to do refinements, where necessary. Furthermore, the aggregated results can provide insights into the overall effectiveness and impact of the energy audits.

If irregularities are detected during the quality checking the reports, the NA can require companies to improve the report or, if the quality is deemed overall insufficient, to redo the audit.

Most MS implemented fines for companies who did not comply with the audit obligation or failed to meet required standards as stipulated in national legislation. The size of the fines varies among MS and can achieve substantial amounts if fully applied. To make the fine mechanism appropriate to the financial situation of companies, several MS cap the maximum fine based on the company revenue.

Monitoring furthermore supports the overall evaluation of the energy audit obligation. If similar errors occur in the submitted report, it can be an indicator for revising guiding documents, or increase the standards of auditor qualification in that specific area. Especially when using automated systems for collecting information about the audits, it can be very simple for NAs to aggregate results on overall energy savings from the implementation of Article 8 EED.

Accordingly, since the regulation is in place since more than one evaluation cycle, several MS started to ask for implemented measures from the last energy audit to better track the overall progress on energy efficiency in the industry.



Appropriate fines by **capping the sanction based on company revenue**

In Poland, fines are capped to 5% of the company's revenue from the last fiscal period. When deciding the penalty, officials are encouraged to consider the scope and reoccurrence of the violation, as well as the financial capabilities of the companies.



Polish Energy Efficiency Act (Art. 40)



Monitoring audit effectiveness by **asking for implemented measures in the last 4 years**

Estonia asks companies to submit the identified measures in the energy audit, as well as the implemented measures during the previous 4 years. Measures can be selected from a predefined list to facilitate processing. If no suitable measure is in the list, companies can manually add entries.



Electronic energy audit reporting guide



Country practices



DEESME

National schemes for energy efficiency in SMEs

Challenge #05

Compromise between reporting effort and monitoring results



“Finding a good balance between following up on the implementation of measures while limiting the additional burden for companies is a practical challenge in the monitoring process concerning non-SMEs.”



Challenge #05 Compromise between reporting effort and monitoring results

The burden on companies to prove compliance and the burden on NAs to monitor the implementation of audits are determined, among others, by the content, the form and type of the submission.

5.1 Which key information to cover in the audit reporting?

The large majority of MS follows an active submission process, where companies have to prove compliance after conducting the audit. However, the scope of information that companies must submit varies. Dependent on the target dimensions, MS may request the full audit report, a summary thereof, or certain key information from the audit to facilitate data processing. In addition to the information on the current audit, it may be useful to monitor the measures that have been implemented during the last 4-year period.

Strategies include

- 5.1.1 Check which aims should be achieved with audit reporting**
It must be clear what the audit information will be used for to decide which key information to cover.
- 5.1.2 Define which information needs to be collected**
Based on the aims of the data collection, the required information can be identified.
- 5.1.3 Choose scope depending on feasibility**
To find a compromise between reporting effort and monitoring, the scope of the submission should be assessed for cost-effectiveness.

5.2 What form should the audit reporting be in?

The form of the audit reporting is an essential factor for the ease with which the NAs can process the submitted information. Submission systems can be implemented as paper or digital systems, formats may from text to spreadsheet documents, and online forms may allow to already pre-filter information during the submission.

A cost-effective solution should find a balance between reporting effort for the companies and monitoring effort for the NA.

Strategies include

- 5.2.1 Design data submission system**
The type of the data submission impacts both on the reporting and monitoring effort.

5.3 How to implement submission support?

To reduce any burdens placed on companies through extensive submission requirements or unclear processes, NAs can support the submission process by offering guiding documents, templates, and/or individualized support. Guiding documents can be provided in the form of step-by-step submission guidelines or FAQs. Templates can ensure standardized submissions and can increase the clarity for companies and auditors. Offering individualized support, such as a hotline service, can also create an option to rule out any unanswered questions.

Strategies include

- 5.3.1 Provide audit submission support**
To reduce the burden on companies, NAs can support the submission process by offering guiding documents or templates.





5.1.1 Check which aims should be achieved with audit reporting

It must be clear what the audit information will be used for to decide which key information to cover.

Different objectives can be pursued with audit reporting. As a basic function, it serves as a verification to ensure that companies have fulfilled their obligation. In addition, the audit reporting can have several other purposes for NAs. For instance, it can support the MS in tracking the national progress on energy efficiency, provide indications on topics that could benefit from targeted support schemes, as well as evaluating the effectiveness of the Art. 8 implementation. If companies are required to indicate which measures they intend to implement, this statement may increase the likelihood of actual implementation. Furthermore, reporting allows to verify the quality of the energy audits and to draw conclusions on necessary adjustments throughout the implementation process.

Based on the aims of the energy audit, it can be decided which information needs to be collected ([5.1.2](#)).

Checklist

- ❑ The aims of the energy audits have clearly been defined by considering the following aims (non-exclusive list):
 - ❑ To understand the structure of energy demand of the company
 - ❑ To obtain a list of implemented measures in past years
 - ❑ To obtain a list of currently identified measures
 - ❑ To use information to monitor national energy efficiency progress
 - ❑ To use information for other purposes (e.g. to design targeted support schemes)
 - ❑ To understand the relevance of NEBs
 - ❑ To understand where cost-effective measures can be taken to reduce energy demand or mitigate GHG emissions

Tracking national progress of energy efficiency by **utilising aggregated information from audit reporting**

Bulgaria utilises the information submitted by companies in its annual report on the National Energy Efficiency Action Plan (NEEAP) implementation and the evaluation of the progress towards the national energy efficiency target implementation (Article 3 EED). For the needs of the NEEAP's annual report the information is used in an aggregated form.



Annual progress reports on EEAP



Country practices

Tracking energy efficiency progress on company level by **requiring companies to submit certain key information**

Several countries implemented digital submission forms in which certain data from the audits is collected individually. Ireland for example uses such an approach, and requires companies to submit, among other information, the energy consumption per source, and also information about completed energy efficiency projects.



Audit compliance notification system





5.1.2 Define which information needs to be collected

Based on the aims of the data collection, the required information can be identified.

After the aims of the audit reporting have been identified, these aims can be translated into information requirements that need to be covered.

If the goal of the energy audit is merely to verify that obliged companies fulfilled their obligation, a simple audit declaration, stating company and auditor information as well as aggregated results from the energy audit, may suffice.

For more elaborate purposes, it is usually necessary to ask for more specific information, such as the share of different energy sources, or identified measures, including for example their life cycle costs, payback time, and estimated savings.

Once it is clear which information needs to be collected, it has to be checked that the effort for companies in providing the data and the effort for the NAs in processing the information is appropriate (5.1.3).

Checklist

- ❑ Based on the defined aims, the information requirements have been elaborated, e.g. (non-exhaustive list):
 - ❑ Basic site and contact information of the company
 - ❑ Contact information of the auditor
 - ❑ Cost of the energy audit
 - ❑ Energy supply, potentially disaggregated by carrier
 - ❑ Energy demand, potentially disaggregated by carrier or area
 - ❑ Energy costs
 - ❑ Identified measures (including costs, payback time, savings)
 - ❑ Implemented measures within the last reporting cycle
 - ❑ Relevant NEBs for each measure

Monitoring the audit effectiveness by **asking for implemented measures in the last 4 years**

Estonia asks companies to submit the identified measures in the energy audit, as well as the implemented measures during the previous 4 years. Measures can be selected from a predefined list to facilitate processing. If no suitable measure is in the list, companies can manually add entries.



Electronic energy audit reporting guide



Country practices

Reducing monitoring effort by **automating the audit submission process**

Germany implemented a digital form specifically for submitting energy audits. The form can be found on the website of the NA and includes besides company information, also specific information about the audit results such as energy consumption and energy costs broken down by energy source.



Digital energy audit declaration





5.1.3 Choose scope depending on feasibility

To find a compromise between reporting effort and monitoring, the scope of the submission should be assessed for cost-effectiveness.

The more data is collected, and the more specific the information is, the more opportunities there are for NAs to utilise the data on the one hand. On the other hand, however, collecting additional data may impose an additional burden on the companies, especially if it requires the manual transfer of audit results to an online portal. Thus, the key is to find the right balance between asking for those information that allow to reach the identified aims of the reporting stage, while nonetheless considering the reporting effort and avoiding to overburden any companies.

Information that would be nice-to-have, but would significantly increase the workload for the companies, might best be excluded. The level of granularity of data is also a way to adjust the effort for both NAs and companies. Some countries only require additional information (such as the full audit report) for those companies that are selected for the quality checks, thus reducing the reporting effort for the majority of companies. Lastly, it can be checked whether some of the required data is already available in other sources (e.g. funding schemes or data from energy providers).

Once it is decided what information will be covered in the audit reporting, the form of submission can be chosen (5.2.1).



- The cost-benefits of collecting the wanted information have been checked, under consideration of:
 - Effort for the company
 - Effort for the NA
- Other data sources have been checked to avoid collecting already available information
- The level of granularity of the collected information has been adapted to optimize cost-benefits

Checklist



Reducing costs by **utilising existing business platform**

In Austria, companies or auditors have to report the fulfilment of the audit obligation via the business service portal (USP). The USP comprises over 50 E-government services. For the energy audit obligation, a dedicated section was included in the USP called “Application to the Energy Efficiency Act”. Access to this section is granted by the national monitoring agency.



Business service portal Austria



Country practices

Reducing effort for companies by **only asking for full reports in case of detailed quality checks**

In Spain, companies submit a compliance document to the autonomous community. The required document is provided in Annex I of Royal Decree 56/2016 and contains company information and certain aggregated information on energy consumption and savings. The entire report has to be stored by the companies and can be asked for in case of inspections.



Royal Decree 56/2016





5.2.1 Design data submission system

The type of the data submission impacts both on the reporting and monitoring effort.

The content of the audit reporting varies among MS and ranges from requiring companies to send the full audit report, to a summary of the report, or asking for specific information from the energy audit. The type and form of data submission varies substantially with the changing content and ranges from sending PDF documents via Email, to more elaborate digital submission systems.

The design of the data submission system should be cost-effective and allow companies an easy submission while providing NAs with adequate information in the right format. The type of submission can be classified according to the level of automation in three categories: full automation, hybrids, and text-based systems.

In case of full automation, data need to be entered manually into dedicated input fields. The digital submission systems then allows to filter, classify and sort the submitted information. This allows NAs to automate many parts of the data processing, but shifts data preparation to the companies which have to fill-in the data accordingly.

The text-based solution, on the contrary, is easiest for the companies, but significantly limits data processing by the NAs: It requires companies to submit audit reports in PDF format only without separately asking to submit certain information in other formats.

Hybrid systems are a compromise of both. Companies are, for example, asked to submit the full report and, in addition, feed certain information to an online system, e.g. by input fields or pre-defined spreadsheet.

In Italy, for instance, companies must upload the full audit report in PDF format and a summary file in Excel format on an online platform created by the national agency ENEA.

Hybrid solutions seems to be found in many MS. An additional approach to indirectly shift the burden away from companies is to allow energy auditors to submit the data instead of their clients.

In addition to optimizing the data submission system, adequate submission support can furthermore reduce the burden on companies (5.3.1).

- Available options for data submission approaches have been reviewed
- Options have been evaluated with regard to e.g.
 - Implementation costs
 - Proneness to errors
 - User-friendliness
 - Submission effort for companies
 - Data processing effort for NAs
- Options to link audit reporting templates to the data submission systems have been investigated

Checklist

Facilitate data processing by automating the audit submission process

Germany implemented a digital form specifically for submitting energy audits. The form can be found on the website of the NA and includes besides company information, also specific information about the audit results.



Digital energy audit declaration



Country practices

Alleviating burden on companies by allowing auditors to perform the data submission

As defined in the Austrian Energy Efficiency Act, it is the responsibility of the auditor to report the content of the audits to the national authority, thus reducing the burden on companies.

Auditors are required to submit a summary of the audit report and fill an online form with the results of the energy audit on the Austrian digital business platform (USP). In addition to filling the form, the auditor must submit a summary of the energy audit report, providing more detailed information on the energy consumption and the identified measures.



Austrian Energy Efficiency Act (Art. 17 (4))





5.3.1 Provide audit submission support

To reduce the burden on companies, NAs can support the submission process by offering guiding documents or templates.

The submission can be a time consuming process for companies, especially if data need to be broken down into details (e.g. splitting up energy consumption by energy carriers, costs and area of use). Furthermore, requirements might be unclear and lead to wrong or misplaced information that increases the time required for data processing.

To reduce the burden on companies, NAs can facilitate the submission process by offering support. It can be provided, for example, via document that guide companies through the submission process and answers questions as they might occur. Similarly, templates can be offered by the NA to provide a uniform structure of all submissions. Such templates can also provide guidance for companies and auditors about the expectations within the submission. Templates could cover full audit reports, a summary of the report, the audit implementation declaration or key audit data only.

While the before mentioned measures may substantially facilitate the submission process for companies, they can be supplemented by other means, e.g. offering individualized support via telephone hotlines or helpdesks.

Checklist

- ❑ A list of potentials means to facilitate the submission was established, for example:
 - ❑ To prepare guidelines on the submission process
 - ❑ To offer templates (e.g. for the full audit report, a summary of the report, spreadsheets with specific information, or an audit implementation declaration)
 - ❑ To establish hotlines or helpdesk services
 - ❑ To provide a section with FAQs
- ❑ The measures were ranked according to expected benefits, the implementation effort for the NAs and the usage effort for companies
- ❑ The most promising measures have been selected for implementation

Provide submission support by **providing guiding documents**

The Danish guiding document on “reporting of mandatory energy audits in large companies” takes the reader through the steps that need to be taken when submitting the energy audit data on the website of the NA.



Danish guideline on reporting energy audits



Country practices

Provide submission support by **providing a template for energy audits**

The NA in Netherlands offers a Word template that contains all necessary elements of the energy audit. Using the template is not mandatory, but it can be an efficient way to facilitate the reporting for auditors and companies, as well as facilitating the processing of documents for the NA.



RVO Website with Dutch template on energy audits



DEESME

National schemes for energy efficiency in SMEs

Challenge #06

Enhancing the uptake of measures



“Energy audits and energy management systems help companies to understand potential energy efficiency measures. However, a practical challenge is that the implementation of the recommended measures could be enhanced.”



Challenge #06 Enhancing the uptake of measures

There are various support mechanisms to encourage companies to improve energy efficiency, either based on informational instruments, financial incentives or obligations.

6.1 How to use informational instruments to enhance the uptake?

Common barriers that stop companies from realizing energy audits/management systems and implementing measures include a lack of awareness on benefits and on available support schemes, as well as fears of hidden costs. Information can help to reduce the relevance of such barriers by increasing awareness and knowledge within the companies.

Strategies include

- 6.1.1 Use informational instruments to create awareness on energy efficiency**
A central and complete information data hub together with dissemination activities can promote the benefits of energy efficiency. (identical to 7.1.1 except country practices)
- 6.1.2 Use informational instruments to increase implementation rate**
Increase the implementation rate of measures by stressing added values and support self-commitments. (identical to 7.1.3)

6.2 How to use financial instruments to enhance the uptake?

A majority of countries provide some kind of financial incentive to either conduct energy audits or to implement energy efficiency measures in companies. However, the form of support and the field of application varies. Sometimes schemes are tailored to specific topics or technologies, other they are open to any technologies. The form of support also varies and ranges from tax reduction over grants or direct funding.

Strategies include

- 6.2.1 Design an adequate financial support system**
An effective support scheme requires a clear definition of the why and how. (identical to 7.2.1 except country practices)
- 6.2.2 Implement, disseminate and evaluate the financial instruments**
Awareness among SMEs about financial support schemes must be raised and all participants must have a clear view on their roles and responsibilities. (identical to 7.2.2 except country practices)

6.3 How to use obligations/ regulatory instruments to enhance the uptake?

Some MS use mandatory requirements to address the uptake of energy efficiency measures in non-SMEs. These include direct obligations to implement certain energy efficiency measures or they work in an indirect way to encourage companies to implement measures.

Strategies include

- 6.3.1 Use obligations to directly increase the uptake of measures**
Obligations to implement energy efficiency measures can ensure that national targets are reached.
- 6.3.2 Use obligations to indirectly increase the uptake of measures**
Some obligations can nudge companies to implement measures.





6.1.1 Use informational instruments to create awareness

A central and complete information data hub together with dissemination activities can increase awareness.

There are various barriers to energy efficiency, some particularly related to a lack of information, knowledge and awareness. Offering comprehensive information materials can therefore be an important element to affect the uptake of energy efficiency measures in companies.

A common way to engage companies is publishing best practices from other companies. These practices shall underline how other successfully implemented energy-efficient solutions. They can also highlight technologies that are proven or particularly innovative technologies that companies might not be aware of.

Information on the process of conducting an energy audit, on implementing energy management systems and on cost estimations contributes to a higher transparency and gives decision-makers within companies a better estimation about the resources that are required for an implementation.

It is not only important that this information is available but it also needs to be easily accessible and properly disseminated. This can be achieved by a central information hub on the website of the NA. A different type of engagement activity is organizing dedicated information events such as workshops, social media campaigns or engaging multipliers such as industry associations or municipalities.

Strategies on how to use information measures to follow up on results can be found in [6.1.2](#).

Checklist

- A concise information management system was established
 - Create a central information hub
 - Avoid double or misleading information
- Successful implementation examples have been published
 - Company best practices
 - Best available technologies in the field of energy efficiency
 - Showcase pilots for “new” innovative technologies
- Transparency on transaction costs of audits has been ensured, e.g. by
 - Publish walk-throughs for audits to better understand scope and effort
 - Provide cost estimations
 - Offering this information via helpdesks/hotlines
- There is a concept how to disseminate the information to the companies, e.g. via
 - Dedicated information campaigns
 - Use of multipliers (associations, auditors, municipalities)
 - Use of social media to increase outreach

Increase acceptance of energy managements systems by **publishing company testimonials**

The French Environment and Energy Management Agency (ADEME) published a visual guideline that summarizes the benefits of using an energy management system (EMS). The document is based on testimonials of companies who are already using an EMS and who share their experience and recommendations.



ADEME Testimonial Brochure



Country practices

Support the uptake of measures by **offering a market review tool on available EMS system**

The German region of North Rhine-Westphalia developed an EMS market review tool which is published on the website of the regional energy agency. The tool is interactive and considers company size, sector and specific requirements which companies might have for the system.



EMS market review tool





6.1.2 Use informational instruments to increase implementation rate

Increase the implementation rate of measures by stressing added values and support self-commitments.

Conducting an energy audit is an important step to increase awareness on energy efficiency. However, without also addressing the behavioural dimension within a company, measures may not have the desired long-term effect.

The MS can contribute to anchoring energy efficiency measures by stressing the added values for companies. For example, auditors can be encouraged to consider NEBs when evaluating potential measures. They can thus provide additional arguments beyond merely financial savings. This can also help to support the follow-up process after the audit was carried out and to overcome inertia for moving towards action. This can be further enhanced if auditors link the identified measures to available funding schemes, and if the administrative parts of programmes, in turn, are kept to the necessary minimum.

A different way to create long-term commitment can be peer networks. These can ensure a longer motivation to work on energy efficiency.

Information on how to use financial measures to enhance the uptake of measures can be found in [6.2.1](#) and [6.2.2](#).

Checklist

- ❑ The added value of energy audits is underlined, e.g. by
 - ❑ Encourage auditors to consider NEBs when evaluating potential measures
 - ❑ Making tools that translate energy savings into turnover or other tangible benefits available
- ❑ A follow-up on audits or suggested measures has been established
 - ❑ It has been ensured that auditors link identified measures to available funding schemes
 - ❑ Require audits as a precondition for funding programmes has been considered
 - ❑ Supporting the creation of peer networks for enhanced engagement of companies has been taken into consideration

Increase implementation rate by **supporting the creation of energy efficiency networks**

In Germany, the Energy Efficiency Networks Initiative was started in 2014, and grew to 306 registered networks by June 2021, involving 2 709 companies. 5 to 15 different companies form a network for several years and use it to share information and best practices on energy efficiency measures. An energy consulting is used in the beginning to identify measures and commit to targets.



Energy Efficiency Networks Initiative



Country practices

Underline the added value by **informing about non-energy benefits of energy efficiency**

As part of the Horizon2020 Multiple Benefits project, several workshops were held to educate stakeholders about the variety of competitive advantages that energy efficiency measures can bring to companies beyond GHG savings. One of the workshops was held by the National Technical University of Athens (NTUA) in February 2020.



Webinar on on-energy benefits at NTUA





6.2.1 Design an adequate financial support system

An effective support scheme requires a clear definition of the why and how.

Most MS provide financial support for implementing energy efficiency measures in companies. When designing such a support system, the intended aims should be defined clearly in the beginning. This should include a clear vision what should be achieved and how. It should also be clear which specific sectors or types of companies are targeted and/or which topics or technologies are covered.

After this, the specific the form of support should be determined. It can range from tax reduction to grants or funding schemes. Some countries also link funding or tax relief for implementing measures with a precondition to conduct an energy audit.

More information on how to implement and communicate the financial support system is discussed in [6.2.2](#).

Checklist

- The expected aim of the support system has been set, using a SMART goal (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**ime-based)
- Target groups have been defined, including sector of activity, company size, technology
- Support activities have been clearly defined, e.g.
 - Support for conducting energy audits
 - Funding of energy efficiency measures
 - Funding linked to other programmes (e.g. bonus when audit has been carried out)
- Type and amount of funding has been determined, e.g.
 - Direct via loans / grants
 - Indirect via tax reliefs
- Other potential designs have been checked and were compared, e.g.
 - Similar schemes in other MS
 - Possible EU funding schemes
- Balance between effort (e.g. paper work) and benefit for SMEs has been evaluated
- Monitoring concept has been established
 - Define what information is asked for during application
 - Define what information is collected later and how

Design a targeted support scheme by providing technology specific funding

SEAI support scheme for renewable heat
The SEAI Support Scheme for Renewable Heat is an initiative by the Irish government to increase the energy generated from renewable sources in the heat sector. The programme is open to non-domestic heat users and supports the installation (of air source, ground source, or water source heat pumps) with up to 30% of eligible costs, as well as the on-going operations.



SEAI Support Scheme for Renewable Heat



Country practices





6.2.2 Implement, disseminate and evaluate the financial measures

Awareness among companies about financial support schemes must be raised and all participants must have a clear view on their roles and responsibilities.

Once the concept for a financial support system was developed, the implementation process can begin. All relevant institutional stakeholder must be informed and responsibilities among them must be clearly defined.

Information materials about the funding scheme are needed to inform companies about the requirement, and an application process must be defined and created. To reduce effort for companies in the process, information materials should be simple and clear, minimize administrative terminology, provide examples where necessary and use visualizations to support written text. A fully digitalised application process can furthermore reduce effort for companies.

To track the success of the programme and if needed to make adjustments, a monitoring concept should be developed.

In contrast to support structures, obligations are a different approach to increase the uptake of measures (6.3.1).

Checklist

- Available support schemes have been communicated (see 9.1.1)
- Support schemes are presented in simple terms and easy-to-understand e.g. by
 - Including on a lean application process (preferably digitally)
 - Using easy language and graphical elements to explain requirements
 - Providing a step-by-step guideline on the funding process (including requirements, FAQs, contact details)
- Implementation and follow-ups have been clearly established
 - Ensure that all required actors (implementing bodies, companies, intermediaries) have been informed
 - Evaluate and adjust the support scheme if possible

Improving industrial energy efficiency by providing funding for a variety of measures

In Austria, financial support is provided to companies of all sizes in the domestic energy support scheme (UFI; Umweltförderung im Inland). It aims to implement ecological friendly projects in a variety of different areas. Actions eligible for support include, among others, connecting buildings to district heating networks, installing heat pumps, or energy-efficient lighting systems. From 2017 to 2019, 16 505 projects were supported in Austria, awarding a total of 254,8 million Euro of funding.



UFI funding information on website of BMK



Country practices





6.3.1 Use obligations to directly increase the uptake of measures

Obligations to implement energy efficiency measures can ensure that national targets are reached.

An energy audit gives companies the opportunity to identify energy efficiency measures and learn about their cost-effectiveness. However, performing an audit does not guarantee that measures are implemented, even if they are profitable for the company.

To increase the uptake of measures, MS can make it mandatory to implement certain measures. However, this measure should be planned designed. The target group must be clearly outlined, for example identical to the companies with an audit obligation. The target group can also be limited, for example, by only addressing companies with high energy consumption or susceptibly high energy saving potentials.

In addition, MS must establish criteria that define which measures of the proposed ones need to be implemented. Various choices are conceivable. For example, at least one of the measures identified in the last mandatory audit (4 year time frame between audits) should be implemented; or, on the contrary, all measures with a payback time below a threshold value need to be realized (for example 5 years in the Netherlands).

To increase the flexibility for companies, they might also be allowed to realize an equivalent amount of energy savings with different measure from the audit.

Finally, an adequate reporting and monitoring system should be in place to track the progress of this direct approach.

A less prescriptive approach is to use indirect measures instead of directly addressing audit recommendations (6.3.2).

- A process for the mandatory implementation of measures has been considered
- Clear definition of the target group is available, e.g.
 - All with audit obligation
 - Only those above certain (energy) thresholds
- A clear criterion for the uptake of suggested measured was established, e.g.
 - At least X of the measures identified in the audit
 - X% of the identified saving potential from the audit (cost-effective within Y years)
 - Measures with payback times less than X years according to audit report
- A deadline for the implementation period is available, e.g.
 - Until next audit
 - Within x year(s)
- An option to realize the same savings by other means has been taken into consideration
- A reporting process has clearly been established, e.g.
 - Companies actively report about realization

Checklist

Enhancing the uptake of measures by **obliging companies to implement measures with payback of less than 5 years**

In the Netherlands, company's with an annual energy consumption exceeding 50 000 kWh (electricity), 25 000 m³ (gas) or the equivalent in another fuel , must take energy-saving measures if they can recover the costs in less than 5 years.



Government information for entrepreneurs



Country practices





6.3.2 Use obligations to indirectly increase the uptake of measures

Some obligations can nudge companies to implement measures.

Various factors may hinder companies from implementing cost-effective measures that were identified in the energy audits. Decision makers might, for example, not be involved in the auditing process and thus are not aware of the benefits that identified measures could have. Also, the mere economic savings might be too marginal to foster an investment decision, or the overall awareness on energy efficiency in the company is low. These factors can be addressed by various strategies that can indirectly lead to an increased uptake of measures.

Examples include requiring top management to formally review audit recommendations and to sign that they have seen and considered the suggested measures. Going a step further, companies can be required to actively justify why they do not intend to implement suggested measures, or otherwise commit to an action plan for implementation. A different approach is to set obligations for third parties, as seen in for example the energy efficiency obligation scheme, in which energy suppliers must support energy efficiency projects.

Another approach to potentially increase the uptake of measures is to raise awareness about NEBs during the auditing process.

Checklist

- ❑ Indirect obligations for energy efficiency in companies have been considered, e.g.
 - ❑ Companies have to achieve a particular aim in terms of energy efficiency progress
 - ❑ Top management has to formally review an executive summary of the audit report including suggested measures and information on cost-effectiveness
 - ❑ Companies have to justify for each suggested measures why it is or will not be implemented
 - ❑ Companies are required to participate in regular activities (e.g. educational workshops, efficiency networks)
 - ❑ Companies must consider NEBs
 - ❑ Companies have to establish a position that is dedicated to deliver energy savings
 - ❑ Participation in white certificate scheme
- ❑ Indirect obligations for third parties have been considered, e.g.
 - ❑ Energy efficiency obligation scheme for energy suppliers

Enhancing the uptake of measures by implementing an energy efficiency obligation scheme

Under the Energy Efficiency Obligation Scheme (EEOS), Irish energy suppliers must support energy efficiency projects throughout the country, and measure their success in energy credits. The scheme started in 2014, and continues to run today. The design of the scheme for the years 2022-2030 is still undergoing a public consultation process.



EEOS Ireland



Country practices



DEESME

National schemes for energy efficiency in SMEs

Challenge #07

Creation of support mechanisms



“Creating support mechanisms to carry out energy audits and to implement their recommendations is required from the MS. However, a practical challenge is to find out how best overcome burdens that hinder SMEs to implement audits and energy efficiency measures.”



Challenge #07 Creation of support mechanisms

There are various support mechanisms to encourage SMEs to carry out energy audits and to implement energy efficiency measures, based on either informational instruments or financial incentives.

7.1 How to use informational instruments to make SMEs realize audits and implement their results?

Common barriers that stop companies from realizing energy audits/management systems and implementing measures include a lack of awareness on benefits and on available support schemes, as well as fears of hidden costs. Information can help to reduce the relevance of such barriers by increasing awareness and knowledge within the companies.

Strategies include

- **7.1.1 Use informational instruments to create awareness on energy efficiency**
A central and complete information data hub together with dissemination activities can promote the benefits of energy efficiency. (identical to 6.1.1 except country practices)
- **7.1.2 Use informational instruments to provide decision making support**
Provide arguments to convince actors of the benefits of conducting an energy audit.
- **7.1.3 Use informational instruments to increase implementation rate**
Increase the implementation rate of measures by stressing added values and support self-commitments. (identical to 6.1.2)

7.2 How to use financial instruments to make SMEs realize audits and implement their results?

A majority of countries provide some kind of financial incentive to either conduct energy audits or to implement energy efficiency measures in companies. However, the form of support and the field of application varies. Sometimes schemes are tailored to specific topics or technologies, other they are open to any technologies. The form of support also varies and ranges from tax reduction over grants or direct funding.

Strategies include

- **7.2.1 Design an adequate financial support system**
An effective support scheme requires a clear definition of the why and how. Who is the target and how are they supported? (identical to 6.2.1 except country practices)
- **7.2.2 Implement, disseminate and evaluate the financial support system**
Awareness among SMEs about financial support schemes must be raised and all participants must have a clear view on their roles and responsibilities. (identical to 6.2.2 except country practices)





7.1.1 Use informational instruments to create awareness on energy efficiency

A central and complete information data hub together with dissemination activities can promote the benefits of energy efficiency.

There are various barriers to energy efficiency, some particularly related to a lack of information, knowledge and awareness. Offering comprehensive information materials can therefore be an important element to affect the uptake of energy efficiency measures in companies.

A common way to engage companies is publishing best practices from other companies. These practices shall underline how other successfully implemented energy-efficient solutions. They can also highlight technologies that are proven or particularly innovative technologies that companies might not be aware of.

Information on the process of conducting an energy audit, on implementing energy management systems and on cost estimations contributes to a higher transparency and gives decision-makers within companies a better estimation about the resources that are required for an implementation.

It is not only important that this information is available but it also needs to be easily accessible and properly disseminated. This can be achieved by a central information hub on the website of the NA. A different type of engagement activity is organizing dedicated information events such as workshops, social media campaigns or engaging multipliers such as industry associations or municipalities.

Information measures can furthermore be used to increase the energy audit rate in SMEs (7.1.2).

Checklist

- A concise information management system was established
 - Create a central information hub
 - Avoid double or misleading information
- Successful implementation examples have been published
 - Company best practices
 - Best available technologies in the field of energy efficiency
 - Showcase pilots for “new” innovative technologies
- Transparency on transaction costs of audits has been ensured, e.g. by
 - Publish walk-throughs for audits to better understand scope and effort
 - Provide cost estimations
 - Offering this information via helpdesks/hotlines
- There is a concept how to disseminate the information to the companies, e.g. via
 - Dedicated information campaigns
 - Use of multipliers (associations, auditors, municipalities)
 - Use of social media to increase outreach

Creating awareness by **publishing information documents and tools**

The Flemish energy agency in Belgium developed a long-term action plan to foster energy efficiency in SMEs.

Information measures include a solar coach for SMEs, that provides an initial estimate of roof-top solar energy potential, or a brochure on energy efficient lighting for SMEs.



Website of energiesparen.be



Country practices

Increase acceptance of energy managements systems in SMEs by **publishing company testimonials**

The French Environment and Energy Management Agency (ADEME) published a visual guideline that summarizes the benefits of using an energy management system (EMS). The document is based on testimonials of companies who are already using an EMS and who share their experience and recommendations.



ADEME Testimonial Brochure





7.1.2 Use informational instruments to provide decision making support

Provide arguments to convince actors of the benefits of conducting an energy audit.

Once companies are aware of the benefits of energy efficiency, they still have to decide to actually conduct an energy audit or implement energy efficiency measures, and/or they have to convince decision-makers to support such initiatives.

Decision-making can be supported by offering arguments that stress the advantages of energy efficiency including their multiple benefits. Individual employees can also be informed by free online learning courses on energy efficiency, as seen in the examples of Ireland and Sweden. These employees can then serve as multipliers within companies who carry information about energy efficiency back into their companies, thus increasing the likelihood of company engagement.

Online tools can support the decision-making process in companies by offering first estimations about costs and potential savings of certain measures. Similarly, clear guidance documents on the auditing process reduces uncertainties about time and costs and provide SMEs with the necessary information to make an informed decision.

Strategies on how to use information measures to follow up on results can be found in [7.1.3](#).

Checklist

- The provision of supporting arguments to convince management has been considered
 - A list of arguments for employees addressing the advantages of energy audits has been considered
 - Simplified tools to estimate potential energy savings are available
 - Online learning platform as a mean of facilitation are available
 - Information about potential intermediaries that can support the implementation process is listed
- The process of conducting energy audits was simplified
 - Clear guidance on how to conduct audits is available
 - Accessibility of auditors by providing a list of certified experts has been ensured

Increase audit rate in SMEs by **implementing an e-learning platform**

The Sustainable Energy Authority (SEAI) of Ireland developed an energy efficiency e-learning platform which offers free trainings to educate company staff in the field of energy efficiency, the so-called Energy Academy. Modules are offered on a variety of topics, such as behavioural change or electric vehicles.



SEAI Energy Academy



Country practices

Creating awareness by **offering free educational courses**

The Swedish energy agency has developed a variety of free online educational courses on energy efficiency, specifically targeted at SMEs. A special focus is put on the monetary savings that can be achieved through energy efficiency measures, as well as additional benefits such as improved working environment and competitiveness.



Swedish open education platform





7.1.3 Use informational instruments to increase implementation rate

Increase the implementation rate of measures by stressing added values and support self-commitments.

Conducting an energy audit is an important step to increase awareness on energy efficiency. However, without also addressing the behavioural dimension within a company, measures may not have the desired long-term effect.

The MS can contribute to anchoring energy efficiency measures by stressing the added values for companies. For example, auditors can be encouraged to consider NEBs when evaluating potential measures. They can thus provide additional arguments beyond merely financial savings. This can also help to support the follow-up process after the audit was carried out and to overcome inertia for moving towards action. This can be further enhanced if auditors link the identified measures to available funding schemes, and if the administrative parts of programmes, in turn, are kept to the necessary minimum.

A different way to create long-term commitment can be peer networks. These can ensure a longer motivation to work on energy efficiency.

Information on how to use financial measures to enhance the uptake of measures can be found in [7.2.1](#) and [7.2.2](#).

Checklist

- The added value of energy audits to companies are underlined, e.g. by
 - Encouraging auditors to consider NEBs when evaluating potential measures
 - Making tools that translate energy savings into turnover or other tangible benefits available
- A follow-up on audits or suggested measures has been established
 - It has been ensured that auditors link identified measures to available funding schemes
 - Require audits as a precondition for funding programmes has been considered
 - Supporting the creation of peer networks for enhanced engagement of companies has been taken into consideration

Increase implementation rate by **supporting the creation of energy efficiency networks**

In Germany, the Energy Efficiency Networks Initiative was started in 2014, and grew to 306 registered networks by June 2021, involving 2 709 companies. 5 to 15 different companies form a network for several years and use it to share information and best practices on energy efficiency measures. An energy consulting is used in the beginning to identify measures and commit to targets.



Energy Efficiency Networks Initiative



Country practices

Underline the added value by **informing about non-energy benefits of energy efficiency**

As part of the Horizon2020 Multiple Benefits project, several workshops were held to educate stakeholders about the variety of competitive advantages that energy efficiency measures can bring to companies beyond GHG savings. One of the workshops was held by the National Technical University of Athens (NTUA) in February 2020.



Webinar on on-energy benefits at NTUA





7.2.1 Design an adequate financial support system

An effective support scheme requires a clear definition of the why and how. Who is the target and how are they supported?

Most MS provide financial support for implementing energy efficiency measures in companies. When designing such a support system, the intended aims should be defined clearly in the beginning. This should include a clear vision what should be achieved and how. It should also be clear which specific sectors or types of companies are targeted and/or which topics or technologies are covered.

After this, the specific the form of support should be determined. It can range from tax reduction to grants or funding schemes. Some countries also link funding or tax reliefs for implementing measures with a precondition to conduct an energy audit.

More information on how to implement and communicate the financial support system is discussed in [7.2.2.](#)

Checklist

- The expected aim of the support system has been set, using a SMART goal (**S**pecific, **M**easurable, **A**chievable, **R**elevant, **T**ime-based)
- Target groups have been defined, including sector of activity, company size, technology
- Support activities have been clearly defined, e.g.
 - Support for conducting energy audits
 - Funding of energy efficiency measures
 - Funding linked to other programmes (e.g. bonus when audit has been carried out)
- Type and amount of funding has been determined, e.g.
 - Direct via loans / grants
 - Indirect via tax reliefs
- Other potential designs have been checked and were compared, e.g.
 - Similar schemes in other MS
 - Possible EU funding schemes
- Balance between effort (e.g. paper work) and benefit for SMEs has been evaluated
- Monitoring concept has been established
 - Define what information is asked for during application
 - Define what information is collected later and how

Increasing awareness on energy efficiency by **promoting energy audits in SMEs**

The Energy and Water Agency in Malta promotes the conduction of energy audits in SMEs with grants ranging from 1 000 to 5 000 Euro.



Energy and Water Agency Malta



Country practices

Design a targeted support scheme by **providing technology specific funding**

SEAI support scheme for renewable heat
The SEAI Support Scheme for Renewable Heat is an initiative by the Irish government to increase the energy generated from renewable sources in the heat sector. The programme is open to non-domestic heat users and supports the installation (of air source, ground source, or water source heat pumps) with up to 30% of eligible costs, as well as the on-going operations.



SEAI Support Scheme for Renewable Heat





7.2.2 Implement, disseminate and evaluate the financial support system

Awareness among companies about financial support schemes must be raised and all participants must have a clear view on their roles and responsibilities.

Once the concept for a financial support system was developed, the implementation process can begin. All relevant institutional stakeholder must be informed and responsibilities among them must be clearly defined.

Information materials about the funding scheme are needed to inform companies about the requirement, and an application process must be defined and created. To reduce effort for companies in the process, information materials should be kept unambiguous, using simple language, providing examples and using visualizations to support written text. A fully digitalised application process can furthermore reduce effort for companies.

To track the success of the programme and if needed to make adjustments, a monitoring concept should be developed.



- Available support schemes have been communicated (see [9.1.1](#))
- Support schemes are presented in simple terms and easy-to-understand e.g. by
 - Including on a lean application process (preferably digitally)
 - Using easy language and graphical elements to explain requirements
 - Providing a step-by-step guideline on the funding process (including requirements, FAQs, contact details)
- Implementation and follow-ups have been clearly established
 - Ensure that all required actors (implementing bodies, companies, intermediaries) have been informed
 - Evaluate and adjust the support scheme if possible



Checklist

Initiating energy efficiency investments by offering free energy consultations to SMEs

Initiated by Brussels Environment, the Energy Pack support scheme provides SMEs with professional and free energy consultations. In addition to receiving personalized advice, SMEs can also receive funding of up to 40% when implementing energy saving measures.



Pack Energy for SMEs



Country practices

Support energy efficiency in SMEs by offering financial support for the implementation of EMS

France designed a national support scheme called PRO-SME_n, which offers financial support for SMEs who implement an EMS according to ISO50001. The programme runs from 2018 to 2022, and has a budget of 20 million Euro, enough to support an approximate number of 465 companies. This would lead to a significant increase of the 800 organizations that were ISO 50001 certified as of December 2018.



PRO-SME_n Programme



DEESME

National schemes for energy efficiency in SMEs

Challenge #08

Limited available resources



“Staying in touch with SMEs is considered as helpful to encourage them towards energy audits and efficiency measures. Yet creating and maintaining communication with SMEs, and participating in all events and talks with experts is a challenge.”



Challenge #08 Limited available resources

Limited financial and human resources make it harder for NAs to interact with SMEs and vice versa.

8.1 How to establish cooperation with regional institutions?

Regional institutions can serve as agents who connect with SMEs and reduce the effort for NAs to approach companies.

Local channels can be utilised to disseminate information about energy audits and national funding schemes. They can be much more aware about needs and pain points of companies within their region, and can develop and disseminate tailor-made information and support more effectively.

Strategies include

- 
8.1.1 Establish cooperation with regional institutions
 Regional actors can serve as facilitators to connect with SMEs.

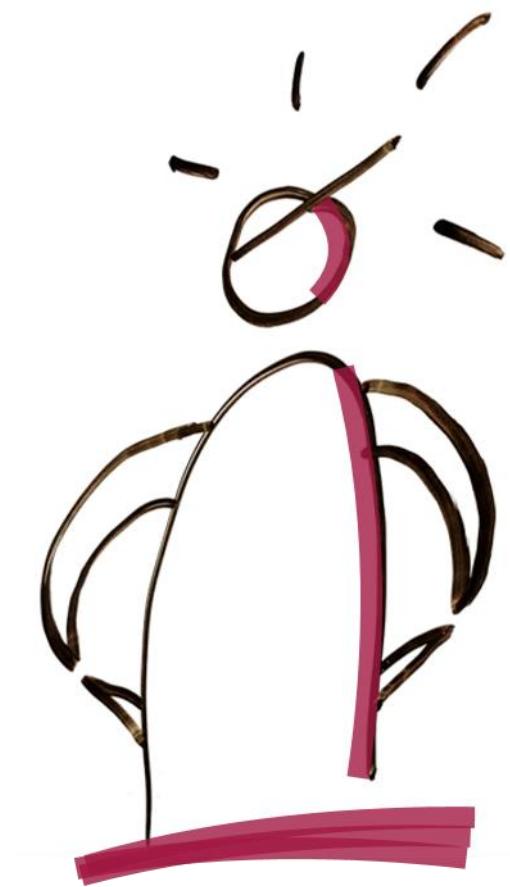
8.2 How to provide SMEs with easy access to information?

Limited available resources of SMEs can be overcome by offering comprehensible information materials that make it easy to learn about energy efficiency, energy audits, and available support programmes. In addition, direct communication channels can make it easy for SMEs to connect with the NAs without high implementation costs, and informative events can be a first point of contact with SMEs and an effective tool to engage companies.

Information on how peer to peer networks might facilitate SME engagement can be found in [9.3.1](#).

Strategies include

- 
8.2.1 Make information easily accessible
 Implementing an information hub reduces effort for SMEs.
- 
8.2.2 Create direct communication channels
 Offering direct communication channels can reduce barriers for SMEs to connect with NAs
- 
8.2.3 Organize workshops or utilise existing information events
 Resources required for workshops can be optimized with the right mix of universality and specificity, or by joining existing events.





8.1.1 Establish cooperation with regional institutions

Regional actors can serve as facilitators to connect with SMEs.

The difficulty to reach out to SMEs operating mainly on a regional level can be overcome by cooperating with regional institutions. They have closer connections to the local industry and can work as agents or facilitators to connect with SMEs or forward information from the NAs.

Examples of regional actors are private entities such as industry associations with high numbers of member companies, or utilities. Public institutions such as state governments or municipalities also often have closer relations to SMEs and can serve as communication channels.

The form of cooperation ranges from implementing cross links of information and funding platforms. Reposting news and updates in social media channels to directly contacting target groups.

Information on how to provide SMEs with easy access to information is discussed section [8.2.1](#) and [8.2.2](#).

Checklist

- Research on available regional institutions and existing initiatives was done, e.g. including
 - Industry associations
 - Municipalities
 - State governments
 - Energy providers
- Institutions with direct channels to SMEs were identified and used to disseminate information to SMES
- Regional initiatives with the focus on energy efficiency were identified and cross links to national programmes were established

Engaging SMEs by having a regional information platform

The Bavarian state platform implemented a so-called energy atlas (Energie-Atlas), an online information hub that comprises a variety of information materials on energy. It includes best practice examples for both households and industry, as well as efficiency tips and interactive maps of the region.



Energy Atlas Bavaria



Country practices





8.2.1 Make information easily accessible

Implementing an information hub reduces effort for SMEs.

Limited resources of SMEs can be addressed by providing a central information platform. Its goal should be that SMEs find information easily online, clearly arranged by sections and in a way to avoid information overflow. Legislative documents or funding schemes can be linked, and/or shortly summarized. Visual elements or explanatory videos can furthermore help to engage companies.

The information platform can be tested for user friendliness by the relevant target groups and feedback should be utilised to optimize user experience.

While implementing such an information platform may be resource intensive for NAs, the benefits may exceed the costs in the long run. Nevertheless, if a similar infrastructure already exists, it can be feasible to extend it and thus save implementation costs.

A concise information hub can be complemented with direct communication channels (8.2.2).

Checklist

- Available information materials have been reviewed
 - All relevant information materials are available in digital format
 - Data and information have been harmonized (no double entries or ambiguous statements)
- A central information hub/dedicated section on the website of the NA or at another central hub has been established
 - Relevant subsections for easy navigation have been added
 - Meaningful keywords have been included
 - Links to external sources like underlying legislative documents or funding schemes have been added
 - The information platform has been tested with regard to completeness of information and user-friendliness

Facilitate information access by **bundling all relevant information in one place**

The website of the Maltese Energy and Water Agency covers relevant information on energy efficiency: Available support schemes in the field of energy efficiency are listed, graphical explanations about the application process and in some cases video tutorials are included. Each scheme contains a general overview text, a FAQ section, a guideline on how to apply and links to relevant forms and documents



Energy and Water Agency Malta



Country practices





8.2.2 Create direct communication channels

Offering direct communication channels can reduce barriers for SMEs to connect with NAs

A strategy that has comparatively low initial implementation costs but promises many benefits for SMEs is to establish direct communication channels, such as telephone hotlines.

When implementing such solutions, factors such as running costs and effectiveness should be kept under consideration. They can become very time consuming if the direct channels are very frequently used by SMEs. Thus, questions that are of general nature should rather be addressed in FAQ sections or guiding documents to reserve the hotline service to specific queries of particular cases.

By reducing, for example, the weekly hours of the hotline service, the resources that are needed to maintain this solution are limited to a fixed number, while SMEs still benefit from the individualized support. However, it also needs to be ensured that companies can then also reliably reach some help.

Another approach to raise awareness is by utilising information events ([8.3.1](#)).

Checklist

- Possible communication channels have been reviewed, for example
 - Telephone hotline
 - Online chats
 - Answering bot for automated answering of questions
- Potential channels have been evaluated with regard to
 - Implementation and operating costs
 - Effectiveness and interaction with existing channels
 - User friendliness
- A decision on establishing a direct communication channel has been taken

Informing target group by **installing a hotline service**

Besides implementing an FAQ section to answer the most common questions, the monitoring agency in Austria installed a hotline service to give companies a direct communication channel. For two hours on two weekdays, the hotline service is active and can serve as a instrument for connection between companies and the NA.



Website of Austrian monitoring body



Country practices





8.2.3 Organize workshops or utilise existing information events

Resources required for workshops can be optimized with the right mix of universality and specificity, or by joining existing events.

Information events can reach high numbers of companies and are thus an effective tool to engage with SMEs. With the advance of digital conference solutions, scaling up events can be easy and cost effective.

If resources for organizing such events are limited, existing information campaigns could be tapped into. Many regional initiatives or environmental agencies use information campaigns to approach the industrial sector. Existing workshops on energy savings, for example, could be extended with a link to national energy audit support.

Several EU projects work together with companies on a national level to improve energy efficiency, and can be another approach to engage companies with lower resources required.





Checklist

- The need for / benefit of information campaigns was identified
- Existing events or initiatives have been identified and evaluated for compatibility
- If existing events are not existing or lack important aspects, then an own workshop has been considered including
 - To define the target group, aiming at SMEs across sectors for a wide audience
 - To tailor content to the target group, and aim at reusability
 - To check options to conduct the event online to increase outreach and reduce costs
 - To determine a suitable format (balance between duration, effort and benefits for companies and NAs)

Engage SMEs by **utilising existing governance instruments**

Klimaaktiv was founded in 2004 and is the climate protection initiative of the Austrian Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK). The platform offers information, educational services for a variety of actors across all sectors. In 2020 the klimaaktiv network in Austria held 6 webinars with 451 participants in the field of energy efficient companies.



Klimaaktiv Annual Report 2020

Engaging SMEs by **arranging awareness campaigns**

From 2015 to 2020, Estonia used the “Support for awareness campaigns for energy and resource management” to reach out to companies and increase knowledge and awareness on energy efficiency.



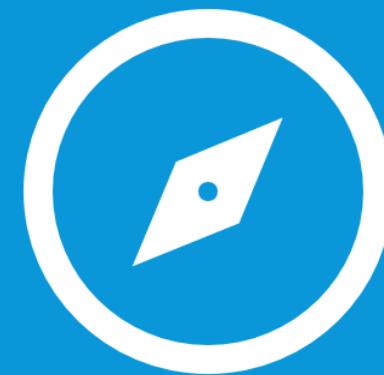
Decree of the Minister of the Environment No 672 (Measure 4.3.3)



DEESME

National schemes for energy efficiency in SMEs

Challenge #9 Guiding SMEs to action



“Even if SMEs are aware of the potential benefits from more strongly engaging in energy efficiency, a challenge is their reluctance to participate in activities, e.g. due to a fear of administrative burdens, a lack of experience in participation and the difficulty to analyse the associated costs and benefits.”



Challenge #09 Guiding SMEs to action

Guiding SMEs towards energy audits or energy management systems can be supported by passive facilitation, e.g. lean application process for funding schemes, by active facilitation, e.g. via individual consultancy services or by establishing peer networks.

9.1 How to use passive facilitation?

The application process to funding schemes can be supported by passive facilitation approaches, i.e. with no active intervention of the NA. They include, for example, offering detailed guidelines on the application process or by ensuring lean application processes with a high level of digitalisation. Furthermore, a clear overview of available support schemes and their respective requirements and time frames might prove helpful.

Strategies include

- 9.1.1 Provide a clear overview of available support schemes**
A clear overview of schemes and programmes reduces entry barriers for SMEs.
- 9.1.2 Facilitate the application process**
SMEs are more likely to apply to funding schemes if the application process is simple and clear.

9.2 How to use active facilitation?

Active facilitation, i.e. activities where the NA is directly involved in relevant processes, can be provided by offering individual consultancy services for SMEs. There, SMEs may ask questions about programmes and may seek guidance. For example, a hotline service can be implemented to provide SMEs with a direct communication channel. Consultancy services can be introduced as a preliminary stage before companies decide to perform a full energy audit or to directly implement measures directly.

Strategies include

- 9.2.1 Define aim and the target group**
To use active facilitation effectively, it should be clearly stated who is targeted and why.
- 9.2.2 Implement the facilitation**
Different methods of active facilitation exist that must be matched to the specific context in the MS.

9.3 How to use peer networks?

Another approach to engage SMEs in energy efficiency is by supporting the creation of peer networks such as energy efficiency networks. There, different companies group together, and use the networks to share ideas and learning in the field of energy efficiency. Thus, insecurities of companies about specific technologies can be reduced. Furthermore, the networks can make companies commit to saving targets, and make use of group dynamics to support the implementation of energy efficiency measures.

Strategies include

- 9.3.1 Implement a peer network**
Peer networks effectively engage companies with low effort for NAs.

9.1.1 Provide a clear overview of available support schemes

A clear overview of schemes and programmes reduces entry barriers for SMEs.

Finding a suitable funding scheme can be a challenging endeavour for SMEs since they often have little prior knowledge on support schemes and limited resources to engage in the topic. Unclear and badly targeted information can thus have a deterrent effect. Thus, information should be provided as easy to find and understand as possible. Strategies to achieve this are for example by implementing a central information website, where all relevant funding programmes can be found. The programmes can, for example, be structured along relevant categories to facilitate navigation. A particularly user-friendly approach is to implement an interactive fund finder, as seen in the example of Germany (see country example).

The tool asks the user several questions about for example company size and the type of funding that is desired, and filters down appropriate funding schemes accordingly.

If different schemes exist on the national and regional level, crosslinks should also be established for SMEs to identify the most promising programmes.

While it is important that SMEs can quickly get an overview over available schemes, it should also be ensured that the application process is simple and clear (9.1.2).

- All relevant schemes for SMEs are covered in the communication activities including
 - National funding programmes
 - Available grants of the national development bank
- Synergies and overlaps with existing funding schemes on regional level have been detected and have been considered accordingly
- An overview of available funding schemes was created, e.g. by
 - Publishing all available programmes on one information platform, preferably sorted by categories (technology, target group, type of support etc.)
 - Crosslinking national programmes to regional funding schemes and vice versa
- The presentation of programme offers support to identify relevant programmes for the individual target groups, e.g. by
 - Implementing an interactive guide to match available funding programmes to the different groups

Checklist

Provide an overview about available schemes by **implementing an interactive funding finder**

In Germany, the NA implemented an online funding finder to help visitor deal with the large number of funding opportunities (Förderwegweiser Energieeffizienz). The guide is interactive and filters the available funding schemes to the specific requirements (such as company size or type of technology) of the user.



Förderwegweiser Energieeffizienz



Country practices



9.1.2 Facilitate the application process

SMEs are more likely to apply to funding schemes if the application process is simple and clear.

After finding a suitable funding programme, SMEs face the application process, but they seldom have detailed knowledge of the underlying legal processes and the important aspects. Thus, the application should be as clear and simple as possible. This can be achieved by offering guideline documents that explain the application process or by offering video instructions about the respective scheme and the application process. Common questions brought forward by SMEs can also be bundled in FAQ sections on the funding website to facilitate the application.

Furthermore, a fully digital application process can save resources for both the SME and for the NA through checking and processing of information.

Sections [9.2.1](#) and [9.2.2](#) provide further approaches to actively facilitate participation of SMEs in energy efficiency, e.g. through offering consultancy services.

- Application for support schemes is designed as an “easy-to-understand” process, e.g. by
 - Offering target-group oriented guideline documents
 - Providing video instructions
 - Implementing FAQ sections
 - Minimizing the use of legal terminology and aiming at illustrative presentations
- The application itself is as lean as possible, e.g. by
 - Utilising standardized application forms
 - Digitalising the application process
 - Offering interactive help/information on uncommon terms (e.g. on SME definition, state aid terminology, etc.)
 - Clear depictions of rules, requirements and the entire process

Checklist

Facilitate information access by **bundling all relevant information in one place**

The website of the Maltese Energy and Water Agency, comprises relevant information on energy efficiency. Available support schemes in the field of energy efficiency are listed, including graphical explanations about the application process or video tutorials. Each scheme contains a general overview text, a FAQ section, a guideline on how to apply and links to relevant forms and documents



Energy and Water Agency Malta



Country practices



9.2.1 Define the aim and the target group

To use active facilitation effectively, it should be clearly stated who is targeted and why.

To develop effective tools for active facilitation, first the aim of the facilitation and the target group should be clearly defined.

Aims can include, for example, to increase the number of SMEs that carry out voluntary energy audits or that implement energy efficiency measures. Will all SMEs be targeted? Or is the focus on specific sectors which show a low level of engagement in energy efficiency?

Active facilitation should furthermore be tailored to the level of prior knowledge on energy efficiency that SMEs have. Companies with little experience in the field of energy efficiency require basic and broad information, while SMEs who are already keen to become active can be supported in for example finding suitable funding schemes.

Any aim should be formulated as clear as possible. It should be specific and measurable to facilitate the evaluating of the success of the intervention.

Furthermore, it should also be achievable in a set time frame and of relevance to the national energy efficiency. Otherwise, it will be difficult to monitor the success of facilitation activities.

When the aims are defined, the specific intervention methods need to be further developed (9.2.2).



- The expected aim of the active facilitation has been specified using the SMART (Specific, Measurable, Achievable, Relevant, Time-based) methodology; content-wise examples of aims have been considered (selection):
 - Motivate SMEs to carry out energy audits or to implement energy efficiency measures
 - Provide support for overcoming specific barriers that hinder the implementation of measures
 - Support the finding of support schemes
 - Support finding implementers of energy efficiency solutions
 - Raise awareness on NEBs
- A sufficiently specific target group has been defined, for example based on
 - Sector
 - Region
 - Size
 - Previous experience with energy efficiency measures or energy audits



Checklist

Provide support to SMEs by **offering individual consultancy services**

Under the Slovenian Environmental Public Fund (Ekoslad), Slovenia installed a database of advisors for helping every group of consumers interested in funding schemes, including SMEs. Those energy consultants offer free advice and assistance in industrial energy investments.



Website of Ekoslad



Country practices



9.2.2 Implement the facilitation

Different methods of active facilitation are available; these must be matched to the specific context in the MS.

Active facilitation is based on support provided by the NAs to SMEs. Some countries offer individual consultancy services. In Bulgaria, for example, the Energy Efficiency and Renewable Sources Fund (EERSF) offers initial project screenings for SMEs by own experts or by using external consultancy companies. In Croatia, as another example, the Department for EU Affairs, Funds and Programmes offers individual consultations, educational workshops and seminars on topics related to EU policies. Another strategy can be found in the example of Poland: there, the Regional Funds for Environmental Protection and Water Management support regional energy advisors. Those advisors provide individual support to all kinds of recipients (private persons, SMEs and non-SMEs, public institutions etc.). Other examples include Slovenia. Here, a database of advisors was installed for helping every group of consumers interested in funding schemes, including SMEs. Austria is running a hotline, where companies can receive information directly from the responsible NA.

A different approach to engage SMEs in energy efficiency comes are peer networks (9.3.1) which are described in more detail on the following page.



- An appropriate set of facilitations activities has been considered, e.g. in the form of
 - Helpdesks / Hotlines
 - Workshops / Seminars
 - Regional offices
 - Individual consultancy services
- The chosen activities have been established, e.g.
 - By setting them up by the NA itself
 - By being integrated into activities of other public bodies
 - By contracting external service provider/ consultancy firms
 - By establishing cooperation with third party multipliers (e.g. regional partners, business associations, associations of auditors, financial institutions, etc.)



Checklist

Installing a hotline service to inform the target group

Besides implementing an FAQ section to answer the most common questions, the monitoring agency in Austria installed a hotline service to give companies a direct communication channel. For two hours on two weekdays, the hotline service is active and can serve as a valuable information instrument.



Website of Austrian monitoring body



Country practices

Provide support to SMEs by offering individual consultancy services

In Bulgaria, the Energy Efficiency and Renewable Sources Fund (EERSF) offers initial project screening for SMEs by own experts or by using external consultancy companies.



EERSF Bulgaria



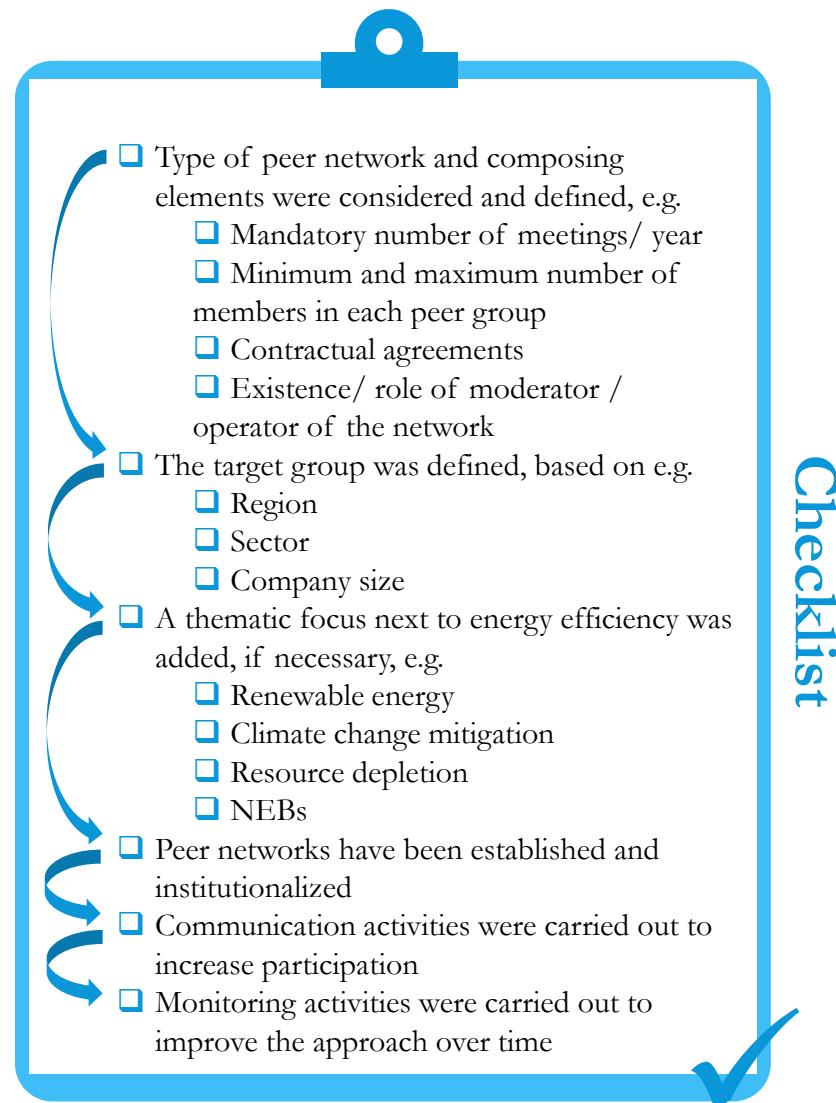
9.3.1 Implement a peer network

Peer networks effectively engage companies with low effort for NAs.

A successful approach to especially engage SMEs in energy efficiency with a low entry barrier are peer networks. In peer networks, different companies form a network and use it to share information and best practices on energy efficiency or climate protection measures. The idea for energy efficiency networks originated in Switzerland, where companies can form networks since 1987. In Germany, the Energy Efficiency Networks Initiative was started in 2014, and grew to more than 300 registered networks in June 2021, with more than 2 700 companies.

The concept of peer networks can be a resource efficient way to engage SMEs. However, several factors must be considered upon creation of such an approach. How much guidance or mandatory elements are required (such as definition of saving targets, or frequency of meetings)? How much financial support is provided by the MS? How many companies can participate in a single network and which sectors or regions are targeted?

Once these questions have been answered, the peer networks can be initiated to contribute to the national efficiency targets.



Increase implementation rate by **supporting the creation of energy efficiency networks**

In Germany, the Energy Efficiency Networks Initiative was started in 2014, and grew to 306 registered networks by June 2021, involving 2 709 companies. 5 to 15 different companies form a network for several years and use it to share information and best practices on energy efficiency measures. An energy consulting is used in the beginning to identify measures and commit to targets.



Energy Efficiency Networks Initiative



Country practices

Educate individuals by **supporting the creation of energy efficiency networks**

In its 4th National Energy Efficiency plan, Croatia included as a measure so-called Industrial Energy Efficiency Networks (IEEN). Some of the key elements of IEEN are to educate the management as well as employees of industrial companies in the field of energy efficiency and promote best practise projects.



4th National Energy Efficiency plan



DEESME

National schemes for energy efficiency in SMEs

Challenge #10

Raising awareness on opportunities



“A major challenge to encourage SMEs for energy audits is their missing awareness on opportunities from energy efficiency and their limited capacity to implement it.”



Challenge #10 Raising awareness on opportunities

There are several approaches to raise the awareness of SMEs on energy efficiency, including providing individualized insights, sharing success stories, and minimizing the research effort.

10.1 How to provide SMEs with individualized insights?

Individualized support for SMEs can be provided by offering information and trainings who can then carry the knowledge inside the companies and foster the implementation of energy efficiency measures.

Complementary measures come in the form of personal support, such as a telephone based hotline service.

Strategies include

-  **10.1.1 Show SMEs the benefits of energy efficiency**
Information material can increase the awareness and participation of SMEs.
-  **10.1.2 Provide personal support**
Individualized support can engage those SMEs that require further information besides what is offered in information materials.

10.2 How to create and spread success stories for SMEs?

Sharing success stories can be a way to convince SMEs about the merits of energy efficiency measures by showing examples from companies that they can relate to. Several MS have dedicated sections on their websites on best practices, or publish testimonials of SMEs who successfully implemented energy efficiency measures.

Strategies include

-  **10.2.1 Collect stories of successful energy efficiency measures in SMEs**
Various sources can be used to collect best practice examples.
-  **10.2.2 Disseminate success stories and underline their added value to SMEs**
When disseminated to SMEs, success stories can be an effective way to engage companies.

10.3 How to minimize the research effort for SMEs?

Awareness on opportunities can be supported by passive facilitation such as offering detailed information on energy efficiency and all aspects around energy audits. Furthermore, a clear overview of available support schemes and their respective requirements and time frames should be provided.

Bundles information in a central information hub to provide easy access to information for SMEs can be helpful.

Strategies include

-  **10.3.1 Provide information hub on energy efficiency and support mechanisms**
An information hub can serve as a first point of contact for companies and can thus be of high importance to engage SMEs.





10.1.1 Show SMEs the benefits of energy efficiency

Information material can increase the awareness and participation of SMEs.

Awareness on opportunities from energy efficiency can be increased among SMEs by showing them the benefits of energy efficiency. There are various strategies to increase knowledge among companies and especially SMEs. Some MS offer e-learning platforms, in which companies can select a variety of online videos and tutorials covering diverse aspects of energy efficiency, such as behavioural change or transportation. Employees who are undergoing the trainings can serve as multipliers and carry the knowledge about energy efficiency inside the companies and initiate transformation processes.

Similarly, workshops or other in-person-trainings can be used to engage actors in SMEs about the topic of energy.

A more integrative approach comes in the form of peer networks. Instead of providing unidirectional support, peer networks can establish a multilateral exchange among companies.

Learning materials can be complemented by providing personal support to SMEs (10.1.2).

Checklist

- Potential means of showing SMEs the benefits of energy efficiency were reviewed, including
 - E-learning platforms
 - Small group workshops
 - Peer networks
 - Topic-specific information materials
- Relevant approaches were evaluated, e.g. regarding impact, effort and scalability
- The most promising approaches were selected, and an implementation plan for them was created, depending on the type also covering aspects such as:
 - Scope of support materials
 - Distribution of responsibilities
 - Monitoring concept
 - Frequency of updates
- The availability of the material was communicated to the target group, e.g. via
 - Social media campaigns
 - Industrial associations
 - Financing institution
 - Auditors or their associations
 - Websites
 - Information in conjunction with other official information (e.g. linked to other funding programmes, etc.)

Inform SMEs about energy efficiency by implementing an e-learning platform

The Sustainable Energy Authority (SEAI) of Ireland developed an energy efficiency e-learning platform which offers free trainings in the field of energy efficiency, the so-called Energy Academy. Modules are offered on a variety of topics, such as behavioural change or electric vehicles.



SEAI Energy Academy



Country practices

Educate SMEs about energy efficiency by supporting the creation of energy efficiency networks

In Germany, the Energy Efficiency Networks Initiative was started in 2014, and grew to 306 registered networks by June 2021, involving 2 709 companies. 5 to 15 different companies form a network for several years and use it to share information and best practices on energy efficiency measures. An energy consulting is used in the beginning to identify measures and commit to targets.



Energy Efficiency Networks Initiative





10.1.2 Provide personal support

Individualized support can engage those SMEs that require further information besides what is offered in information materials.

While information materials can cover default questions that companies may have, there can always be specific situations that are not covered. When companies are uncertain about the requirements of a funding scheme, for example, they may be deterred if they do not find the required information.

Potential means of offering support are, for example, implementing hotline services. However, factors such as running costs and effectiveness should be kept under consideration. It can be very time consuming if the direct channels are used by SMEs with a high frequency. By limiting, for example, the weekly hours of the hotline service, the resources that are needed to maintain this solution are limited to fixed durations, while SMEs still benefit from the individualized support.

A complementary strategy to raise awareness among SMEs is to share success stories, which is discussed in [10.2.1](#) and [10.2.2](#).

Checklist

- Potential means of offering personal support have been evaluated, including for example
 - Helpdesks/Hotlines
 - Energy offices at national or regional level
- Potential means were evaluated against their impact, the required effort and their scalability
- An implementation for a suitable approach was selected, including
 - the definition of responsibilities (who operates the offer, what are the conditions of use)
 - the monitoring concept (how is the implementation evaluated)
- The approach has been made known to SMEs, e.g., via
 - Social media campaigns
 - Industrial associations
 - Financing institution
 - Auditors or their associations
 - Websites
 - Information in conjunction with other official information (e.g. linked to other funding programmes, etc.)

Provide personal support by **installing a hotline service**

Besides implementing a FAQ section to answer the most common questions, the monitoring agency in Austria installed a hotline service to give companies a direct communication channel. For two hours on two weekdays, the hotline service is active and can serve as a valuable information instrument.



Website of Austrian monitoring body



Country practices

Provide personal support by **offering a benchmarking tool**

As part of the Austrian initiative klimaaktiv, a benchmarking tool is offered for companies to compare their energy consumption against average industry values based on sectors.



Benchmarking tool klimaaktiv





10.2.1 Collect stories of successful energy efficiency measures in SMEs

Various sources can be used to collect best practice examples.

Sharing success stories can be an effective strategy to reduce any entry barriers for energy efficiency in SMEs. Sharing practices and learning that some worked well for peers in a similar situation has been identified as a mean to reduce the level of uncertainty and to companies with new insights.

Several types of success stories can be differentiated. These may include cross-cutting examples of very cost-effective energy efficiency solutions in companies or solutions to particular technological areas. If the aim of the NA is to promote new and innovative solutions, such examples from the field can be presented (e.g. battery storage or AI based process optimization).

Success stories about governmental buildings can be easy to collect and can still serve as good examples for the industry. Industrial examples, for example, might be identified by approaching companies who participated national funding schemes. One way to identify good practice examples can also be to initiate a competition for companies who believe their energy efficiency solution is particularly successful.

After collecting success stories, the next step is to disseminate them to a large number of SMEs (10.2.2).

- Success stories intended for sharing have been defined, e.g.
 - Company best practices
 - Public authority best practices
 - Organizational and behavioural measures
 - Technological energy efficiency measures
 - Showcase pilots for innovative “new” technologies (first-users)
- The collection of such the success stories has been evaluated, e.g. via
 - Creating awards for good practice
 - Energy auditors
 - Use examples from peer networks
 - The use of publicly funded transfer project (EU or national)
 - The use support scheme data
- Relevant success stories have been prepared to show the relevant key information and to be interesting and attractive to read (visualization)

Checklist

Collect stories of successful energy efficiency measures on a **regional information platform**

The Bavarian state platform implemented a so-called energy atlas (Energie-Atlas), an online information hub that comprises a variety of information materials on energy. It includes best practice examples for both households and industry, as well as efficiency tips and interactive maps of the region.



Energy Atlas Bavaria



Country practices





10.2.2 Disseminate success stories and underline their added value to SMEs

Success stories can be an effective way to engage companies.

Once success stories have been collected, they need to be disseminated as best as possible. Several channels can be considered for this.

A high number of companies can potentially be reached by publishing the success stories on the website of the NA while ensure crosslinks from other websites which are frequently used by SMEs (e.g. regional governmental or municipalities sites). Those success stories can be made more tangible if they include specific data to support the success of the solution, such as energy and cost savings, and implementation time.

A better understanding of the success stories can be created by organizing information workshops, or on-site visits, where the selected successful examples are showcased by the companies who implemented them.

Another effective strategy to raise awareness among SMEs to publish all relevant information on one centralized information hub ([10.3.1](#)).

Checklist

- Suitable means to disseminate success stories have been identified, e.g.
 - Information workshops
 - On-site visits where companies showcase their best practice solutions
 - Publishing examples online
 - Embed best practices in tools and other NA services
 - Events of peer-networks
- Suitable means to underline the added value of success stories have been identified, e.g.
 - Providing numbers on savings, implementation time etc.
 - Provide testimonials
- Dissemination of success stories has been completed

Raising awareness on opportunities by publishing best practice examples online

Klimaaktiv was founded in 2004 and is the climate protection initiative of the Austrian Federal Ministry for Climate Protection, Environment, Energy, Mobility, Innovation and Technology (BMK). The platform offers information, educational services for a variety of actors across all sectors. As one of its services, it publishes best practice examples, such as efficient heating networks.



Best practise examples on klimaaktiv website



Country practices





10.3.1 Provide information hub on energy efficiency and support mechanisms

An information hub can serve as a point of contact for companies and can thus be of high importance to engage SMEs.

Awareness on opportunities for SMEs can be increased by providing a concise, unambiguous and central information platform. SMEs should find information easily identifiable and clearly arranged information without overburdening the companies. Legislative documents or funding schemes can be included and/or shortly summarized. Visual elements or explanatory videos furthermore help to engage companies.

The information platform can be tested for user friendliness by the relevant target groups and feedbacks should be utilised to optimize user experience.

While implementing such an information platform may be resource intensive for NAs, the benefits may exceed the costs in the long run. Nevertheless, if a similar infrastructure already exists, it can be feasible to extend it and thus save implementation costs.

Checklist

- The implementation of an information hub was taken into consideration, e.g. as an
 - Information website
 - Guidebook / brochure
- Relevant information was collected and processed where necessary
 - See challenge [6](#) on enhancing the uptake of measures
 - See challenge [9.1](#) on how use passive facilitation
- The information hub was launched and promoted to increase the number of visitors, e.g. via
 - Partnering with industry associations
 - Starting social media campaigns
 - Cooperate with partner institutions
 - Crosslinks with information portals of regional governments
- There is a procedure to regularly update the information hub

Providing information on energy efficiency via a regional information platform

The Bavarian state platform implemented a so-called energy atlas (Energie-Atlas), an online information hub that comprises a variety of information materials on energy. It includes best practice examples for both households and industry, as well as efficiency tips and interactive maps of the region.



Energy Atlas Bavaria



Country practices



DEESME

National schemes for energy efficiency in SMEs

Challenge #11 Non-energy benefits of energy efficiency measures



“A large share of energy efficiency measures are not considered cost-effective if the analysis only accounts for energy savings. However, non-energy benefits may be more relevant to decision-makers than the mere energy savings.”



Challenge #11 Non-energy benefits of energy efficiency measures

Non-energy benefits can provide additional incentives to implement energy efficiency measures.

11.1 Why consider NEBs from the perspective of NAs?

A large share of energy efficiency measures are not considered cost-effective if the analysis only accounts for energy savings as benefits. However many co-benefits, ancillary benefits, or NEBs accrue as a consequence of energy-efficiency projects. Their impacts can be more relevant to decision-makers than the mere energy savings. Such benefits include for example reduced local air pollution, increased workplace safety or fewer risk of machine breakdowns.

Background on NEBs

11.1.1 Definition of NEBs and contribution to NA activities

NEBs are the various benefits that arise from energy efficiency beyond mere energy savings. They can be a lever to increase the implementation rate of energy efficiency measures in companies.

11.2 How to encourage the consideration of NEBs?

To increase the consideration of NEBs, knowledge about the subject within companies and especially of individuals who provide energy advice is essential.

Furthermore, the consideration of NEBs can be enforced by integrating it as a mandatory aspect of energy audits in the national legislation, or by integrating the topic into the auditor curriculum.

Strategies include

11.2.1 Inform companies about NEBs

Raising awareness on the existence and relevance of NEBs is a key factor to increase the uptake of energy efficiency measures.

11.2.2 Enforce the integration of NEBs

The consideration of NEBs can be anchored as a mandatory element within the energy audits process or energy management system.





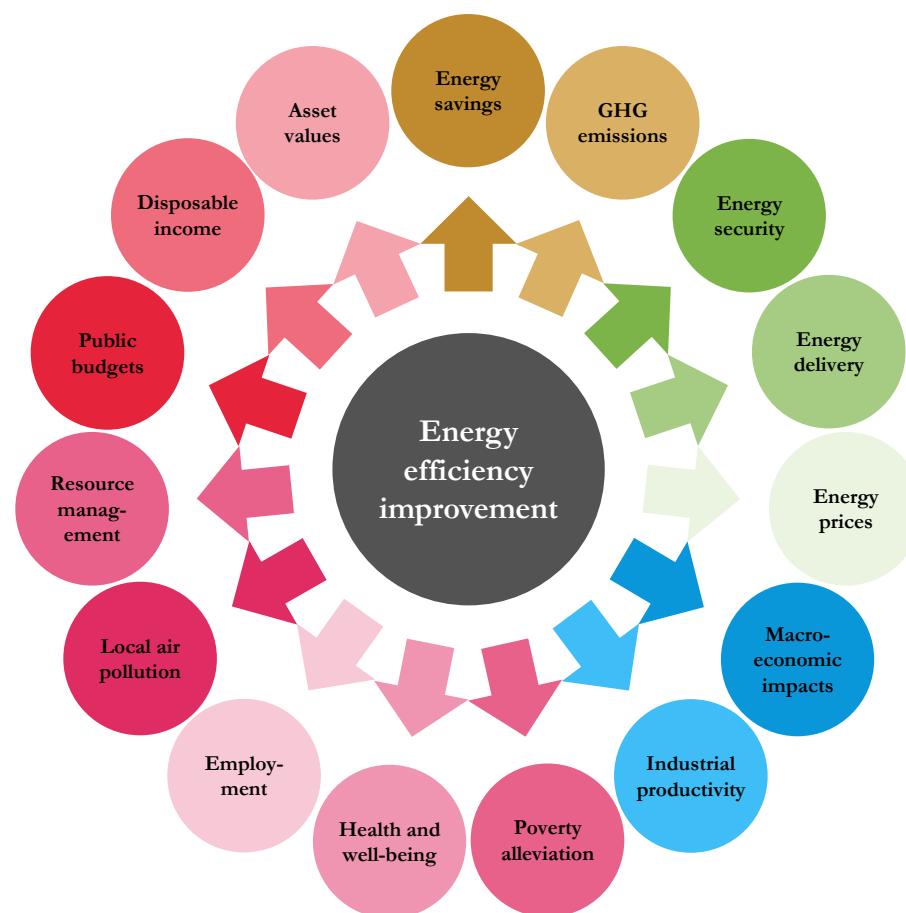
11.1.1 Definition of NEBs and contribution to NA activities

NEBs are various benefits that arise from energy efficiency implementations beyond mere energy savings. They can be a lever to increase the implementation rate of energy efficiency measures in companies.

A large share of energy efficiency measures are not considered cost-effective if the analysis only accounts for energy savings, especially in the shorter run. NEBs can, however, easily off-set the cost reductions from mere energy savings. They are also referred to as “co-benefits”.

The International Energy Agency (IEA) compiled an overview of NEBs from energy efficiency improvements (picture on the right). This overview generally indicates the various dimensions that NEBs can cover. These include a wide range of both macro- and micro-economic impact categories. Macro-economic impacts include, for example, effects on poverty alleviation, employment, public budgets or disposable income. Micro-economic impacts especially affect considerations of cost saving, improved output and smoother processes.

While the macro-economic impacts may be especially relevant for policy making on an aggregate level, the micro-economic impacts are more relevant for companies in the context of Article 8.



Own adaptation of IEA report from 2015: Capturing the Multiple Benefits of Energy Efficiency.

NEBs that are particularly relevant for companies include for example the reduction of air pollution (besides CO₂ emissions), improved workplace safety and comfort, fewer risks of machine breakdowns (reliability) (see table at the bottom). Such benefits have received increasing attention in recent years.

The energy audit obligation of Article 8 EED requires companies to regularly conduct audits, i.e. to assess their energy consumption and to identify measures to improve energy efficiency. NEBs can add an appealing narrative to the question of why it makes sense to implement energy efficiency measures. While energy savings alone might not be a crucial factor in the business model of a company, the NEBs of energy efficiency can offer a meaningful positive impact on the value proposition of companies. This includes, for example, having more satisfied employees due to reduced noise pollution, or by decreasing the number of production stops due to machine breakdowns.

By fostering the consideration of NEBs, NAs can therefore potentially increase the adoption rate of energy efficiency measures.

Waste	Emissions	Operation / maintenance	Production	Working environment	Other
<ul style="list-style-type: none"> ↑ Use of waste fuels, heat, gas ↓ Product waste ↓ Waste water and hazardous waste ↓ Materials reduction 	<ul style="list-style-type: none"> ↓ Dust emissions ↓ Gas emissions (CO, CO₂, NO_x, SO_x) 	<ul style="list-style-type: none"> ↓ Need for engineering controls ↓ Cooling requirements ↑ Facility reliability ↓ Wear and tear ↓ Labour requirements 	<ul style="list-style-type: none"> ↑ Product output/yield ↑ Performance ↑ Reliability ↑ Product quality/purity ↓ Process cycle times 	<ul style="list-style-type: none"> ↑ Lighting ↑ Temperature control ↑ Air quality ↓ Noise levels ↓ Need for personal protective equipment 	<ul style="list-style-type: none"> ↑ Image ↑ Liabilities ↓ Delayed or reduced capital expenditures ↓ Space requirements ↑ Worker morale

Own adaptation based on Worrell et al. (2003): Productivity benefits of industrial energy efficiency measures.



11.2.1 Inform companies about NEBs

Raising awareness on the existence and relevance of NEBs is a key factor to increase the uptake of energy efficiency measures.

To encourage the consideration of NEBs when evaluating energy efficiency measures, it is essential to inform the relevant actors. Especially energy managers and energy auditors have a key role to play, since they are the one's "selling" the identified efficiency measures to the decision-makers in the companies. Thus, raising awareness should especially be targeted at the people conducting or involved in the audit. Auditors, in particular, need to understand that economic profitability from energy savings is often not a deciding factor for companies. On the contrary, if NEBs provide a clear added value to the business model, long payback periods may even be accepted.

Instead of merely informing companies about the benefits of NEBs, another approach is to enforce the consideration of NEBs when undergoing energy audits (11.2.2).



- The creation of information materials about NEBs has been considered, e.g.
 - Tools to translate NEBs into turnover/sold products
 - Best practice examples and/or pilot projects which consider NEBs
- The dissemination of information material have been considered, e.g. through
 - Dedicated workshops
 - Social media campaigns
 - Information website
- The implementation of awareness-raising activities on NEBs among auditors has been examined



Checklist

Increasing awareness about non-energy benefits of energy efficiency by **participating in a workshop of an EU project**

As part of the Horizon2020 Multiple Benefits project, several workshops were held to educate stakeholders about the variety of competitive advantages that energy efficiency measures can bring to companies. One of the workshops was held by the Polish National Energy Conservation Agency (KAPE) in July 2019.



Webinar on non-energy benefits by KAPE



Country practices



11.2.2 Enforce the integration of NEBs

The consideration of non-energy benefits can be anchored as a mandatory element within the energy audits process or energy management system.

Instead of encouraging companies and auditors to consider NEBs on a voluntary basis, their integration can also be enforced. For example, NEBs can be included as a mandatory element in energy audits or EMS, or be an obligatory element in the auditor trainings. Furthermore, funding schemes can list the usage of NEBs as a requirement for financially supporting energy audits.

Inside the auditing process, NEBs could for example be included into the financial analysis. The box on the right shows a corresponding example from such a quantification where the payback time would be turned from a financially unattractive situation when only looking at energy cost savings to a much more viable solution when looking at the broader NEB perspective.

Difficulties can arise in the quantification process of NEBs, due to the high level of individuality and non-uniform functional units. Relevance of NEBs can change drastically from one company to the next, and therefore the process of identification must be highly tailored toward the specific company situation.

- NEBs have been considered for integration as a fixed component in the national regulation and standards
 - NEBs as a mandatory component within energy audits and EMS
- Requirements were considered for inclusion into information materials, guidelines etc.
- Including a requirement on NEB into the auditor trainings and/or tests has been considered
- The usage of NEB and its impact on the implementation rate has been considered for monitoring
- Including NEBs as a mandatory element in funding schemes for conducting energy audits has been considered

Checklist

Energy benefits only:

- CAPEX: 30 000 CHF
- Investment income before taxes: **2 415 CHF**
- NPV: **-11 483 CHF**
- IRR: **-7.5%**
- Simple payback: 13 years

All benefits included:

- CAPEX: 30 000 CHF
- Investment income before taxes: **3 998 CHF**
- NPV: 5 895 CHF
- IRR: 11.5%
- Simple payback: 4.7 years

Discount rate: 6%

Investment duration: 8 years
(i.e. the number of years taken into account to compute NPV and IRR)

Case example: high-precision mechanical work company

Financial analysis

Source: Multiple benefits of energy efficiency (2017)
<https://www.mbenefits.eu/>

DEESME

National schemes for energy efficiency in SMEs

Appendix Table of country practices



Table of country practices

Country	Practice	Link
Austria	Allowing auditors to perform the data submission in the name of the companies	Austrian Energy Efficiency Act (Article 17 (4))
Austria	Implementing FAQ section	Website of national monitoring agency
Austria	Offering a benchmarking tool to compare against other companies in the same industry sector	Benchmarking tool klimaaktiv
Austria	Outsourcing monitoring	Austrian Energy Efficiency Act (Article 25)
Austria	Providing funding for a variety of measures	Klimaaktiv Annual Report 2020
Austria	Publishing best practice examples online	Klimaaktiv website
Austria	Qualifying auditors separately in different thematic audit areas	Website of national monitoring agency
Austria	Stating specific requirements on audit conduction and reporting within national legislation	Austrian Energy Efficiency Act (Annex 3)
Austria	Using existing business platform for automated audit submission	Business service portal (USP)
Belgium	Offering free energy consultations to SMEs	Website of environment.brussels
Belgium	Publishing information documents and tools	Website energiesparen.be
Bulgaria	Offering individual consultancy services via the Energy Efficiency and Renewable Sources Fund (EERSF)	Website of EERSF
Bulgaria	Relying on self-declarations of companies	Bulgarian Energy Efficiency Act (Art. 57 (5))
Bulgaria	Tracking the national energy efficiency progress by utilising aggregated information from audit reporting	NEEAP annual progress reports Bulgaria
Bulgaria	Using energy thresholds to include additional companies	Bulgarian Energy Efficiency Act (Art. 57)

Table of country practices

Country	Practice	Link
Croatia	Limiting auditor accreditation in time for a period of 7 years	Rulebook on energy inspection for non-SMEs (Article 7)
Croatia	Supporting the creation of energy efficiency networks	4th National Energy Efficiency plan
Denmark	Allowing simplified energy audits for companies consuming less than 1 000 MWh per year	Executive order on mandatory energy audits in non-SMEs (Art. 5)
Denmark	Allowing accredited auditors of neighbouring countries to conduct audits	Website of Danish Energy Agency
Denmark	Providing guiding documents on the reporting process of energy audits	Guideline PDF from Danish Energy Agency
Estonia	Arranging awareness campaigns to educate companies about energy efficiency benefits	Decree of the Minister of the Environment No 672
Estonia	Asking for implemented measures in the last 4 years during the audit submission process	Electronic energy audit reporting guide
France	Implementing an FAQ section on energy audits	Website of the French Ministry of the Ecological Transition
France	Offering financial support for the implementation of EMS	PRO-SMEEn Programme
France	Publishing company testimonials on EMS	ADEME Testimonial Brochure
France	Utilising existing company register to identify obliged companies	Study on Energy Efficiency in Enterprises

Table of country practices

Country	Practice	Link
Germany	Allowing simplified energy audits for companies consuming less than 500 MWh per year	Leaflet of the BAFA
Germany	Automating the audit submission process	Digital energy audit declaration
Germany	Implementing an elaborate FAQ section	Website of BAFA
Germany	Implementing an interactive funding finder	Förderwegweiser Energieeffizienz
Germany	Offering a market review tool on available EMS products	EMS market review tool
Germany	Providing a regional information platform on energy efficiency	Energy Atlas Bavaria
Germany	Requiring auditors to perform regular trainings	Draft Act amending the EDL-G (Article 8)
Germany	Supporting the creation of energy efficiency networks	Energy Efficiency Networks Initiative
Greece	Informing about non-energy benefits of energy efficiency	Webinar on non-energy benefits at NTUA
Ireland	Implementing an e-learning platform	SEAI Energy Academy
Ireland	Implementing an energy efficiency obligation scheme	EEOS Ireland
Ireland	Providing a detailed guideline on how to conduct audits	SEAI Energy Audit Handbook
Ireland	Providing technology specific funding	SEAI Support Scheme for Renewable Heat
Ireland	Requiring companies to provide certain key information during the submission	Audit compliance notification system



Table of country practices

Country	Practice	Link
Italy	Allowing simplified energy audits for companies consuming less than 50 toe (582 MWh) per year	Legislative Decree 102/2014 (Art. 8 (3))
Italy	Decreasing coverage level progressively based on energy consumption	Guidelines for Energy Audits in SMEs
Italy	Utilising funding scheme data to identify obliged companies	Website of ENEA
Luxembourg	Allowing simplified energy audits for companies consuming less 100 MWh per year	Amending law of 5 July 2016
Malta	Bundling all relevant information on funding schemes in one place	Website of Energy and Water Agency
Malta	Financially supporting the conduction of energy audits in SMEs	Website of Energy and Water Agency
Malta	Outsourcing monitoring via an Independent Quality Control System (IQCS)	Malta NEEAP 2017 (3.1.2.4)
Netherlands	Providing a template for energy audits reports	Energy audit report template
Netherlands	Using energy thresholds to mandate companies to implement measures with a payback period of 5 years or less	Government information for entrepreneurs
Netherlands	Utilising data from the trade register to identify obliged companies	Website of Dutch Chamber of Commerce

Table of country practices

Country	Practice	Link
Poland	Capping the sanctions for non-compliance to 5% of company revenue from last fiscal period	Act of 20 May 2016 on energy efficiency
Poland	Informing about non-energy benefits of energy efficiency	Webinar on on-energy benefits
Portugal	Monitoring all companies with energy consumption higher than 500 toe	Decree-Law No. 71/2008
Slovenia	Offering free individual consultancy services for industrial energy investments	Website of Ekoslad
Spain	Only asking for full audit reports in case of detailed quality checks	Royal Decree 56/2016 (Compliance document in Annex I)
Sweden	Offering free educational courses on energy efficiency	Swedish online learning platform
Sweden	Requiring auditors to pass a test with both written and practical part	Regulations on Energy Audits in non-SMEs

For further examples on country practices, the following 2016 EU study and its appendix can be recommended:

[A Study on Energy Efficiency in Enterprises: Energy Audits and Energy Management Systems](#)

